

SIDE SHOTS

Volume 37 Number 1

February Journal 2006



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January 16, 2006

2005 was an active year for the PLSC! Here are some highlights of what was accomplished, and a preview of things we are working on for 2006. This is by no means a complete catalog of activities, so if you were involved in something that isn't mentioned, please accept my apologies, but my space here is limited.

2005 Activities

In February, Doyle Abrahamson succeeded in his quest to change the language on Monument Record forms to include additional date information. Now the monument record form includes a space for entering the date a monument was found in the field when it does not have to be restored or rehabilitated (part of Item #2 on the form). And Item #4(b) on the form reads, "Date monument was used as a control corner", wording that now agrees with what our State Statutes require when filing monument records.

Also in February, a catalog of items in the Bill McComber PLSC Library was published, and the library continues to receive donations of books and other reference material. The library is located at 2851 South Parker Road, Ste 750, in Aurora, and items in the library can be checked out at the front desk. A map of the library location will be posted on the PLSC website. Contact Lisa Isom at 303-454-9562 to donate material to the library.

In March, the Bill McComber Memorial Mentoring Sessions began and have been an outstanding success, with many mentorees enjoying benefits such as membership to the PLSC and workshop admission. The Mentoring Program is a great way to professional development and to get the next generation of surveyors involved in the PLSC. One of my goals as President is to stimulate membership and promote relationships with other professional sectors that will contribute to the ongoing relevancy of the PLSC.

In April, Art Hipp was awarded the NSPS/ACSM Excellence in Professional Journalism Award. Thank you Art, for your ongoing contributions to the PLSC.

In June/July, the Board of Directors explored the possibility of a Joint Conference with GIS in the Rockies, intended to be an opportunity for cooperation between the GIS and Land Surveying professions and allowing a greater range of seminar choices. Unfortunately, it became apparent that there was not time to adequately plan a joint conference including WFPS, PLSC, GIS in the Rockies, ASPRS, URISA, and GITA for the fall of 2006. It has been proposed that the fall of 2008 or 2011 would allow for complete planning, if WFPS is amenable and has the dates available.



Continued page 11

DEDICATED TO THE IMPROVEMENT OF LAND SURVEYING EDUCATION AND PRACTICE.

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OF COLORADO, INC.

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SIDE SHOTS

F E B R U A R Y J O U R N A L 2 0 0 6

Volume 37

Number 1

Letter From The President	2
The Editor Sez	4
Chapter News	6
PLSC Insurance Program	10
The McComber Mentoring Program	20
On Writing Legal Descriptions	26
Chapter 7: The Mentor	27
Colorado Association of County Surveyors	28
Crossword Puzzle	30
The Legal Process of Boundary Location	31
Meeting Report: Western Federation of Professional Surveyors	33
Activity Report for the WFPS Board Meeting	35
2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys	37
2005 Sustaining Members	43

*Side Shots is the official publication of the Professional Land Surveyors of Colorado, Inc.
and is published quarterly for the betterment of the surveying profession.*

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Tom T. Adams
Vice President

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Deadlines for editorials, articles, pictures and advertising are January 1, April 1,
July 1 and October 1. All material received after the current deadline will appear
in the next issue of Side Shots.*

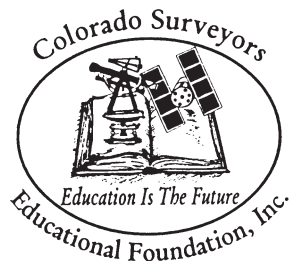
*We would like to invite anyone who is interested to advertise in our newsletter - Side Shots.
Do you have something you want to sell, trade or buy? Why not use Side Shots for your
next ad. We can also reproduce business cards for advertising. All material must be
sent to Arthur W. Hipp, 9660 W. 56th Place, Arvada, CO 80002, before the editorial deadline
(January 1, April 1, July 1 and October 1).*

Current Advertising Rates:

*Business card size or less - Member \$15.00; Non-member \$20.00
One-Half Page - Member \$75.00; Non-member \$100.00
Full Page - Member \$150.00; Non-member \$200.00*

Invest In Your Future

By investing in our partnership



The Professional Land Surveyors of Colorado, Inc. (PLSC) recently entered into a Partnership Agreement with Metropolitan State College of Denver.

The agreement will benefit everyone in the real estate and surveying communities who depend on quality surveying work to help their businesses thrive.

As part of the agreement, funding will be provided to Metro on behalf of the school's Surveying and Mapping Program. The funding will help the program to achieve the highest academic standards and ensure quality surveying work in Colorado for years to come.

Please send your donation* to:

Colorado Surveyors
Educational Foundation, Inc.
P.O. Box 2276
Arvada, CO 80001

Or call: Tom Cave at Accurate
Consultants, Inc., (303) 469-2202.

Education is the Future!



THE EDITOR SEZ

Dear Members:

We recently got a big surprise in our mail which I will share with you. One of our former members who has passed away bequeathed his remaining assets to our Educational Fund to be used for future scholarships. I have reproduced the letter that I received from the trustee of that fund so you can see and appreciate it too. The check — amounting to \$72,424.21 has been deposited to the Surveyors Educational Foundation. Needless to say, our appreciation is great. The generosity of John Moos will have positive effects on our future generation of surveyors for years to come!



Art Hipp

December 31, 2005

Professional Land Surveyors of Colorado, Inc.
9660 West 56th Place
Arvada, CO 80002
c/o Arthur W. Hipp
Executive Director

Dear Mr. Hipp,

I am the alternate trustee of the John G. Moos Trust. This trust stipulates that after benefits accrued to Madelaine Moos are paid to her estate and expenses incurred for administrative expenses are withheld, the remaining assets are to be transferred to the Scholarship Fund of the Professional Land Surveyors of Colorado — a check for \$72,424.21 is enclosed for this scholarship fund. To my knowledge this action closes the John G. Moos Trust. If you have questions or concerns regarding this activity, I can be contacted at the following address:

Kenneth P. Fuchs
3725 Fairhaven Drive
West Linn, OR 97068
(503) 723-0781

Sincerely yours,
Kenneth P. Fuchs

CC: Christopher R. Moos

FINALLY, AN IMPORTANT REMINDER

Many of you have recently paid their dues for 2006. For those who haven't PLEASE do so promptly. Our BY-LAWS provide that memberships expire on April 1st of the year following the membership year. This means that those paid up only for 2005 will no longer be members after April 1, 2006. So, if you wish to appear in the new 2006 Roster and continue to receive *Side Shots*, PLEASE send me your payment as soon as possible. Thank You!

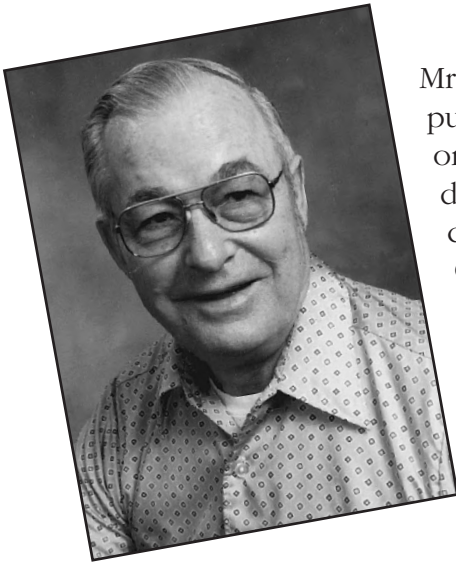
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Published by the Colorado Professional Land Surveyors Educational Foundation, Inc., a non-profit foundation, Initial Points of the Rectangular Survey System is undertaken in the spirit of, and dedication to, Mr. White's remarkable contributions to his field. Net proceeds from its sale will be returned to the educational foundation.

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CCPS

Central Chapter general meetings for 2006 will be held in January, March, May, August and October. For so many years, the general meetings have been held at the northeast corner of 6th and Simms in Lakewood. The Mile High Inn and Suites (formerly the Travelodge) is being torn down to make way for the new Lakewood Fordland. As a result, the October meeting was held at the Table Mountain Inn in Golden. The January meeting will also be held there. If you like this facility and location, let someone on the board of directors know. Or if you have another location for a meeting, then let us know.

Votes for next year's directors and officers have been counted as follows: directors for a two-year term are Karen Allen, Bill Buntrock, James Rihanek, and Mark Hall; Secretary for a two-year term is John Lautenschlager; Vice President for a one-year term is Gene Kooper; and President for a one-year term is Gary Leak. Directors who will remain in office for the next year are Gary Gable, Randy Bloom, and Dick Barton and the treasurer for one more year is Diana Askew. All of the new directors will be installed at the annual

meeting on Friday, February 24, during the lunch meeting, which will be held at the Tivoli Center on the Auraria Campus, Denver.

The CCPS 2006 Annual Meeting and Conference will include the following speakers and topics:

Gaby Neunzert on Traversing; Randy Zanon and Diana Askew on Subdivision of Section 6; Larry Edwards on Introduction to Photogrammetry; Dennis Mouland and Bob Dahl, on the BLM Manual; and the Next Edition; Doyle Abrahamson on Colorado Surveying Laws; and Warren Andrews on Survey History. We also have Dr. Kurt Wurm, from New Mexico State University, with A New Twist to Corner Recovery. We appreciate the fine facilities that are made available through the Metro State College and also through our association with Dr. Herb Stoughton who is the head of the Metro State Surveying and Mapping program. We look forward to seeing everyone at the conference.

A refresher course is underway due to the efforts of many and in particular, Randy Bloom, who has organized the sessions that will be held each Wednesday, starting on January 11 and continuing until March 18. There is still time to get signed up for the remaining sessions. Future information can be

seen at the central chapter website and look for the refresher course.

There will be a McComber Mentoring program for 2006, with details and a schedule to be published. Look for this in future newsletters and/or postings to the central chapter website at www.colorado-surveyors.org

Submitted by
Douglas Berling, PLS
Central Chapter President

NC/PLSC

The Northern Chapter of Professional Land Surveyors of Colorado meets on the first Wednesday of each month at various meeting places. If there are any prospective members interested in attending a NCPLSC meeting, please contact me at 970-686-5011 and I will get the pertinent information forwarded to our Secretary/Treasurer.

Our December meeting was a dinner meeting and was held at Abbondanza Pizza in Longmont. We had a moderate turnout of members, but conversation was good and various chapter issues were discussed during the course of the evening. No formal meeting took place on this date.

Our January meeting was held

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CHAPTER NEWS *continued*

one week later than normal, on the second Wednesday of the month, but it appears like that may have been a better meeting time than normal. There were more members in attendance than has been the norm the last couple of years.

Once again, one of the main points of discussion was on trying to promote more attendance at the NCPLSC meetings. It was decided that at our February meeting, we will equitably divide up the responsibility of preparing a half-hour technical session. It is the Northern Chapter's hope that by being more diligent about doing a demonstration or session at each meeting, some of the younger, less experienced members of the survey community will be encouraged to attend regularly. We will also be changing our meeting times to 6:00 or 6:30 p.m. and providing a light meal at each meeting for an undetermined time. It has been suggested by several members that this action may also help draw more interest to the NCPLSC. Member and President Elect, Steve Varriano will give a short presentation on the mentoring program. Steve has had some limited contact with other PLSC members who are working with the program and has stated he believes it would be a good event for Northern Colorado. The Northern Chapter was interested in hearing more detail, so our technical session will be concerning the mentoring program and what we would need to do to become involved.

The TRIGSTAR competition will be pitched to area schools again this winter. Several of the Northern Chapter members who have worked at promoting this event in the past have been very pleased with the response they receive from the participants and their teachers.

Nominations have been made for next year's vacant director, secretary/treasurer, and president-elect positions. Ballots will be mailed out in February to all Northern Chapter members.

Steve Lund
President, NC-PLSC

SCPLS

The Southern Chapter does not

have a great deal to report this quarter. We are late with our 2006 elections, but the ballot is being worked on at this writing and should probably be out by the printing of this *Side Shots*. Our Christmas Dinner went well, and we hope to work with the PLSC in resolving the date conflict with the Fall Technical Sessions. As is traditional, plans are going to gear up for the August Paul Grout Memorial Golf Tournament, which has been a great tradition, great turnouts and the proceeds go to the Paul Grout Scholarship fund. Assuming a new chapter president will take over in 2006 I hope to still support and host the Southern Chapter Mentoring program. Of course we need mentors to help us teach it. Please consider volunteering. Gaby will share his material as needed as well. Also, plans will be soon underway for the September workshop.

President's Day is coming up soon, and with that should be National Surveyor's week, I hope. We all deserve a weeklong holiday I would think.

Respectfully submitted,
Tom Adams, President, SCPLS

WCLS

We held our first meeting of the year on January 11 with a pretty good turn out. Frank Kochevar gave us an update on the new CORS in Mesa County. He was then presented with the Citizen Survey Award, followed by a brief acceptance speech. It was a good way to kick off the new year.

