
HOOSIER SURVEYOR



QUARTERLY PUBLICATION OF THE
INDIANA SOCIETY OF
PROFESSIONAL LAND SURVEYORS, INC.

VOLUME
14
NUMBER
4
WINTER 1988



AFFILIATED WITH THE
AMERICAN CONGRESS ON
SURVEYING & MAPPING



**John V. Schneider and Jacob E. Hall Presented 1987 Bridge Award
by ISPLS President Don Bengel**

Also in this issue:
Satellites Provide New Tools
The Surveyors Report
Purdue and Vincennes Scholarship Drive
1988 Convention Review



Full Featured at
an Affordable Price



• **Twin Keyboards**

You'll experience fewer keypunching errors because there is no reaching around to an unseen keyboard.

• **Pocket-size Battery**

Two powerful, cassette-style batteries are easy to carry and can be recharged from your car battery.



Dual
Displays

Illuminated displays on each face show nine user-selectable combinations of data.

**Automatic
Data
Transfer**



The SET4 allows automatic data transfer to RS232C compatible devices for data storage and computations. You can connect your SET4 directly to the Lietz SDR2 Electronic Field Book for extensive collection and computation capabilities.

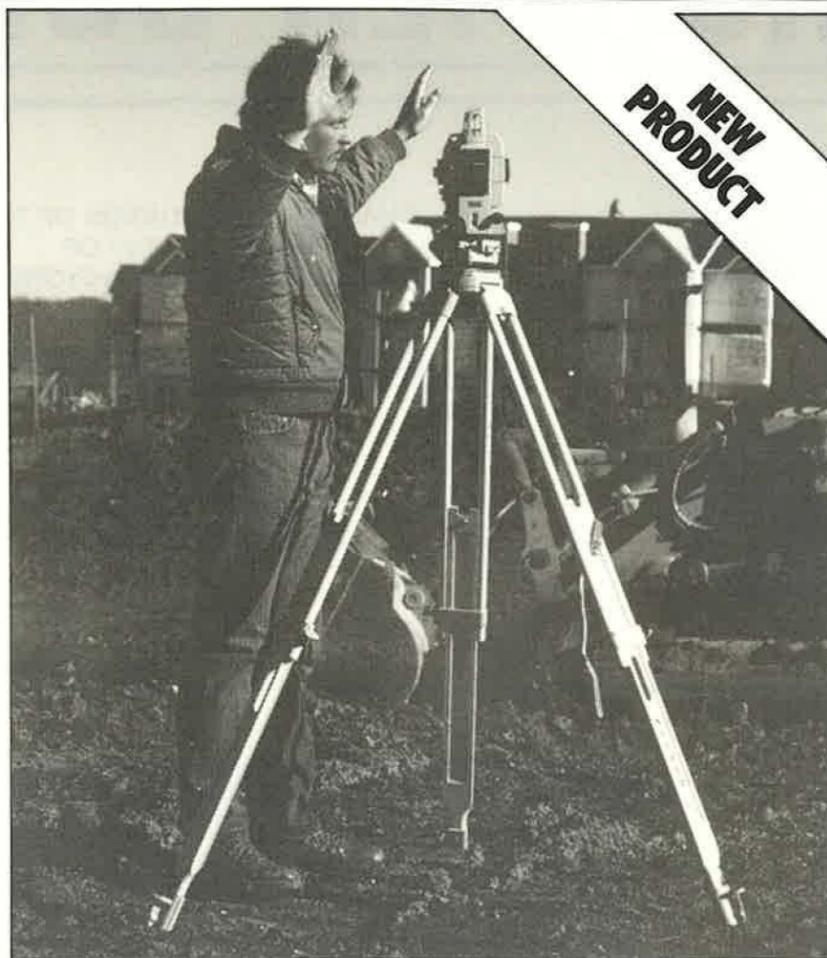
Interfaces also available for your HP41 and HP71.

For more information about the SET family of total stations, contact your nearest Lietz Authorized Distributor or call **1-800-255-6884.***

*In AK, HI, or KS,
call 1-913-492-4900.



© 1987, The Lietz Company



SET4: GET SET TO BUILD YOUR OWN AUTOMATED SURVEY SYSTEM.