Our committees have been busy as well. The education committee is still continuing with the mentoring program and is scheduled for another semester of classes. The classes are held Wednesdays 6:00 p.m. to 8:00 p.m. at the Delta-Montrose Technical College. For more information please contact the Delta-Montrose Technical College at 970-874-8796. The seminar committee has scheduled our spring seminar for May 5, with Gary Kent being the speaker. He will be talking on ATLA Surveys and the 2005 minimum standard

requirements. The new ALTA Standards can be found at theamericansurveyor.com/docs/ALTA2005_Standards.doc. There is also going to be a separate Technical session on the same date for the staff members wanting to improve their fundamental survey skills.

Our next meeting will be held on Wednesday, March 8.

The Western Colorado Land Surveyors' meetings are having good participating and discussion. Hopefully we will see you at the next meeting.

Sincerely,
Les Doehling
President, WCLS

SWC/PLSC

The Southwest Chapter held its annual fall dinner party and chapter meeting at Christina's Bar and Grill on November 8, 2005. There was a good turnout of chapter members and surveyors from around the community. The after dinner meeting centered on the upcoming 2006 chapter meetings with ideas and suggestions for speakers and events discussed. The 2006 Four Corners Area Survey Workshop was also discussed and Dave Freienmuth, seminar coordinator, presented a list of potential speakers. We are always open to suggestions and recommendations for speakers from other seminar coordinators and attendees. Please feel free to contact Dave or myself if you have seen a particularly good speaker that you feel other seminar attendees would enjoy.

A posthumous recognition award for Distinguished Service was presented to Rick Sinkiewicz, LS 25963, at the PLSC Annual Awards Banquet Thursday, December, 1, 2005, for his outstanding contributions to the southwest area survey community. Rick was a former chapter president of the PLSC-SW Chapter and member whose work was greatly respected in the community and across the region. Rick passed away in 2005 of natural causes.

The Southwest Chapter will be organizing our annual June work-

shop over the next few months and will be sending out the conference schedule early in the spring. We'll keep you posted!

Parker S. Newby, PLS
President, SWC/PLSC

NW 1/4 CLS

Friday, November 11, 2005
Craig Holiday Inn
Craig, Colorado

1) Call to Order – 7:10 p.m.

2) Recognition of Members

Present:

In attendance: Gordon Dowling, Tom Effinger, Peter Epp, Brian Kelly, Walter McGill, Skidge Moon, John Noonan, Lloyd Powers, Joe Shoemaker

3) Welcome of Guests: Willie Whelan, Landmark Consultants; John Zulevich, Land Title Guarantee Company

4) Reports:

Secretary – minutes of last meeting reviewed and approved.

Treasurer: Account balance reported. Reviewed and approved. Treasurer sought help from original members to clarify status of Chapter with bank. Is NW 1/4 CLS covered by tax ID for state organization, or

does it have separate #? Treasurer also sought guidance on properly naming bank account, which currently is listed as "Professional Land Surveyors Colorado Inc-Northwest One Quarter Land Surveyors." It was agreed to check with the PLSC Secretary, and/or the office of the State Secretary of State to resolve the matter.

5) Old Business:

Membership discussed candidate selection for the 2006 Trig-Star program. Previous actions were reviewed, and further action involving the program was tabled until the next meeting.

The certification plaque/certificate was discussed. It was agreed that an engraved, rather than printed, medium would cost more, but would give a more professional appearance. Investigation of possibilities was approved and tabled until the next meeting.

A discussion renewed about the successful implementation of a fixed GPS base station in Craig. Peter Epp reviewed the physical setup, and the software and radio configuration that makes the broadcast usable by everyone. This led into a discussion of how a similar arrangement could be implemented in Steamboat Springs. Tom Effinger

was nominated, and seconded, to head a committee to explore procedure and cost of implementation. Walter McGill volunteered to join the effort with Tom.

6) New Business:

A spirited discussion of the continuing problems in Steamboat Lake and Stagecoach ensued. Various situations were presented, all of which involved new boundary monuments being set in juxtaposition to, and in conflict with, existing monumentation. All agreed it is a situation that is worsening, and that needs to be addressed, and somehow resolved. President Skidge Moon volunteered to research the situation, and make an effort to advise all affected parties of his efforts. Discussion of getting an opinion from the Board of Licensure was tabled until a report is issued.

John Zulevich was welcomed again, and entertained questions on title insurance surveys in general, and ILC surveys in particular. John was very accommodating, and was thanked for his appearance.

7) Conclusion

It was agreed that the Chapter should hold one more meeting in 2005. A motion for a meeting in Steamboat Springs was passed. The next meeting was scheduled for Thursday, December 8, 2005.



*FINDING POLARIS AT THE
NORTH POLE*

PROFESSIONAL LAND SURVEYORS OF COLORADO INSURANCE PROGRAM

Administered by: **Lisa Isom**

Thanks again for making the School of Mines Technical Session a Success! As always, it is nice to visit with clients and a pleasure to see new faces.

As a busy spring and summer is just around the corner – let's take a moment to consider your insurance needs.

As a member of PLSC you and your company are offered an *Exclusive Insurance Program*. In the insurance marketplace, this is a huge advantage to you as a business owner.

This program offers you many, many benefits as a member – it will simplify your Business Insurance, as you know it...with just ONE STOP Shopping...

We are constantly wanting to help with your insurance needs, as well as, reducing your insurance costs.

Adding Term Life to our members at very competitive rates has proven to be a great benefit.

We are committed to providing you and the PLSC with high quality insurance solutions:

- The Business Package designed for the Surveyor; starts with \$500 annually for \$2,000,000 in general liability including personal property, surveying equipment, valuable papers, computer equipment and MORE!

A Surveyor's business evolves around his equipment. Don't hesitate in purchasing the business insurance you need to secure your business equipment.

Vehicle Safety

Many of us spend a considerable amount of time on the road, and most of us would probably admit to being involved in one or more accidents during our driving career. The common sense keys to staying alive on the road include:

- Practicing defensive driving
- Wearing seat belts
- Obeying the rules of the road
- Using turn signals and flashers
- Using a strobe light on your survey vehicle
- Ensuring that equipment is secure and separated from passengers.

Just a few safety hints to help with your preparation for spring and summer. Have a safe and prosperous year.

Call me (Lisa) and discuss your own situation to confirm you are insured properly and the most competitive way.

Assurance Risk Managers
2851 S. Parker Road
Suite 760
Aurora, Colorado 80014

Phone: 303-454-9562
Fax : 303-454-9564



PRESIDENT continued

In September, we had an excellent GIS in the Rockies Conference, with many PLSC volunteers participating in organizing and staffing the conference. I heard many positive reports from attendees on the seminars offered. The PLSC looks forward to continuing our relationship with GIS in the Rockies, whether we manage to set up a Joint Conference in the future or not.

Also in September, Lisa Isom accepted the post of Electronic Secretary for the PLSC. She graciously agreed to assist with many items including electronic payment processing, membership information and more. Thank you Lisa.

The PLSC Fall Technical Sessions and Annual Membership meeting in December were also very successful. The seminars were very well attended, and we attracted attendees from several neighboring states. Thanks in a large part to Tom Adams, we held an Annual Membership Meeting open to all PLSC members. The meeting included a discussion on issues important to surveyors, experts participating/leading the discussion included Herbert Stoughton, Dexter Brinker, David DiFulvio, Teresa Smithson, Warren Ward, and Gene Kooper.

In conjunction with the Fall Technical Sessions, an Awards dinner was held where numerous awards were presented, including one to Gaby Neunzert for Surveyor of the Year.

PLSC Legislative Committee Activities completed in 2005:

To quote Dexter Brinker (one of the founding members of the PLSC, and a major contributor to most of Colorado's laws regarding surveying): "No law is drafted perfectly the first time. You do the best you can with the available input at the time, then change it as more experience is gained." Ron Perkins and the Legislative Committee have been working hard all year on changing several items:

- **SB 188** – A bill to set up a commission to study and make

recommendations concerning the salaries of county elected officials – the Legislative Committee and Peg Ackerman, our lobbyist got county surveyors included as elected officials

- **SB 188** passed.

- **SB 142** – A bill concerning limitations on responsibility for negligence clauses in construction contracts. The bill is strongly supported by the ACEC, but is not faring well in the legislature. The Board recommended a letter of support.

- **SB 142** passed both the House and Senate but was vetoed by the Governor.

- **HB 1195** – A bill that would cause automatic conveyance of vacated streets, etc. with adjoining lands. The Board recommended a letter of support.

- **HB 1195** is law

Activities planned in 2006

Effective January 1, 2006, the "2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys" went into effect. The complete text of the new standards is included later in this publication.

The Mentoring Sessions will continue, a schedule of future meeting times and topics will be available through Gaby Neunzert or Gene Kooper.

The PLSC will be preparing a letter regarding CRS 38-44-112 "Line of Agreement Surveys" to be sent to County Attorneys and other parties. This could be a potentially large issue and I will keep you posted on developments.

As posted on their website, the Central Colorado Professional Surveyors and the Metropolitan State College of Denver Surveying and Mapping Program in cooperation with the Colorado School of Mines, and in support of the Colorado Surveyors Educational Foundation, Inc., began offering a comprehensive Land Surveying Refresher Course in January 2006. Following is a summary of the course, and a listing of classes. As of this printing several of the classes have already taken

place, but there are several classes remaining. These courses may be registered for individually if you were not able to sign up for the entire program.

- **Colorado Refresher Course: Fundamentals of Surveying/Principals of Practice - Colorado Specific.** This course offers a review and self-study plan for those taking the NCEES/Colorado exam(s). The course is specifically designed to aid candidates in *developing and expanding exam-taking proficiencies*. The main thrust of the course is in establishing a realistic study schedule. It is emphasized that time spent in the course will be concentrated on sharpening existing skills, identifying areas of weakness and instilling self confidence. Practical methods to solving problems will be stressed.

- **Refresher Course Schedule:**
 - Wed Jan 11: Overview
NCEES/COLO - Alan Blair/Herb Stoughton
 - Wed Jan 18: Land Surveying Calculations I - Gaby Neunzert
 - Wed Jan 25: Land Surveying Calculations II - Gaby Neunzert
 - Wed Feb 1: Legal Terminology and Definitions - Diana Askew
 - Wed Feb 8: U.S. Public Land Surveys I - Randy Zanon
 - Wed Feb 15: U.S. Public Land Surveys II - Randy Bloom
 - Wed Feb 22: Colorado Statute Law I - Doyle Abrahamson
 - Wed Mar 1: Colorado Statute Law II - Roger Nelson
 - Wed Mar 8: Exam Problems, Question/Answer - All Instructors
 - Sat Mar 18: Mock Examinations - All Instructors

The Board of Directors is actively soliciting contributors to write articles for publication in *Side Shots*. Articles have become sparse lately, and we'd like to include something other than dry, dusty reports from various meetings. Survey related anecdotal accounts, articles about

Continued page 13

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PRESIDENT continued

your area of specialty, chapters from that book you've been meaning to write, etc. All are welcome. Once they are reviewed, submitted items will be published in *Side Shots* as space allows.

The PLSC will be seeking a volunteer to chair the Membership Committee at the next Board of Directors Meeting. One item that the Membership Committee will discuss is a proposal to provide free 1-year memberships to the PLSC for persons obtaining their license (full membership) or passing the LSI exam (associate membership).

A proposal has been put forward to compile an overall "PLSC Activities" calendar showing all scheduled events and meetings for all Chapters in the state. The calendar would be published in *Side Shots*, the PLSC publication, and posted on PLSC.net. The calendar could include events in neighboring states as well.

The PLSC is seeking volunteers to catalog and deliver the library of the former Brinker School of Surveying and Mapping to the current PLSC library. Dexter Brinker presented the PLSC with the very valuable gift of his entire library, which are currently housed in Dr. Herbert Stoughton offices. However, due to the quantity of material, Dr. Stoughton alone does not have the time to catalog each item and arrange transport to the PLSC Library. If you are interested, please contact Dr. Stoughton.

Legislative Committee items in progress for 2006:

The PLSC Legislative Committee met on 11/30/05 to discuss the following:

- ° Proposed changes to CRS 38-51-106 Land Survey Plats:
 - (f) A description of all monuments, both found and set, that mark the boundaries of the property and of all control monuments used in conducting the survey. If any such boundary monument or

control monument is a public land survey monument or aliquot corner, the professional land surveyor shall describe the physical evidence used to establish or restore the monument OR THE PROCEDURE AND EVIDENCE USED TO ESTABLISH THE MONUMENT.

- ° Proposed changes to 13-80-105 Limitation of Actions against Land Surveyors:

3 (b) If any survey is performed which does not require documentation, the limitations set forth in subsections (1) and (2) of this section shall nevertheless apply if, not less MORE than ninety days after the completion of the survey, written notice of the provisions of this article is provided to all persons holding an interest in the property upon which such survey is conducted.