Build your automated survey system on a solid foundation. SET4, the newest member in the SET family of quality electronic total stations, allows you to **economically** automate your surveying procedures with confidence.

The same quality you'll find in the top-of-the-line SET2 and SET3 is built into the SET4. The addition of the SET4 to the Lietz total station line gives you the flexibility to choose Lietz quality and technology at a **price lower than ever before.**

For your ease in viewing and operation, there are two displays and a full keyboard on each face of the instrument. To help you guard against

errors, the SET4 has a two-step zero reset feature, an electronic level vial and a shielded lower tangent clamp.

When you buy a SET you get a member of the proven Lietz System S3. Our field-to-office system consists of the SET family of instruments, the SDR2 Electronic Field Book, and our Surveying Software packages, Coordinate Geometry Plus™ and Contour Plus™. Be twice as competitive and more profitable on every job with the complete System S3.

For more information about the SET4, call:

1-800-255-6884.*

Available under GSA
Contract No. GS00F-93527

1988 Directors and Officers

John V. Schneider - President
3020 N. Post Road
Indianapolis, IN 46226
Home 317-844-7560
Off. 317-898-8282

Gary R. Kent - President-Elect
3020 N. Post Road
Indianapolis, IN 46226
Home 317-844-4347
Off. 317-898-8282

Jerry L. Carter - Vice-President
670 Russell Lake W. Drive
Zionsville, IN 46077
Home 317-873-5044
Off. 317-842-6777

Randolf A. Sexton - Secretary
P.O. Box 695
Kendallville, IN 46755
Home 219-347-4345
Off. 219-347-4345

Danny K. Leek - Treasurer
8333 Stonegate Drive
Newburgh, IN 47630
Home 812-853-9620
Off. 812-464-9585

DIRECTORS (Term Expires '89)

E. Donald Bengel - President
703 Division Road
Valparaiso, IN 46383
Home 219-465-0988
Off. 219-462-0690

Byron M. Brady
55308 Jay Dee Street
Elkhart, IN 46514
Home 219-294-5108
Off. 219-293-3611

Jerry L. Carter
670 Russell Lake W. Drive
Zionsville, IN 46077
Home 317-873-5044
Off. 317-842-6777

Randolf A. Sexton
P.O. Box 695
Kendallville, IN 46755
Home 219-347-4345
Off. 219-347-4345

DIRECTORS (Term Expires '90)

Rolyn H. Blankenbeker
8 Cypress Drive - P.O. Box 157
Jeffersonville, IN 47130
Home 812-282-3893
Off. 812-282-4183

Jacob E. Hall
6020 E. Raymond Street
Indianapolis, IN 46203
Home 317-356-1163
Off. 317-253-1533

Danny K. Leek
8333 Stonegate Drive
Newburgh, IN 47630
Home 812-853-9620
Off. 812-464-9585

John V. Schneider
3020 N. Post Road
Indianapolis, IN 46226
Home 317-844-7560
Off. 317-898-8282

DIRECTORS (Term Expires '91)

Pat Cunningham
128 N. 3rd Street
Lafayette, IN 47901
Home 317-474-6387
Off. 317-742-1469

Brad R. DeReamer
3020 N. Post Road
Indianapolis, IN 46226
Home 317-462-4126
Off. 317-898-8282

Douglas K. Herendeen
RR2, Box GM48
New Palestine, IN 46163
Home 317-861-6298
Off. 317-872-4615

Gary R. Kent
3020 N. Post Road
Indianapolis, IN 46226
Home 317-844-4347
Off. 317-898-8282

HOOSIER SURVEYOR

VOLUME 14, NUMBER 4, WINTER 1988

Committee Assignments (1988)

STANDING COMMITTEES

Headquarters

Executive Committee

John V. Schneider, President
Gary R. Kent, President-Elect
Jerry L. Carter, Vice-President
Randolf A. Sexton, Secretary
Danny K. Leek, Treasurer

By-Laws

Roger Woodfill, Chairman
Brad Andrew
John Beals

Governmental Affairs

Pat N. Cunningham, Chairman
Jake Hall
Brad R. DeReamer
E R Gray III
Bob Johnson

Chapters

Randy Sexton, Chairman -NE
Mike Feldbusch - SW
Michael DeBoy - Central
John McNamara - St. Joe
John DeMais - Tippecanoe