It was decided to make immedi-

Continued page 14

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- SUR 3150-2 Astronomy for Surveyors*
- SUR 3220-2 Real Property Descriptions*
- SUR 3300-3 Photogrammetry*
- SUR 3540-3 Boundary Law I*
- SUR 3700-3 Geodesy I*
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PRESIDENT continued

ate contact with potential sponsors because it is the time that many legislators are committing to other bills, and go ahead and title the bill so that it would cover any later amendments we may come up with. Peg began contacting legislators on December 1st, 2005.

If you have suggestions for legislative items or are interested in participating in the process, please contact Ron Perkins and/or attend the Legislative Committee Meetings. The most effective way to make legislative changes is for the PLSC to "speak with one voice". The PLSC as an organization can be far more effective than an individual waging his or her own campaign. With their resources, the Legislative Committee is the best conduit for legislative proposals.

As this was being sent to publication, I received an email message from Charlie Tucker through Angie Kinnaird Linn to notify me of the passing of one of our own. Phil Petersen passed away January 9th, 2006, and was laid to rest Saturday in La Junta. The profession has lost a prime example of what a surveyor should always strive to be. Southeastern Colorado lost a historian, mentor, friend, community asset and true professional. He will be sorely missed by those lucky enough to have known and worked with him.

So, that is a little bit of what the PLSC was up to in 2005, and some of what we are planning on working on in 2006. If you would like to know more about the PLSC activities, please feel free to attend your local chapter meetings, and/or come to the Board of Directors Meetings that happen around the state. The next Board of Directors meeting is scheduled for February 25th, in conjunction with the Central Chapter Workshops. I hope to see you all there.

Sincerely,
John B. Guyton, PLS

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Class of Membership Desired: Voting _____ Associate _____ Retired _____

* Student _____ Sustaining _____

* Specify School _____

(See reverse side of this form for definition of membership categories)

Colorado Registration Number _____

☐ PLS

☐ PE-PLS

☐ PE

☐ LSIT

List the committees on which you would be willing to serve:

(See reverse side of this form for a list of standing committees)

I hereby make application for membership in the Professional Land Surveyors of Colorado, Inc. and agree to abide by the Constitution and By-Laws of the organization:

Date _____ Signature _____

Amount submitted with this application (there is no initiation fee): \$

☐ Check

☐ Credit Card

If paying by credit card:

Credit Card Name _____

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Return this Application to:

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9660 West 56th Place
Arvada, CO 80002

Your choice of PLSC Chapter Affiliation:

(Chapter Membership is "at large" and is not required but encouraged)

Central (CCPS) ☐ \$20

Northern (NC/PLSC) ☐ \$20

Northwestern (NW1/4CLS) ☐ \$20

Southern (SCPLS) ☐ \$20

Southwestern (SWC/PLSC) ☐ \$20

Western (WCLS) ☐ \$20

Please check your Chapter choice(s) and
enclose the appropriate amount.

Are you a member of A.C.S. M.? ☐ Yes ☐ No

May we send you an A.C.S. M. membership application?

☐ Yes

☐ No

PROFESSIONAL LAND SURVEYORS OF COLORADO, INC.

Purpose

The purpose of this organization shall be to improve the profession of Land Surveying in Colorado. (Article II Constitution)

Membership

Voting Member — Any person who is a registered land surveyor in the State of Colorado, and whose registration is in full effect, shall upon payment of \$75 annual dues, be a voting member of P.L.S.C., Inc. and as such shall have full voting and office holding privileges. (Article 1A1 By-Laws)

Associate Member — Any person who is interested in land surveying shall, upon payment of \$55 annual dues, be an associate member of P.L.S.C., Inc., but shall have no voting or office holding privileges. (Article 1A2 By-Laws)

Student Member — Any undergraduate student who is interested in land surveying shall, upon payment of \$15 annual dues, be a student member of P.L.S.C., Inc., but shall have no voting or office holding privileges. (Article 1A3 By-Laws) Individuals holding a Colorado PLS or PE-PLS registration are not eligible for this class of membership.

Retired Professional Land Surveyor — A Colorado licensed Professional Land Surveyor who no longer practices land surveying (including field work, office work and consulting). He/she however may continue to maintain his/her license in effect and shall not be precluded from acting as an expert witness or court appointed commissioner. This is a non-voting classification. The annual dues shall be \$30.00.

Sustaining Member — Any person or firm engaged in a business related to land surveying or interested in the land surveying profession shall, upon contribution of \$200 annually, be a sustaining member of P.L.S.C., Inc., but shall have no voting or office holding privileges. (Article 1A4 By-Laws)

Dues—Dues shall be due and payable as of January 1st for the coming year and shall be delinquent if not paid by April 1st following. Membership rights cease when dues become delinquent. (Article 1B By-Laws)

Standing Committees

Following is a list of the standing committees of this organization: Indicate your interest by checking one or more.

- | | |
|--|---|
| <input type="checkbox"/> Legislation | <input type="checkbox"/> Nominations and Elections |
| <input type="checkbox"/> Liaison | <input type="checkbox"/> Program |
| <input type="checkbox"/> Membership | <input type="checkbox"/> Publications |
| <input type="checkbox"/> Ethics and Fair Practices | <input type="checkbox"/> Survey Monuments and Records Standards |

Meetings

Regular meetings or other sanctioned activities shall normally be on the 3rd Saturday of February, May, August, and November at a place designated by the Executive Board. The February meeting shall be the annual meeting of the organization. (Article VI A & B By-Laws)

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The McComber Mentoring Program

by Teresa Smithson, Tom Adams, and Gene Kooper

Mentoring is a common path that most surveyors have traveled in their quest for licensure. Mentoring is a long and storied tradition of passing the knowledge of land surveying from one generation to the next. Most of us owe a large debt to those that took the time to mentor us in the principles and practice of land surveying.

In the spirit of Bill McComber and his deep desire to help young surveyors, three mentoring programs were started in 2005. The McComber Mentoring Program was inspired by Bill's vision and dedication to young Colorado surveyors. Mr. Gaby Neunzert was the catalyst for getting these mentoring programs started. Without Gaby's efforts and contributions, the McComber Mentoring Program would still be only an idea. In addition to being the main speaker at the Colorado Springs and Denver programs, Gaby has provided the course materials for all three programs which were gleaned from his over thirty years of experience teaching surveying in Colorado.

Although this program cannot cover any one topic in depth, it has great value within our profession. It reinforces to the field technicians, the service they provide to the PLS and how their decisions influence the survey. The program also serves to remind the PLS of the basic procedures that we sometimes want to shortcut and the consequences of those shortcuts. It serves to bring us together to ask questions, share information, talk "war stories", and enjoy the camaraderie of other surveyors.

Western Chapter McComber Mentoring Program

The Western Chapter started their McComber Mentoring Program on September 14, 2005. Teresa Smithson volunteered to administer and teach the program which was held at the Delta-Montrose Technical College in Delta, Colorado. Tom Sylvester and Michael Murdoch also

assisted by teaching several of the courses. Sixteen students attended the initial 12 classes of a 25-class yearlong program. The students ranged in experience from three laypersons interested in learning about land surveying to enhance their skills in a parallel occupation, to a PLS who is also a County Surveyor, to a PE. The range and scope of the students' backgrounds made for interesting open discussions. The added benefit to having the courses open to and advertised to the public is that the public becomes better informed on the full scope of knowledge required by a land surveyor.

Through the efforts of the continuing education department, the program earns two semester hours of college credit through the drafting program's surveying fundamentals course. Classes are held every Wednesday evening for two hours. The first semester courses included basic survey trigonometry, map projections and databases taught by Tom Sylvester, GPS basics and planning, land division including the PLSS and metes & bounds, and legal descriptions taught by Michael Murdoch. Our last class on boundary law was an open class discussion reviewing interesting surveys and problems that the students and instructor have worked on or experienced.

Next semester's program will include topics on horizontal, vertical and spiral curves, traverse adjustments, legal concepts, astronomy, control networks, reading plans, and field procedures. The Spring semester already has six new students registered who did not attend the Fall classes. Out here on the west side of the mountains, we look forward to the next half of the Bill McComber Mentoring Program.

Southern Colorado Professional Land Surveyors McComber Mentoring Program

The Southern chapter started their McComber Mentoring Program on March 9, 2005 in Colorado Springs with Tom Adams volunteering to administer the program. Most

of the classes were taught by Gaby Neunzert with topics including basic surveying mathematics, map projections, and horizontal and vertical curves. In addition, Dave Pehr presented a talk on the Surveyor as a Professional and Charlie Tucker discussed spiral curves. Tom Adams decided to take on one of the courses himself and chose to teach a class on property descriptions, which he also presented to the Denver mentorees in August. Tom's narrative on Writing Descriptions (in this issue) somewhat illustrates how one can get more out of teaching a class than one would imagine.

Courses for the Southern Chapter picked back up after the summer in October. The courses for 2006 are being scheduled on a more informal basis and are planned out based on the projected attendance. Since Gaby drives nearly 90 miles each way to teach most of the classes; a minimum number students are required for each course. The courses are being announced on a course by course basis by email. If you would like to get on the distribution list for these courses please contact Tom Adams. Some of the proposed courses for 2006 include, "Introduction to property law and Colorado Law, Data Bases, Property Descriptions I and Descriptions II, Local Control, Multiple Monuments and Uncalled-for Monuments, Weighing Evidence and the Geometry of Title. If anyone wants to teach a particular course, Gaby is willing to share his material, and you may submit your own material.

Central Colorado Professional Surveyors McComber Mentoring Program

The CCPS started their McComber Mentoring Program on April 13, 2005 with Gene Kooper handling the administrative tasks. A total of sixteen sessions were presented through November 9, 2005 with Gaby Neunzert being the main speaker. A total of 59 mentorees attended at least one session with an average attendance of 12 mentorees

Continued page 24



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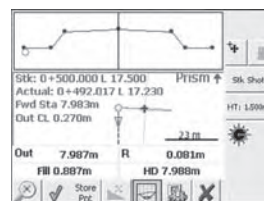
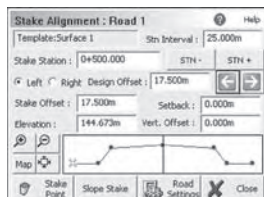
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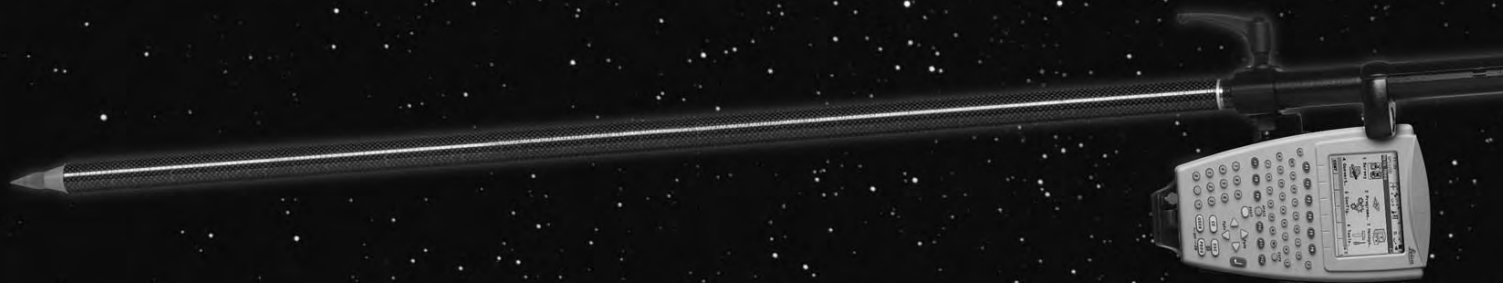
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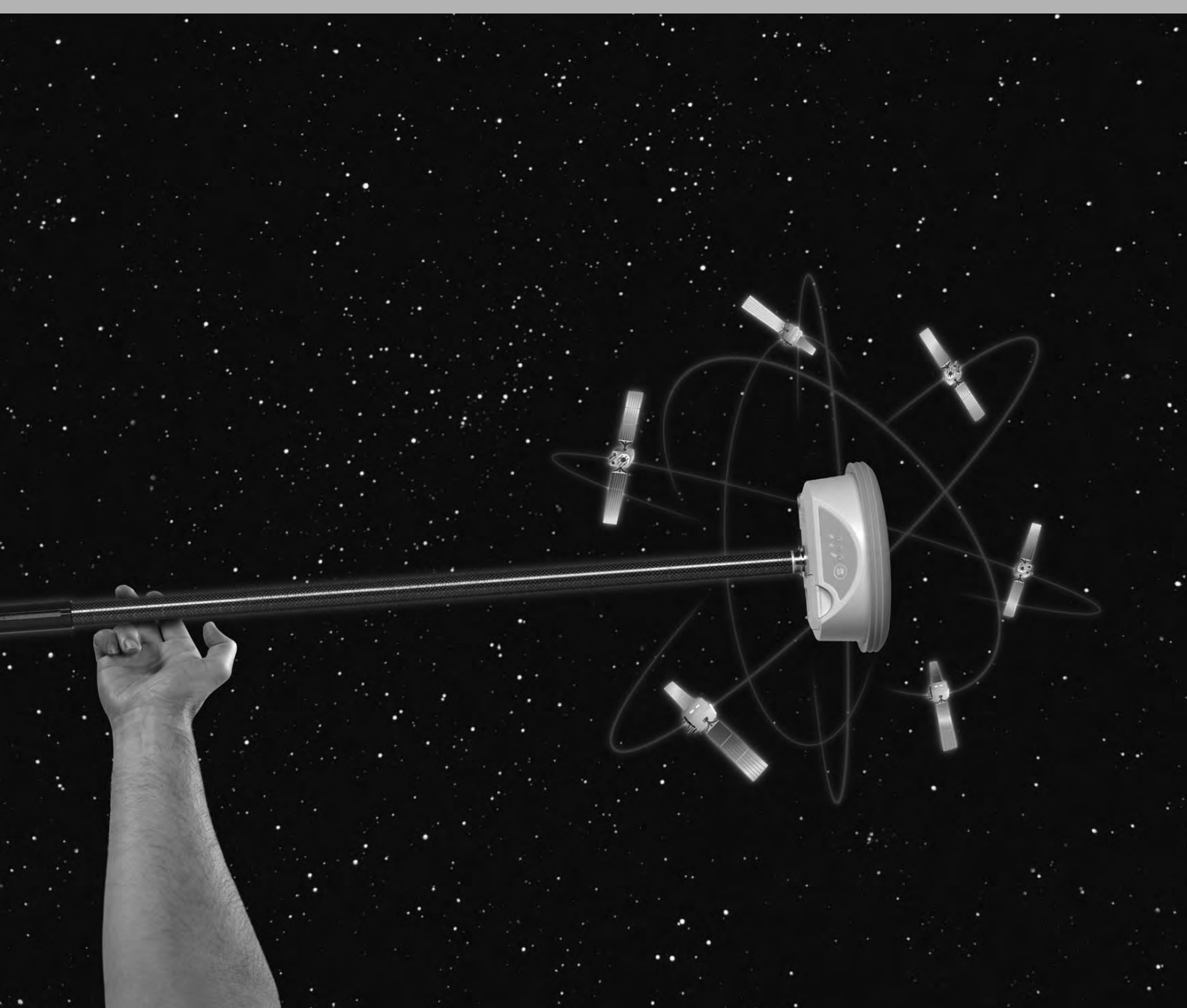
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MENTORING *continued*

and 4 mentors. Both the CCPS and the PLSC supported the mentoring program by providing free memberships to mentorees that attended at least four and six sessions respectively. The CCPS increased their membership by 17 and the PLSC added 14 Denver-area members to their ranks.

Gaby gave talks on basic surveying mathematics, map projections, state plane coordinates, PLSS surveys, and practical examples of horizontal and vertical curves. In addition to Gaby, the Denver program had several "guest" speakers. Michael McInnis presented a talk on GPS basics, Charlie Tucker and Gary Gable presented a talk on spiral curves, Gary also gave the talk on horizontal curves, Dave Pehr covered the basics of boundary law, Tom Adams presented a talk on property descriptions, and Gene Kooper spoke on mineral surveys and vertical curves. Thanks to all the speakers for the time and effort you took to make the Denver program a success.

In lieu of receiving an honorarium for their participation in the Colorado Springs and Denver programs, Dave Pehr, Gary Gable, and Charlie Tucker suggested that the monies go towards the acquisition of books for the McComber Library. Honoring their wishes, the following books were purchased for the library: *Fundamentals of Boundary Surveying—How Boundaries Are Established* by Paul L. Gay, *The Jefferson Stone* by Silvio Bedini, *The Life of Benjamin Banneker* by Silvio Bedini, *With Compass and Chain* by Silvio Bedini, and the AREMA guide *Practical Guide to Railway Engineering*.

In addition to the speakers, several people contributed to the success of the Denver program with their participation. The mentoring sessions were presented with a main

speaker leading the discussion and usually three to five mentors offering their experiences to add to the talk. Those mentors that participated were: Doug Berling, Don Hansen, Gary Gable, Doyle Abrahamson, Dick Barton, Geof Stephenson, John Krieschel, John Guyton, and Bill Buntrock. A special thanks to the folks at Jehn Engineering, esp. John Krieschel and Sam Tinkler for graciously providing their classroom for several of the sessions. Thanks also to V3 Companies and Bill Buntrock for hosting the session on horizontal and vertical curve examples. Their offering of alternate sites to the classroom at the PLSC office building, increased the attendance.

The Denver program is scheduled to start up again at the end of March 2006 after the CCPS/MSCD Refresher Course is finished. Topics for 2006 will include geodesy and survey astronomy, photogrammetry, additional aspects of boundary law, topographic surveys and contouring, and other topics of interest to the mentorees. Look for additional information in the March CCPS Newsletter.

In closing, consider the words of Sir Francis Bacon who eloquently summed up the obligation each of us has to give back to our profession.

"I hold every man a debtor to his profession; from the which, as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereto."

If you are interested in participating in any of the McComber Mentoring Programs please contact Teresa Smithson at tsurvey@hotmail.com, Tom Adams at tom.adams@dot.state.co.us, or Gene Kooper at ekooper@uswest.net.



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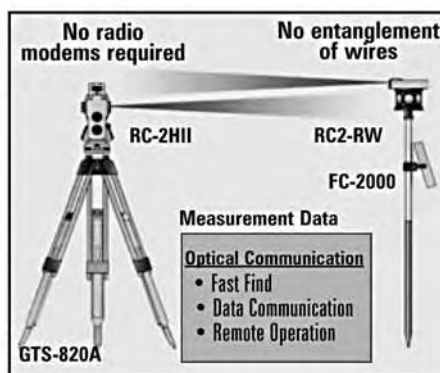
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On Writing Legal Descriptions

By Tom Adams, PLS

Since it's my opinion that it is up to us, the licensed land surveyors, to mentor surveying technicians I have been encouraging others to teach some of our mentoring courses. For that same reason, I decided to take on one of the courses myself. I chose to teach a class on writing descriptions. I must say that I learned more by trying to put the course together than I learned as a student it seems. It's funny how that works. One point that came up at the Denver course was whether the surveyor should make calls to the found section corner monuments when writing a new legal description. I learned in school that a call to a monument has a higher order of seniority than many other calls in the "rules of construction/superiority of calls" (per Wattles' *Writing Legal Descriptions* among other publications), so my immediate response was to always make a tie to a section corner with a complete description of the monument I found. Likewise, since I went to the Doyle Abrahamson "School-of-Respecting-Steel-in-the-Ground" as opposed to accepting the bearing and distances, I wanted to call to everything I saw on the ground. My tendency was to want to run around like a male dog marking its territory accepting and calling to everything I could see.

It was only after later contemplation that I realized that just because you accept a particular corner, it does not mean that corner is or will be accepted by others or the courts. What if another surveyor talked to a local that you didn't meet, and the land owner walked that surveyor over to the original stone which you didn't find? What if everything you did was absolutely correct and justifiable, but some court decided to rule that a different position was the true corner in your case. Would a change in location of the section corner change the intent of your legal description? If the original intent of the property you are surveying is dependant on the aliquot position within the sec-

tion, did a gap just get created because of your incorrect section corner monument? Should you have only written your description to the aliquot position vs. a monument? Even if you disagree with another surveyor on exactly where a lot lies geographically, a carefully-worded description will save the other surveyor from deciding that you created a gap or overlap. In the case of highway parcels, I find it much more important to call to local control near the parcel being purchased, and even then only calling to a found monument after deliberation. I find it much more important to call to and along recorded points and lines. It can produce a higher level of certainty as to your intent when doing so. Even if a call to a monument is made, making the call to a previously-established line is of a higher seniority so as to not diminish your intent. Note from *Skelton on Boundaries and Adjacent Properties* §101 he points out from case laws "A call for the line of another tract of land is a natural boundary", and when one accepts a deed bounding him by another's land, the land referred to becomes a monument, for 'in this connection a boundary line of a named adjoiner is a fixed natural object."

It occurs to me that the surveyor or scrivener should make his/her intent very clear without calling to monuments or positions that could be argued. If a wing-tie is made to a section corner, you might make

that wing-tie call to the section corner only, but also make your point of beginning an actual definable point that could stand on its own regardless of that wing-tie and any errors that may be connected to it. Your plat can show more specifics of your expert opinion of where the property lines fall without harming the property description.

A lot of other thoughts and arguments came to mind while preparing and presenting my discussions with non-licensed mentorees (and some licensed guys there to keep me honest). Thinking about them and trying to explain some of the concepts might even help me to explain my actions to a court one day.

Think about it; with the higher use of one-man survey crews, and drafting softwares, legal-description-writing softwares, data collectors, and all the machines out there to do our thinking for us, our own minds are losing some of their "sharpness" and there is a limited pool of sources out there to mentor our up-and-coming surveyors. . I would suggest that anyone who has not acted as a mentor seriously consider it. Take an area that you have thought about a lot and put it together into a paper that other new surveyors can understand. It could be only one or two two-hour sessions out of your busy year, and it would give back to a profession that has served you well financially and to a community that you enjoy.

The Surveyor Cipher

The Surveyor Cipher cryptograms are created from quotations by noted surveyors, past and present. Each letter in the cipher stands for another.

Today's clue: $U = P$

"PKSBPRSWA WK FR TXXRUWTFOR AVKBOY FR MZVWZS

GRTAKSTFR UGKCZPZWI KH WVR GRXKGY" — FGKMS TSY

ROYGZYNR

"Z'P KBWWT VRGR" — FZOOI PXXKPERG

Answers on page 32

Chapter 7

The Mentor

By Warren Ward

A cloudy chill overcame the sounds of Spring: Two American Robins singing to each other, sounding like R2D2, from barren Aspen branches, a melodic dialogue that sounded like “*Will you? Will you? Will you??*” Answered with a distant “*I will! I will! I will!*” A nearby creek slithered its way through this flat meadow, now overflowing with Rocky Mountain spring runoff.

The gray sky matched the dry grass and sagebrush, patches of snow and leafless Aspen making it all look like winter. But the cheerful Robin’s singing and the sounds of flowing water sounded like spring.

Glutton, the Old Boss looked at it all through the windshield. He had lost his enthusiasm for field work on a cold morning.

Eager (The Kid) was ready to go. Done with service in Afghanistan, and done with one year of college, he looked forward to a summer of working and earning money, as opposed to the insanity of war and college life. He thought that the Old Man had it made as a local surveyor: A good job, outside, for good money, and not a lot of stress. This made sense. War, and college, did not.

The Old man had a little time. After so many decades in surveying, and after tolerating his umpteenth cold, long winter in the Rockies, he would wait until the sun came out before he rushed out of the truck and into the freezing morning. The work will get done just fine. He was too old to freeze.

He looked over at Eager (The Kid), who had his hand on the passenger door. He sipped his coffee, and started asking questions:

“Did you like college, young man?”

“All except that no matter how many hours you study, it just isn’t enough. And, being incredibly poor,” philosophized the recent freshman.

“Do you mean that *after* time spent chasing young women and drinking free beer, college was pretty dang hard work?”

Igor Kidinsky trusted this old man, and easily admitted his vices. “Yes, that’s what I said; there isn’t enough time to study”. It almost sounded like the old man suggested that a college student should *eliminate* sororities and free beer in order to achieve academic success. That would be insane.

“It was brutal! There were thousands of single ladies running around in packs, and endless free keg parties. How are we supposed to study? At the same time, the classes were LONG, HARD WORK. Plus you are so poor It makes no sense. It was insane. The classes go on forever. Four years of THAT will kill me, and I haven’t even declared a Major! You wouldn’t know, because you had Prohibition!”

“Don’t laugh, Igor Kidinski. I had Prohibition in college, but that didn’t stop the free beer from flowing. YOU have a legal age limit, may I remind you, but that isn’t stopping any of you minors from drinking now, is it?”

Eager (The Kid) had never thought about it that way.

“You don’t need to pick a Major yet”, the wise old man offered. “The whole idea is to just go to college, to see what it offers. Once you get there, you’ll be exposed to the experience. You’ll see how a degree – and I mean a degree in ANYTHING – can steer you away from a lifetime of in-the-cold-mud, just as we’re going to do today. Plus, there are a lot of rich, lovely ladies and free beer, something you’ll never see again if you go to work.”

“If I’ve learned anything from you, Glutton, it’s that I like working outside for you. Maybe I can become your manager! I mean, seriously, I didn’t exactly ace college. But at least I can get a professional survey license WITHOUT a college degree in Colorado – and that would be just like having a degree without the *pain* of study”, the eager young man replied.

“Kid, get a degree! You’ve got pretty good field experience so far, but none in business. College will HELP you become anything you want to be, even a surveyor, if that’s

what you want. You took writing and pre-calculus, and that’s good stuff, even if it’s not the high-tech button pushing that surveyors have turned into.

If you stick with it, you’ll get a sheepskin. It won’t be exactly what you want to learn, but it will be exactly what you *need* on your resume, when you want to provide for that wife you’ll meet at one of those free beer sorority parties. Then, it will prove that you have the guts to work hard and finish what you start, something that every employer is looking for. It’s the best ability to have in any career. Have you thought about an Engineering Degree?” Glutton lectured

“Well, yes, but all engineers do is slave in the office, and every once in awhile they get to jump out of the truck for a few minutes, and they feel lucky to be outside. It’s not just about the money. I don’t want to spend four years paying, chasing, drinking free beer, and having to learn stuff that I don’t need!” The Old Man knew that Igor Kidinsky had just heard every word spoken to him, and none of it sunk in. But he was a kid that tried hard to listen. He needn’t be scolded or argued at.

“This kid probably thinks a least-squares adjustment is pushing the “square root” key on the calculator”, joked the old man to himself.

“The old coot must think that Star*NET is some sort of Spock FORTRAN punch card program”, Igor thought, giggling.

A few moments of gray silence, and the old man began: “You know, Eager (The Kid), I need help in the office anyway. I’m just too old. I tried to retire 30 years ago, and just didn’t get around to it. I want you to manage Borderline Survey Company. A surveyor CAN make



Warren Ward

Continued page 28

Colorado Association of County Surveyors

January 13, 2006

The next Colorado Association of County Surveyors meeting is February 11, 2006 in Golden, Colorado at the 13th Street Bakery Shop. Meeting starts at 9:00 am. All guests are welcome in addition to any Colorado County Surveyor.

Larry Connelly attended a series of meetings held by the Elected County Officials Salary Commission for the past year. The Commission is appointed by the Governor, and the objective is to make recommendations for county official salaries. Informally, my research indicates that county surveyors or similar positions in municipal government make an average salary of \$68,000 nationwide. However, Colorado county surveyors have very few similarities in both duties performed and pay method.

CACS is working on a wish list for the updated BLM manual. From this list, CACS intends to provide formal input during the public review period when the draft update BLM Manual becomes available.

Line of Agreements Pursuant to 38-44-112:

Does your county accept prop-

erly prepared Line of Agreement Surveys/Plats? Recently, a county clerk refused to record such a plat, and turned it over to the county attorney for his opinion. I have been told by the county attorney that Lines of Agreements only apply to boundaries that are not subdivisions, and that any type of "change" in a subdivision lot line must be approved by the county.

I disagree. Lines of Agreement are specifically addressed in 38-44-112, in a section of the statutes specifically applying to the question of "Establishment of Disputed Boundaries". None of the provisions of this section, 38-44-101 to 38-44-112 require county approval. Currently, I am researching cases and precedent in an attempt to clarify this issue. Please contact me at wward@co.grand.co.us with any information you might have, including cases of LOA's you have prepared, or examples of LOA's that have been refused to be recorded by your county clerk.

Respectfully submitted,

Warren D. Ward, PLS
President

THE MENTOR continued

decent money. It's when we get stiffed or screw up that money gets scarce. They will chew you up and spit you out. That will be a rude baptism to you. If you want to try running things for me this summer, I believe that come this Fall, you'll start missing all those ladies at college, and figure out that if you eliminate the free beer, your classes get better in direct proportion." The old man knew what he was talking about.

Eager (The Kid) pretty much grew up surveying, had been to War, and now had partied his way through one insane year of college. College would always be there. Right now, the sun had already snuck up and was shining, and this crew wasn't even out of the truck yet. There was a business to run. In surveying, you have to get poop *DONE!* And poop doesn't get *DONE!* by sitting in the truck, talking about free beer and rich ladies.

"We charge \$100 an hour just for labor!", cited Igor Kidinsky. "We'll make \$800 today, and \$4000 per week. We'll both get a nice raise! Why PAY a lot of money to go to college, live in poverty, and work your BUTT off to learn a lot of stuff you don't need, like English Composition, when you can make 800 DOLLARS a day!? Everyone says that college graduates make more money, but I'll be making 800 DOLLARS a day! I need that money NOW!"

The Old Man started to explain that a surveyor in fact needs English Composition to be a surveyor, and that Calculus and Psychology 101 won't waste the brain cells either, and that you don't actually *make* \$800 per day, you just *charge* \$800 per day, but realized he had already explained that, so he just shrugged his shoulders instead, with his finger still pointed in the air, silently, looking like a man that had stepped onto the stage without a script, and couldn't say a word.

A cold, gray, springtime stage, and the sun was shining.

***Send Letters
to the Editor:***

**Arthur W. Hipp
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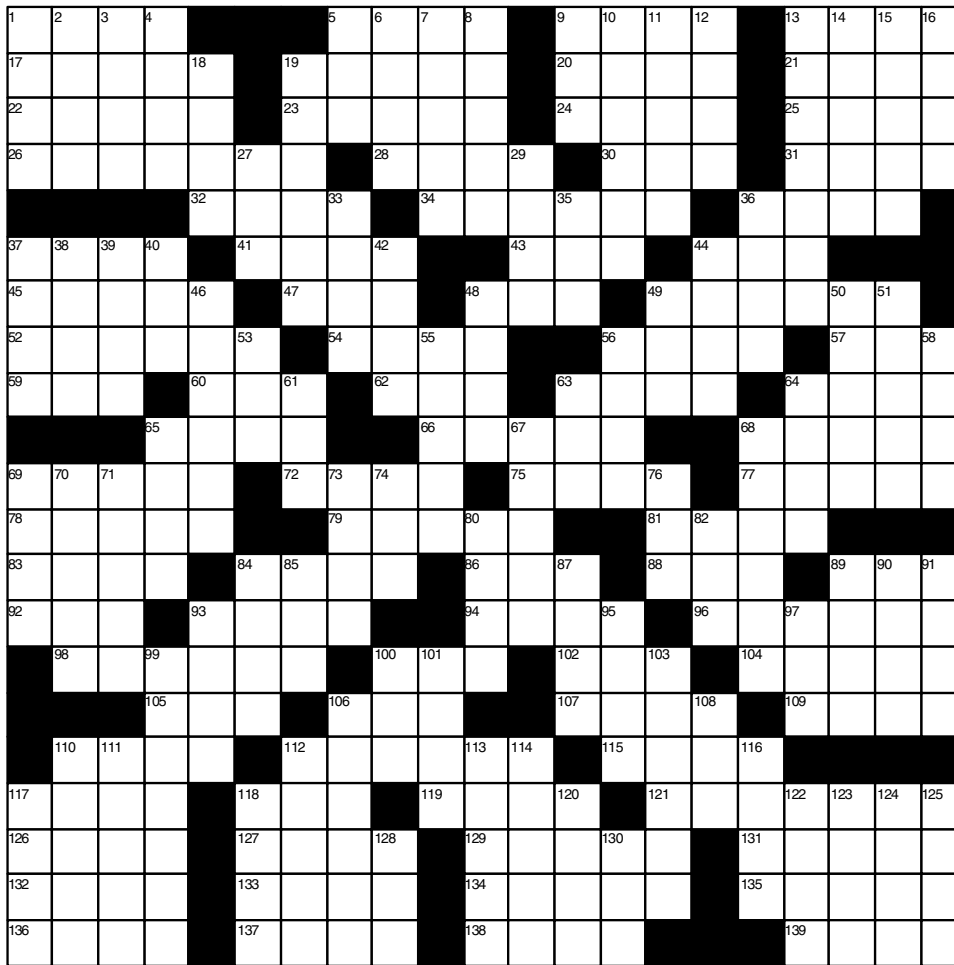
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ACROSS

- 1 African antelope
5 **a graphical representation to scale**
9 Handout
13 **An east-west position on the sphere abbr.**
17 Fable writer
19 Extort
20 Mss
21 square feet or acres
22 Psychologist
23 Radical
24 Canned meat
25 See
26 Lonely
28 Snaky fish
30 **different abbr. for RW**
31 Portend
32 Center
34 Woman in the Old Testament
36 Loch __ monster
37 Prick
41 Hotel furniture
43 Mbray
44 Pro
45 "we are the __"

- 47 Seafood
48 zeniths
49 Plated
52 Pale
54 **a graphical representation to scale**
56 Goddess
57 **1/36th of a twp**
59 **Nat. geol. group**
60 North by west
62 Type of partnership
63 Penny
64 Continent
65 **Opp of NWly**
66 Somber
68 Lax
69 Direct
72 Dueling sword
75 **10 square chains**
77 Receiver
78 **Engineering and Surveying council for examining**
79 Character Dick
81 Pairs
83 Lot
84 Fail to get
86 Portable bed
88 Mountain Time
89 Poem of praise
92 Possessive pronoun
93 Alcoholic beverage

- from honey
94 Insect in a cocoon
96 **the original corner is in! (if you're not too high to notice.)**
98 Dictator
100 Possessive pronoun
102 Halloween mo.
104 Desert plant
105 Internal Revenue Service
106 **twice the Rad. of a circle**
107 Type of cheese
109 Working group
110 Crazy
112 **the reference position for all other positions**
115 **United States Geological Survey**
117 **In mining, an entrance or approach**
118 Computer part
119 Prig
121 **A surveyor and author**
126 Invoke
127 Resound
129 **a change in elevation but can be rated "on the**

- curve" in school**
131 Wants
132 Visionary
133 Pen fillers
134 Finned mammal
135 **second name of 71 down**
136 Disarrange
137 Prime
138 Former
139 Starling
DOWN
1 Fish hook
2 Roman emperor
3 Consumer
4 Spirit
5 **a point on a line**
6 Pear shaped instrument
7 Harmonize
8 Blue-greens
9 American Federation of Teachers (abbr.)
10 Honor
11 **with "axis" the shortest axis of an ellipsoid.**
12 Salad
13 **Colorado's standard conic projection**

- 14 Sandwich cookies brand
15 Wants
16 Fence opening
18 **A Geometrical effect on GPS accuracy for "position"**
19 **a 66' chain**
27 Bone
29 pace
33 **A horizontal geometrical effect on GPS accuracy**
35 **Homestead Entry Survey**
36 **Parent org. to NGS**
37 Cob
38 Chinese secret society
39 Greek god of war
40 **succeeded the GLO**
42 Market
44 Garrison
46 Eaters
48 Unclip
49 **the rad. point of a circle**
50 Written material
51 Keep free of ice
53 **calibrate your edm at one of these.**
55 Afloat (2 wds.)

- 56 "Mster" (German)
58 Dessert
61 **with "level" a leveling instrument having the telescope supported in "Y's" an engineers society associated with the PLSC Inc. (abbr)**
64 Alacks partner
65 Observes with eye
67 Bog
68 Dirty
69 Preposition
70 Sentry
71 **First Name to 121 Across**
73 Posttraumatic stress disorder
74 Bard's before
76 **check this measuring device on a CBL**
80 **Local Denver-metro chapter of the PLSC**
82 Ship initials
84 **see-through**
85 Grain
87 **The "real" (?) point of beginning of a closed parcel in a legal description.**
89 One time
90 Factor of ten
91 Cheese
93 **a monument denoting horizontal or vertical position**
95 Organization concerned with civil liberties (abbr.)
97 Extinguished
99 Troublemakers
100 Roman numeral Three
101 Labels
103 Prover
106 Alcoholics
108 Expression
110 Adios
111 Tiny insects
112 Declare
113 Metal bar
114 **toward the upper pole**
116 Hawked
117 **The National Survey and Mapping association**
118 Baby bed
120 Reduce
122 Drift
123 Desire
124 Against
125 U.S. Department of Agriculture
128 **Local sidereal time at the greenwich meridian**
130 Lair

The legal process of boundary location

This article is an excerpt from *The Principles and Procedures for Public Land Surveys*, a book written by Marlin Livermore to be published in CD format in March, 2006.

The law must require a boundary to be located exactly along the line that legal status changes. If this were not true we would enter a legal twilight zone where: The law would have to reconcile the legal status of landowner's constitutional rights and property rights defined by twilight zones of shadowy approximate physical limits of ownership.

The relationship between of the *Manuals of Surveying Instructions (Manual)* and boundaries

The Manual is the law— The law is the Manual

Section 1.1 of the Manual of Surveying Instructions, 1973 (*Manual*) clearly identifies the survey of public lands as a legal process and that the Manual is a depiction of the law relative to these surveys of public lands. To wit, "The Manual of Surveying Instructions describes how cadastral surveys of the public lands are made in conformance to statutory law and its judicial interpretation."

Thus, the law is the Manual.

In contrast, the Interior Board of Land Appeals and federal courts consistently hold the Manual's procedures as the law for controlling public land survey methods. That is to say, "A dependent resurvey by BLM which does not follow the Manual of Surveying Instructions (1973) constitutes gross error and must be canceled." *Dominico A. Tussio et al.*, 37 IBLA 132 (1978).

BLM failed to provide proper justification for not utilizing two point control to reestablish the NE corner of sec. 34. In the absence of such justification, two point control is mandated by the 1947 Survey Manual. This failure to conform the resurvey to the requirements of the Survey Manual constitutes gross error. *Peter Paul Groth*, 99 IBLA 104, 119 (1987)

Thus, the Manual is the law.

The function of a boundary

The legal procedures used to locate the public land survey bound-

aries are defined and controlled by the function of a boundary. The function of a boundary is to define the physical limits of legal status. In the eyes of the law a boundary delineates an exact line defining the place on the earth where legal status changes.

The law must require a boundary to be located exactly along the line where legal status changes. If this were not so, we would enter a legal twilight zone where: 1) The law would have to reconcile the legal status of a landowner's constitutional rights, as defined by shadowy, approximate physical limits of ownership; and 2) The law would have to reconcile the legal status of individuals and others—again as defined by shadowy, approximate physical limits.

How we locate the exact positions of boundaries with inexact measurements.

It is impossible to make exact measurement

Yet even high school physics introduces us to the immutable fact that exact measurements are impossible. Therefore, if boundaries are required to be based on exact locations, it becomes evident that legal processes, rather than measurements, are the defining element of boundary location.

However, in cases of changed legal status, the law does allow for inexact measurements to be used as a means to define exact positions. To again quote the *Manual*, "The public lands shall be divided by north and south lines run according to the true meridian and by crossing them at right angles, so as to form townships of six mile square. . . ." 43 U.S.C. § 751. "And the boundary lines which have not been actually run and marked shall be ascertained by running straight

lines from the established corners to the opposite corresponding corners;" 43 U.S.C. § 752. ". . . (B) e ascertained by running from the established corners due north and south or east and west. . ." (*Id.*)

A proportionate measurement is a ratio based on dividing the total record distance into the total new distance and multiplying this ratio times the record length of each intermediate course, to obtain the proportionate length of a new leg.

Every one of the above methods describes a survey process that involves measurements—with full knowledge at the time the process was codified:

It was impossible for a surveyor to establish a true meridian.

It was impossible for a surveyor to cross a line at exactly right angles.

It was impossible for a surveyor to run a mathematical straight line.

It was impossible for a surveyor to determine the exact intersection point of two straight lines.

It was impossible to run lines from monuments due north, south, east, or west.

It was impossible to place a 1/16 corner or reestablish the position of a lost 1/4 corner on line at midpoint between found corners.

The impossibility of exactness in measurements has been known since the first surveyor tried to "close his measurements" thousands of years ago. Capabilities for accuracy have increased greatly in recent years. Still, surveyors are not now—nor ever will be—able to make exact measurements.

Constitutional rights to know the position of boundaries on the ground require reasonable and attainable survey procedures.

U.S. Constitution: Fifth Amendment No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, **nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.**

However, the law does not require the impossible. Practical surveyors who had input in developing the methods and procedures for survey of the public lands were not developing standards they could not meet. Just as we do today, they established proper procedures and required accuracies for "running a line," which is a surveying, not mathematical, term. The standards are based on the legally accepted processes required to locate exact positions limiting legal status. To protect Fifth Amendment rights under our Constitution, these exact positions are immutable and must be recognized by all surveyors. These legal criteria for relocating or reestablishing a boundary via resurveys, as defined in Chapters V and VI of the *Manual*, are the subject of this book.

It should be noted that, throughout the years, the survey profession has defined the allowable survey error, based on factors such as equipment, terrain and vegetation, as well as practical cost/benefit considerations. These standards are based on local practices, Manual requirements, and various state or local statutes and regulations.

However, once a line has been legally established based on standards required at that time, should standards subsequently change they cannot affect a boundary's legality.

Therefore, by defining its own purpose the Manual affirms that public land surveys are based on the law. Says § 1.1, "The Manual of Surveying Instructions describes how cadastral surveys of the public lands are made in conformance to statutory law and its judicial interpretation."

Thus the law defines those methods and procedures required to locate all types of boundaries encountered in the resurvey of public lands. These consist of:

Property boundaries define the physical limits of legal status regarding ownership.

Jurisdictional boundaries define the physical limits of legal status regarding political

or legal jurisdictions.

Mandated boundaries define the physical limits of legal status regarding areas with specific legal purposes or limits on use.

The basic property rights of landowners affected by boundaries manifestly required the law to step in and define those legal requirements that determine exact beginning boundary locations, as well as any limitations on landowner rights. Thus the law-as defined by statutes, common law, or the courts-defines methods and procedures for boundary location. However, as with all law its application is dependent upon the legal jurisdiction of the boundary to be located. Thus, the surveyor must know those sources and jurisdictions of boundary law applicable to his task.

G	N	U	S			P	L	A	T		A	L	M	S		L	O	N	G		
A	E	S	O	P		G	O	U	G	E		F	A	I	L		A	R	E	A	
F	R	E	U	D		U	L	T	R	A		T	U	N	A		M	E	E	T	
F	O	R	L	O	R	N		E	E	L	S		R	O	W		B	O	D	E	
						P	I	T	H		E	S	T	H	E	R		N	E	S	
S	T	A	B			B	E	D	S		E	E	L		F	O	R				
W	O	R	L	D		R	O	E		U	P	S		C	O	A	T	E	D		
A	N	E	M	I	C		P	L	A	N			H	E	R	A		S	E	C	
N	G	S		N	B	W		L	T	D		C	E	N	T		A	S	I	A	
				S	E	L	Y			S	O	B	E	R			S	L	A	C	K
U	S	H	E	R		E	P	E	E		A	C	R	E		P	A	Y	E	E	
N	C	E	E	S			T	R	A	C	Y			D	U	O	S				
T	O	N	S		L	O	S	E		C	O	T		M	S	T		O	D	E	
O	U	R		M	E	A	D			P	U	P	A		S	T	O	N	E	D	
	T	Y	R	A	N	T		I	T	S		O	C	T		Y	U	C	C	A	
		I	R	S		D	I	A			B	L	E	U		T	E	A	M		
A	M	O	K		O	R	I	G	I	N		U	S	G	S						
A	D	I	T		C	P	U		S	N	O	B		T	H	O	R	E	A	U	
C	I	T	E		R	I	N	G		G	R	A	D	E		L	O	N	G	S	
S	E	E	R		I	N	K	S		O	T	T	E	R		D	A	V	I	D	
M	U	S	S		B	E	S	T		T	H	E	N			M	Y	N	A		

Surveyor cipher answers:

"MONUMENTS TO BE ACCEPTABLE SHOULD BE WITHIIN REASON-
ABLE PROXIMITY OF THE RECORD" — BROWN AND ELDRIDGE

"I'M OUTTA HERE" — BILLY MCCOMBER

Meeting Report: Western Federation of Professional Surveyors

Board of Director's Meeting – January 21, 2005, Las Vegas, Nevada

by: David C. DiFulvio, PLS, Colorado Delegate

Colorado Delegates Dave DiFulvio and John "JB" Guyton, along with delegates from all 13 member states, attended this WFPS Board of Directors meeting in Las Vegas. A report on the meeting is as follows:

The primary issue discussed was a common concern about the diminishing amount of PLSS competency being tested on the western states surveyor's license examination. This situation exists even though most western states have adopted the BLM Manual of Instructions in their statutes regulating the practice of Professional Surveying. This issue has been a concern with WFPS for a long time and is evidenced by the decreased number of PLSS questions on the NCEES national portion of the examination as well as on the state specific exam. Many western state specific examinations are under 4 hours in length now and, combined with the NCEES portion of the exam, do not provide adequate time to test for minimum competency with the PLSS.

WFPS has shifted focus on solutions to this problem by focusing on improving the testing at the state level instead of seeking changes to the national exam. A special committee was established to research and study this issue with all the WFPS member states and develop an action plan for recommendation to the entire Federation for consideration and action.

Selected highlights from **State Society Reports:**

Alaska: ASPLS 2007 conference is March (2007) in Fairbanks, during the International Conference of the Geophysical Institute,,, continues to seek resolution to their copyright issue and has given priority to negotiating a solution with the Alaska Dept. of Environmental Conservation (ADEC) and is waiting on a response from their registration board on the issue with the Municipality of Anchorage,,, the AELS Board of Registration has extended the public comment period for it's proposed action to adopt the NCEES Model Rules Section 210.25 "Inclusion and Exclusions of Surveying Practice,,, their legislature is considering four House Bills and Two Senate Bills that relate to eminent domain.

Arizona: Their State Board of Technical Registration has issued several interpretations to clarify issues relating to setting of monuments, sealing of plats, plans and documents including electronic seals,,, the GIS component of the APLS seems to have lost momentum,,, the surveying curriculum at Phoenix College is exploring options to increase student numbers after their first full year of their newly revived curriculum,,, is seeking funding for their height modernization program,,, their 2006 conference is March 23 – 25 in Tucson.

California: CLSA is planning on publishing an examination guide for

the LS exam, including some past questions from actual exams,,, they are also planning on holding a LS Review Workshop as part of their annual conference,,, Bud Uzes has granted CLSA the exclusive right to publish the Second Edition of Chaining the Land,,, has published proposed changes to statutes that they will introduce in this years legislative session,,, their 2006 conference is March 11 – 15 in Reno,,, their 2007 conference will be a joint conference with WFPS on April 15 – 18, 2007 in San Diego, CA.

Colorado: J.B. Guyton presented a comprehensive report on the activities of PLSC. The report should be published in *Side Shots*.

Hawaii: Surveyors in Hawaii are also very busy,,, one of the largest land owners on the island is selling their property, consisting of tens of thousands of acres,,, are still monitoring the ongoing activities of various parties who want to change the definition of their shoreline, as surveyors are the ones that actually establish the official (legal) shoreline of the islands.

Idaho: Their 2006 conference is March 1 – 4, in Boise,,, ISPLS is in



David C. DiFulvio

the process of adding a new Section (Chapter), it's eighth, the David Thompson Section, comprising Boundary and Bonner Counties,,,, will award \$1700 in scholarships this year,,,, their four year degree requirement for licensure will take effect in 2010.

Montana: MARLS and NGS will be dedicating a commemorative Lewis and Clark Corps of Discovery II marker at Pompey's Pillar in Montana in July, 2006,,,, Dennis Applebury (former WFPS Delegate) has been appointed chairman of their Board of Registration.

Nevada: Dr. James Elithorpe is now the Faculty Lead for the four year Survey Degree Program at Great Basin College in Elko, Nevada,,,, 2006 is an off year for their legislature, so nothing is planned for legislation for this year.

New Mexico: Their 2006 conference is March 31 – April 1st, 2006 in Bernalillo,,,, their Geomatics Certificate Program, under the direction of TVI, will include multi-disciplines such as Surveying, Remote Sensing, GPS, GIS, Photogrammetry, Geodesy, Mapping, Land Use Analysis, and Elements of Geography,,,, issues before their State Licensing Board include, clarifying “incidental practice” of Engineers doing Land Surveying in the form of topographic surveys, and Photogrammetrists's requests to be licensed as Surveyors, which is unanimously opposed.

Oregon: Their 2006 annual conference, in conjunction with LSAW will be in Vancouver, WA March 1 – 4, 2006,,,, their membership is 786 at the end of 2005,,,, OSBEELS has completed the administrative rulemaking process to regulate the practice of

Photogrammetry within the surveying discipline as of January 10, 2006,,,, licensees who fail to comply with PDH requirements based on random audits will now be given their “due process” and a definite time period to come into compliance, along with a tightly defined appeal process, instead of immediate suspension of the license.

Utah: Is looking at standards for subdivision plat requirements,,,, has sought clarification to their statutes that require when a Record of Survey is to be filed.

Washington: LSAW has decided to attempt to submit their “Redefinition” legislation for the 2006 session,,,, work is almost complete in developing the rules for implementation of the recently passed continuing education requirement for surveyors,,,, their sponsorship of teachers for the CORSE program has become one of their main educational focuses,,,, efforts on the SRCW and Height Modernization Program are somewhat on hold pending resolution of funding issues.

Wyoming: There hasn't been much activity by PLSW other than establishing Scholarship guidelines and the issue of educational requirements towards acceptance to take the PLS exam.

Other items of interest:

- WFPS has set the date and place of our 2007 Biennial Conference in San Diego, CA, during March or April, 2007, in association with CLSA.
- Passed a motion to donate \$1500 to the Louisiana Surveying Society's Disaster Relief Fund to

assist surveyors who are in need of assistance after hurricane Katrina.

- Continued discussion on the need for a separate NCEES license exam for western PLSS states and formed a committee to study and recommend action to strengthen the western state surveyor's examinations.
- Delegates are working to compile statistics on the State Specific LS examinations in an effort to improve the pass rate and competency of surveyors.
- Changed our By-Laws to establish a combined Secretary–Treasurer and also an Executive Director position.
- Jerry Tippin, longtime treasurer of WFPS has retired. This was his last “official” meeting. We will miss him and wish him all the best in his retirement.
- Up to \$7,200 is available for WFPS Scholarships this year. Interested persons are invited to apply by completing the WFPS application form available through WFPS state's colleges having four year surveying degree programs, or by contacting Paul A. Reid, WFPS Scholarship Chairman, 1533 Pinion Drove, Cheyenne, WY, or from the www.wfps.org web site.
- It should be noted that Colorado is one of only three (out of 13) WFPS states that do NOT require mandatory continuing education requirements for license renewal.

Our next meeting will be held in September, likely in Reno, Nevada.

End of Report

Professional Land Surveyors of Colorado

www.plsc.net

Activity Report for the WFPS Board Meeting

Meeting Date and Place:
Saturday, January 21, 2006 in Las Vegas, NV

Prepared by: John B. Guyton, PLS; 303-443-7001 / jguyton@flatsurv.com

PLSC Officers:

President: John B. Guyton
Vice President: Tom Adams
Sec'y Treas: Arthur Hipp
Past President: Mark Corbridge
Current Membership: 624

PLSC Activities:

Chapters:

- Central Chapter: Annual Conference scheduled for February 24 & 25, 2006
- Southern Chapter: Annual Conference scheduled for September 9 & 10, 2006
- Northern Chapter: Discussing providing scholarships to area students looking at surveying or a closely related course of study as their degree.
- Northwest Chapter:
- Western Chapter: Annual Conference scheduled for April 2006. Made request to Mesa County Commissioners that the County Surveyor's position be budgeted to be a full time position.
- Southwest Chapter: Four Corners Area Surveying Seminar is scheduled for June 9th & 10th, 2006.

Continuing Education:

The Central Colorado Professional Surveyors and the Metropolitan State College of Denver Surveying and Mapping Program in cooperation with the Colorado School of Mines, and in

support of the Colorado Surveyors Educational Foundation, Inc., is offering a comprehensive Land Surveying Refresher Course for 2006.

- Colorado Refresher Course: Fundamentals of Surveying/Principals of Practice - Colorado Specific. This course offers a review and self-study plan for those taking the NCEES/Colorado exam(s). The course is specifically designed to aid candidates in *developing and expanding exam-taking proficiencies*. The main thrust of the course is in establishing a realistic study schedule. It is emphasized that time spent in the course will be concentrated on sharpening existing skills, identifying areas of weakness and instilling self confidence. Practical methods to solving problems will be stressed.

- Refresher Course Schedule:

Wed Jan 11: Overview
NCEES/COLO - Alan Blair/Herb Stoughton
Wed Jan 18: Land Surveying Calculations I - Gaby Neunzert

Wed Jan 25: Land Surveying Calculations II - Gaby Neunzert

Wed Feb 1: Legal Terminology and Definitions - Diana Askew

Wed Feb 8: U.S. Public Land Surveys I - Randy Zanon

Wed Feb 15: U.S. Public Land Surveys II - Randy Bloom

Wed Feb 22: Colorado Statute

Law I - Doyle Abrahamson
Wed Mar 1: Colorado Statute
Law II - Roger Nelson
Wed Mar 8: Exam Problems, Question/Answer - All Instructors
Sat Mar 18: Mock Examinations - All Instructors

Legislative:

PLSC Legislative Committee met on 11/30/05 to discuss the following:

- Proposed changes to CRS 38-51-106 Land Survey Plats:
 - (f) A description of all monuments, both found and set, that mark the boundaries of the property and of all control monuments used in conducting the survey. If any such boundary monument or control monument is a public land survey monument ~~or aliquot corner~~, the professional land surveyor shall describe the ~~physical~~ evidence used to ~~establish or~~ restore the monument **OR THE PROCEDURE AND EVIDENCE USED TO ESTABLISH THE MONUMENT.**
- Proposed changes to 13-80-105 Limitation of Actions against Land Surveyors:
 - 3 (b) If any survey is performed which does not require documentation, the limitations set forth in subsections (1) and (2) of this section shall nevertheless apply if, not ~~less~~ **MORE** than ninety

days after the completion of the survey, written notice of the provisions of this article is provided to all persons holding an interest in the property upon which such survey is conducted.

- It was decided to make immediate contact with potential sponsors because it is the time that many legislators are committing to other bills, and go ahead and title the bill so that it would cover any later amendments we may come up with. Peg will begin contacting legislators on December 1st.

Items of Interest:

- PLSC Annual Fall Technical Programs and Annual Membership Meeting were well attended. We welcomed attendees from California, New Mexico, Utah, Oklahoma, and other areas. We had great workshops (course summary below) and guest speakers. I feel privileged to be a colleague of the PLSC Board and PLSC members.
- The PLSC is being challenged by a "changing of the guard", some of our original members who have been very active in committees and with PLSC operation are or will soon be stepping down. This will facilitate modernizing of some of our processes, however along with change comes a period of adjustment.
- The Annual Membership meeting held on December 3rd included a panel discussion with experts on the pros/cons of several issues, including continuing education and four year degree requirements. Expert panel members included Herbert Stoughton, Dexter Brinker, David DiFulvio, Teresa Smithson, Warren Ward, and Gene Kooper. A show of hands informal vote on the four year degree issue resulted in a surprising opinion deadlock, with approximately 30% of attendees being in favor of requiring a four year degree specifically in Surveying; 30% being in favor of requiring a four year degree, but

not necessarily in Surveying; and 30% being in favor of not requiring a four year degree at all. In the past, the PLSC has been in support of some sort of degree requirement.

- The PLSC will be seeking a volunteer to chair the Membership Committee at the next Board of Directors Meeting. One item that the Membership Committee will discuss is a proposal to provide free 1-year memberships to the PLSC for persons obtaining their license (full membership) or passing the LSI exam (associate membership).
- A proposal has been put forward to compile an overall "PLSC Activities" calendar showing all scheduled events and meetings for all Chapters in the state. The calendar would be published in *Side Shots*, the PLSC publication, and posted on PLSC.net. The calendar could include events in neighboring states as well.
- Regarding the issues created when planning departments or other entities request an Improvement Location Certificate (or similar) rather than an Improvement Survey Plat or other instrument in violation of State Statutes. The State Board of Licensure for Professional Engineers and Professional Land Surveyors has issued an opinion specifically as related to the City of Steamboat Springs issue (a proposed Foundation Survey ordinance that would conflict with Statutory requirements), the Survey Quorum of the Board respectfully suggested that another instrument should be required for the purposes of foundation verification. Copies of initial letters and the Board Opinion and City response are attached.

Recent Conferences:

- PLSC Fall Technical Sessions and Annual Meeting, December 1st – 3rd, 2005
 - Workshop topics included:
 - Retracing Highway Rights of Way presented by Stan Vermilyea, PLS and Myron Hora, PLS

- Highway and Right of Way Legal Issues, presented by Greg Jamieson, Esq and Larry Tannenbaum, Esq
- Practical Geodesy for Today's Land Surveyor, presented by John Hamilton Fellow AAGS
- Developing an accurate GIS/LIS presented by Dave Doyle, PLS
- Quiet Title, presented by Larry Fulton, Esq.
- The Surveyor in Court, presented by Dave Pehr, Esq
- Technical Workshops (intended for field surveyors) included:
 - Surveying Astronomy, presented by Karl Nelson, PhD, PE
 - Parting of the Land, presented by Gabriel Neunzert
 - Mineral Survey Basics, presented by Gene Kooper, PLC

Upcoming conferences:

- 2006 PLSC Fall Technical Session and Annual Membership Meeting are tentatively scheduled for December 1-3, 2006

Other business:

Next PLSC Board of Directors meeting is scheduled for Saturday, February 25th in conjunction with the Central Chapter Annual Workshop.

End of Report

**2005 MINIMUM STANDARD DETAIL REQUIREMENTS FOR
ALTA/ACSM LAND TITLE SURVEYS
as adopted by
American Land Title Association
and
National Society of Professional Surveyors
(a member organization of the American Congress on Surveying and Mapping)**

It is recognized that members of the American Land Title Association (ALTA) have specific needs, peculiar to title insurance matters, which require particular information for acceptance by title insurance companies when said companies are asked to insure title to land without exception as to the many matters which might be discoverable from survey and inspection and not be evidenced by the public records. In the general interest of the public, the surveying profession, title insurers and abstracters, ALTA and the National Society of Professional Surveyors, Inc. (NSPS) jointly promulgate and set forth such details and criteria for standards. It is recognized and understood that local and state standards or standards of care, which surveyors in those respective jurisdictions are bound by, may augment, or even require variations to the standards outlined herein. Where conflicts between the standards outlined herein and any jurisdictional statutes or regulations occur, the more restrictive requirement shall apply. It is also recognized that title insurance companies are entitled to rely on the survey furnished to them to be of an appropriate professional quality, both as to completeness and as to accuracy. It is equally recognized that for the performance of a survey, the surveyor will be provided with appropriate data which can be relied upon in the preparation of the survey.

For a survey of real property and the plat or map of the survey to be acceptable to a title insurance company for purposes of insuring title to said real property free and clear of survey matters (except those matters disclosed by the survey and indicated on the plat or map), certain specific and pertinent information shall be presented for the distinct and clear understanding between the client (insured), the title insurance company (insurer), and the surveyor (the person professionally responsible for the survey). These requirements are:

1. The client shall request the survey or arrange for the survey to be requested and shall provide a written authorization to proceed with the survey from the person responsible for paying for the survey. Unless specifically authorized in writing by the insurer, the insurer shall not be responsible for any costs associated with the preparation of the survey. The request shall specify that an **"ALTA/ACSM LAND TITLE SURVEY"** is required and shall designate which of the optional items listed in Table A are to be incorporated. The request shall set forth the record description of the property to be surveyed or, in the case of an original survey, the record description of the parent parcel that contains the property to be surveyed. Complete copies of the record description of the property (or, in the case of an original survey, the parent parcel), any record easements benefiting the property; the record easements or servitudes and covenants burdening the property ("Record Documents"); documents of record referred to in the Record Documents; and any other documents containing desired appropriate information affecting the property being surveyed and to which the survey shall make reference shall be provided to the surveyor for notation on the plat or map of survey.

2. The plat or map of such survey shall bear the name, address, telephone number, and signature of the professional land surveyor who performed the survey, his or her official seal and registration number, the date the survey was completed, the dates of all of the surveyor's revisions and the caption "ALTA/ACSM Land Title Survey" with the certification set forth in paragraph 8.

3. An **"ALTA/ACSM LAND TITLE SURVEY"** shall be in accordance with the then-current "Accuracy Standards for Land Title Surveys" ("Accuracy Standards") as adopted, from time to time by the National Society of Professional Surveyors and the American Land Title Association and incorporated herein by reference.

4. On the plat or map of an **"ALTA/ACSM LAND TITLE SURVEY,"** the survey boundary shall be drawn to a convenient scale, with that scale clearly indicated. A graphic scale, shown in feet or meters or both, shall be included. A north arrow shall be shown and when practicable, the plat or map of survey shall be oriented so that north is at the top of the drawing. Symbols or abbreviations used shall be identified on the face of the plat or map by use of a legend or other means. If necessary for clarity, supplementary or exaggerated diagrams shall be presented accurately on the plat or map. The plat or map shall be a minimum size of 8½ by 11 inches.

5. The survey shall be performed on the ground and the plat or map of an **"ALTA/ACSM LAND TITLE SURVEY"** shall contain, in addition to the required items already specified above, the following applicable information:

- (a) All data necessary to indicate the mathematical dimensions and relationships of the boundary represented, with angles given directly or by bearings, and with the length and radius of each curve, together with elements necessary to mathematically define each curve. The point of beginning of the surveyor's description shall be shown as well as the remote point of beginning if different. A bearing base shall refer to some well-fixed line, so that the bearings may be easily re-established. The North arrow shall be referenced to its bearing base and should that bearing base differ from record title, that difference shall be noted.
- (b) When record bearings or angles or distances differ from measured bearings, angles or distances, both the

Continued next page

record and measured bearings, angles, and distances shall be clearly indicated. If the record description fails to form a mathematically closed figure, the surveyor shall so indicate.

- (c) Measured and record distances from corners of parcels surveyed to the nearest right-of-way lines of streets in urban or suburban areas, together with recovered lot corners and evidence of lot corners, shall be noted. -For streets and highways abutting the property surveyed, the name, the width and location of pavement relative to the nearest boundary line of the surveyed tract, and the width of existing rights of way, where available from the controlling jurisdiction, shall be shown. Observable evidence of access (or lack thereof) to such abutting streets or highways shall be indicated. Observable evidence of private roads shall be so indicated. Streets abutting the premises, which have been described in Record Documents, but not physically opened, shall be shown and so noted.
- (d) The identifying titles of all recorded plats, filed maps, right of way maps, or similar documents which the survey represents, wholly or in part, shall be shown with their appropriate recording data, filing dates and map numbers, and the lot, block, and section numbers or letters of the surveyed premises. For non-platted adjoining land, names, and recording data identifying adjoining owners as they appear of record shall be shown. For platted adjoining land, the recording data of the subdivision plat shall be shown. The survey shall indicate platted setback or building restriction lines which have been recorded in subdivision plats or which appear in Record Documents which have been delivered to the surveyor. Contiguity, gores, and overlaps along the exterior boundaries of the surveyed premises, where ascertainable from field evidence or Record Documents, or interior to those exterior boundaries, shall be clearly indicated or noted. Where only a part of a recorded lot or parcel is included in the survey, the balance of the lot or parcel shall be indicated.
- (e) All evidence of monuments shall be shown and noted to indicate which were found and which were placed. All evidence of monuments found beyond the surveyed premises on which establishment of the corners of the surveyed premises are dependent, and their application related to the survey shall be indicated.
- (f) The character of any and all evidence of possession shall be stated and the location of such evidence carefully given in relation to both the measured boundary lines and those established by the record. An absence of notation on the survey shall be presumptive of no observable evidence of possession.
- (g) The location of all buildings upon the plot or parcel shall be shown and their locations defined by measurements perpendicular to the nearest perimeter boundaries. The precision of these measurements shall be commensurate with the Relative Positional Accuracy of the survey as specified in the current Accuracy Standards for ALTA/ACSM Land Title Surveys. If there are no buildings erected on the property being surveyed, the plat or map shall bear the statement, "No buildings." Proper street numbers shall be shown where available.
- (h) All easements evidenced by Record Documents which have been delivered to the surveyor shall be shown, both those burdening and those benefiting the property surveyed, indicating recording information. If such an easement cannot be located, a note to this effect shall be included. Observable evidence of easements and/or servitudes of all kinds, such as those created by roads; rights-of-way; water courses; drains; telephone, telegraph, or electric lines; water, sewer, oil or gas pipelines on or across the surveyed property and on adjoining properties if they appear to affect the surveyed property, shall be located and noted. If the surveyor has knowledge of any such easements and/or servitudes, not observable at the time the present survey is made, such lack of observable evidence shall be noted. Surface indications, if any, of underground easements and/or servitudes shall also be shown.
- (i) The character and location of all walls, buildings, fences, and other visible improvements within five feet of each side of the boundary lines shall be noted. Without expressing a legal opinion, physical evidence of all encroaching structural appurtenances and projections, such as fire escapes, bay windows, windows and doors that open out, flue pipes, stoops, eaves, cornices, areaways, steps, trim, etc., by or on adjoining property or on abutting streets, on any easement or over setback lines shown by Record Documents shall be indicated with the extent of such encroachment or projection. If the client wishes to have additional information with regard to appurtenances such as whether or not such appurtenances are independent, division, or party walls and are plumb, the client will assume the responsibility of obtaining such permissions as are necessary for the surveyor to enter upon the properties to make such determinations.
- (j) Driveways, alleys and other ways of access on or crossing the property must be shown. Where there is evidence of use by other than the occupants of the property, the surveyor must so indicate on the plat or map. Where driveways or alleys on adjoining properties encroach, in whole or in part, on the property being surveyed, the surveyor must so indicate on the plat or map with appropriate measurements.
- (k) As accurately as the evidence permits, the location of cemeteries and burial grounds (i) disclosed in the Record Documents provided by client or (ii) observed in the process of performing the field work for the survey, shall be shown.
- (l) Ponds, lakes, springs, or rivers bordering on or running through the premises being surveyed shall be shown.

6. As a minimum requirement, the surveyor shall furnish two sets of prints of the plat or map of survey to

Continued next page

the title insurance company or the client. If the plat or map of survey consists of more than one sheet, the sheets shall be numbered, the total number of sheets indicated and match lines be shown on each sheet. The prints shall be on durable and dimensionally stable material of a quality standard acceptable to the title insurance company. The record title description of the surveyed tract, or the description provided by the client, and any new description prepared by the surveyor must appear on the face of the plat or map or otherwise accompany the survey. When, in the opinion of the surveyor, the results of the survey differ significantly from the record, or if a fundamental decision related to the boundary resolution is not clearly reflected on the plat or map, the surveyor may explain this information with notes on the face of the plat or map or in accompanying attachments. If the relative positional accuracy of the survey exceeds that allowable, the surveyor shall explain the site conditions that resulted in that outcome with a note on the face of the map or plat.

7. Water boundaries necessarily are subject to change due to erosion or accretion by tidal action or the flow of rivers and streams. A realignment of water bodies may also occur due to many reasons such as deliberate cutting and filling of bordering lands or by avulsion. Recorded surveys of natural water boundaries are not relied upon by title insurers for location of title.

When a property to be surveyed for title insurance purposes contains a natural water boundary, the surveyor shall measure the location of the boundary according to appropriate surveying methods and note on the plat or map the date of the measurement and the caveat that the boundary is subject to change due to natural causes and that it may or may not represent the actual location of the limit of title. When the surveyor is aware of changes in such boundaries, the extent of those changes shall be identified.

8. When the surveyor has met all of the minimum standard detail requirements for an ALTA/ACSM Land Title Survey, the following certification shall be made on the plat:

To (name of client), (name of lender, if known), (name of title insurance company, if known), (name of others as instructed by client):

This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items _____ of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of _____, the Relative Positional Accuracy of this survey does not exceed that which is specified therein.

Date: _____ (signed) _____ (seal)
Registration No. _____

NOTE: If, as otherwise allowed in the Accuracy Standards, the Relative Positional Accuracy exceeds that which is specified therein, the following certification shall be made on the plat:

To (name of client), (name of lender, if known), (name of title insurance company, if known), (name of others as instructed by client):

This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items _____ of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of _____, the maximum Relative Positional Accuracy is _____ feet.

Date: _____ (signed) _____ (seal)
Registration No. _____

The 2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are effective January 1, 2006. As of that date, all previous versions of the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are superseded by these 2005 standards.

Adopted by the American Land Title Association on October 5, 2005.

Adopted by the Board of Directors, National Society of Professional Surveyors on October 24, 2005.

American Land Title Association, 1828 L St., N.W., Suite 705, Washington, D.C. 20036.

National Society of Professional Surveyors, Inc., 6 Montgomery Village Avenue, Suite 403, Gaithersburg, MD 20879

Continued next page

TABLE A

OPTIONAL SURVEY RESPONSIBILITIES AND SPECIFICATIONS

NOTE: The items of Table A must be negotiated between the surveyor and client. It may be necessary for the surveyor to qualify or expand upon the description of these items, e.g., in reference to Item 6, there may be a need for an interpretation of a restriction. The surveyor cannot make a certification on the basis of an interpretation or opinion of another party. Items 16, 17 and 18 are only for use on projects for the U.S. Department of Housing and Urban Development (HUD).

If checked, the following optional items are to be included in the ALTA/ACSM LAND TITLE SURVEY, except as otherwise negotiated:

1. ☐ Monuments placed (or a reference monument or witness to the corner) at all major corners of the boundary of the property, unless already marked or referenced by an existing monument or witness to the corner.
2. ☐ Vicinity map showing the property surveyed in reference to nearby highway(s) or major street intersection(s).
3. ☐ Flood zone designation (with proper annotation based on federal Flood Insurance Rate Maps or the state or local equivalent, by scaled map location and graphic plotting only.)
4. ☐ Gross land area (and other areas if specified by the client).
5. ☐ Contours and the datum of the elevations.
6. ☐ List setback, height, and floor space area restrictions disclosed by applicable zoning or building codes (beyond those required under paragraph 5d of these standards). If none, so state. The source of such information must be disclosed. See "Note" above.
7. ☐ (a) Exterior dimensions of all buildings at ground level
☐ (b) Square footage of:
☐ (1) exterior footprint of all buildings at ground level
☐ (2) gross floor area of all buildings; or
☐ (3) other areas to be defined by the client
☐ (c) Measured height of all buildings above grade at a defined location. If no defined location is provided, the point of measurement shall be shown.
8. ☐ Substantial, visible improvements (in addition to buildings) such as billboards, signs, parking structures, swimming pools, etc.
9. ☐ Parking areas and, if striped, the striping and the type (e.g. handicapped, motorcycle, regular, etc.) and number of parking spaces.
10. ☐ Indication of access to a public way on land such as curb cuts and driveways, and to and from waters adjoining the surveyed tract, such as boat slips, launches, piers and docks..
11. ☐ Location of utilities (representative examples of which are shown below) existing on or serving the surveyed property as determined by:
☐ (a) Observed evidence
☐ (b) Observed evidence together with evidence from plans obtained from utility companies or provided by client, and markings by utility companies and other appropriate sources (with reference as to the source of information)
 - railroad tracks and sidings;
 - manholes, catch basins, valve vaults or other surface indications of subterranean uses;
 - wires and cables (including their function, if readily identifiable) crossing the surveyed premises, all poles on or within ten feet of the surveyed premises, and the dimensions of all crossmembers or overhangs affecting the surveyed premises; and
 - utility company installations on the surveyed premises.
12. ☐ Governmental Agency survey-related requirements as specified by the client.

Continued next page

13. _____ *Names of adjoining owners of platted lands.*
14. _____ *The distance to the nearest intersecting street as designated by the client*
15. _____ *Rectified orthophotography, photogrammetric mapping, laser scanning and other similar products, tools or technologies may be utilized as the basis for the location of certain features (excluding boundaries) where ground measurements are not otherwise necessary to locate those features to an appropriate and acceptable accuracy relative to a nearby boundary. The surveyor shall (a) discuss the ramifications of such methodologies (e.g. the potential accuracy and completeness of the data gathered thereby) with the title company, lender and client prior to the performance of the survey and, (b) place a note on the face of the survey explaining the source, date, relative accuracy and other relevant qualifications of any such data.*
16. _____ *Observable evidence of earth moving work, building construction or building additions within recent months.*
17. _____ *Any changes in street right of way lines either completed or proposed, and available from the controlling jurisdiction. Observable evidence of recent street or sidewalk construction or repairs.*
18. _____ *Observable evidence of site use as a solid waste dump, sump or sanitary landfill.*
19. _____

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Accuracy Standards for ALTA/ACSM Land Title Surveys

Introduction

These Accuracy Standards address Relative Positional Accuracies for measurements that control land boundaries on ALTA/ACSM Land Title Surveys.

In order to meet these standards, the surveyor must assure and certify that the Relative Positional Accuracies resulting from the measurements made on the survey do not exceed that which is allowable.

If the size or configuration of the property to be surveyed, or the relief, vegetation or improvements on the property will result in survey measurements for which the allowable Relative Positional Accuracies will be exceeded, the surveyor must alternatively certify as to the Relative Positional Accuracy that was otherwise achieved on the survey.

Definition:

“Relative Positional Accuracy” means the value expressed in feet or meters that represents the uncertainty due to random errors in measurements in the location of any point on a survey relative to any other point on the same survey at the 95 percent confidence level.

Background

The lines and corners on any property survey have uncertainty in location which is the result of (1) availability and condition of reference monuments, (2) occupation or possession lines as they may differ from record lines, (3) clarity or ambiguity of the record descriptions or plats of the surveyed tracts and its adjoiners and (4) Relative Positional Accuracy.

The first three sources of uncertainty must be weighed as evidence in the determination of where, in the professional surveyor's opinion, the boundary lines and corners should be placed. Relative Positional Accuracy is related to how accurately the surveyor is able to monument or report those positions.

Of these four sources of uncertainty, only Relative Positional Accuracy is controllable, although due

to the inherent error in any measurement, it cannot be eliminated. The first three can be estimated based on evidence; Relative Positional Accuracy can be estimated using statistical means.

The surveyor shall, to the extent necessary to achieve the standard contained herein, (1) compensate or correct for systematic errors, including those associated with instrument calibration, (2) select the appropriate equipment and methods, and use trained personnel and (3) use appropriate error propagation and other measurement design theory to select the proper instruments, field procedures, geometric layouts and computational procedures to control random errors.

If radial survey methods, GPS or other acceptable technologies or procedures are used to locate or establish points on the survey, the surveyor shall apply appropriate procedures in order to assure that the allowable Relative Positional Accuracy of such points is not exceeded.

Computation of Relative Positional Accuracy

Relative Positional Accuracy may be tested by: (1) comparing the relative location of points in a survey as measured by an independent survey of higher accuracy or (2) the results of a minimally constrained, correctly weighted least square adjustment of the survey.

Allowable Relative Positional Accuracy for Measurements Controlling Land Boundaries on ALTA/ACSM Land Title Surveys

0.07 feet (or 20 mm) + 50 ppm



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