Convention Coordinating

Bob Bigelow, Chairman
Daniel Pusey
Gary R. Kent
Doug Herendeen -
1989 Convention Chairman
1990 Convention Chairman

Education

Danny Leek - Co-Chairman
Art Haase - Co-Chairman
Jacob Hall
Steve Murray
John Moore
Jeffrey Meyerrose

Ethics Committee

Don Bengel - Chairman
Pat Cunningham
Bob Bigelow
Bill Tanke

Finance

Treasurer
Jake Hall

Public Relations

Douglas K. Herendeen, Chairman
Jerry Carter
David Wolf
Victor McCauley
Dennis Singer
Bill Tanke
Mike Feldbusch
John McNamara
Roger Fine
Art Haase
Brad Andrew
William Boyer

Membership

Joe Blevins, Chairman
Michael L. Crawford
Tom Daugherty
John Silnes
Brad DeReamer

Scholarship

Dan Pusey, Chairman
Randy Sexton
Danny Leek
Rollyn Blankenbeker
Lee Bender
Orwic Johnson
Emil Beeg
Greg Deeds

Nominations

Wes Day, Chairman
John McNamara
Jim Morely
John Beals
Roger Woodfill

Library

Gary Kent, Chairman
Ken Curtis
Dan Pusey
Mike Mulryan
Rick Flayback

Standards

Wes Day, Chairman
Gary Kent
Pat Cunningham
Michael Arena
John Silnes
Gordon Richardson

Publications

Jerry Carter, Interim Chairman

Hoosier Surveyor
Gary Kent - Editor
Ken Curtis - Asst Editor
Dennis Grumpp - Advertising
Printing & Distribution
Field Reporters

1989 Annual Convention

Doug Herendeen, Chairman

1990 Annual Convention

Collegiate Liaison

Bob Bigelow, Chairman
Dan Pusey
John Beals
Pat Cunningham
Ben Bledsoe

County Surveyors Assoc.

Don Bengel, Chairman
Rollyn G. Blankenbeker
John Manship
David Wolf
John McNamara

**Indiana State Board
of Registration**

Wes Day, Chairman
Jacob Hall
Pat Cunningham
Gary Kent
Brad DeReamer

Indiana Historical Land Marks

Nelson Prall, Chairman
Jerry Martin
Roger Woodfill
Den Anderson
Vic McCauley

**Great Lakes Coordinating
Council Delegate**

Jake Hall

N.S.P.S. Governor

Gary R. Kent
Jacob Hall, alternate

Plat Act Study Committee

David Pilz, Chairman
Richard L. Hudson
David K. Wolf

EDITOR'S NOTE

Deadlines for copy for various planned issues of the *HOOSIER SURVEYOR* are as follows:

Winter issue - January 31 Summer issue - July 31 Spring issue - April 30 Fall issue - October 31. The *HOOSIER SURVEYOR* is composed and reproduced by McDowell/James Printing Co., Indianapolis, IN.

The *HOOSIER SURVEYOR* is published quarterly by the *INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS*, to inform land surveyors and related professions, government officials, educational institutions, libraries, contractors, suppliers, and associated businesses and industries about land surveying affairs.

Editorial/Advertising Offices: 5355 E. 38th Street, Suite 209
Indianapolis, Indiana 46218
317/546-0188

Advertising rates, closing dates, circulation data on request. Contributed articles, photographs subject to space limitations.
Gary Kent
Editor

Contents

Masthead	1
Contents	2
President's Page	3
Satellites Provide New Tools for Accuracy	4-6
1988 ISPLS Convention in Review	8-9
Society to Endow Scholarships at Purdue and Vincennes	10
President's Address at ISPLS Convention	12
The Surveyor's Report	14-17
Calendar/Classifieds/Notices	18
ISPLS Joins in Hiring Legislative Intern	18
Occupational Risks of Surveying	18
ISPLS Sustaining Members	19
ISPLS Firm Members	20
ISPLS Application	21

The President's Page

John Schneider is President of Schneider Engineering Corp., Indianapolis, Indiana. He served on the ISPLS Board from 1975-1978 and was again elected to the Board in 1986. This is his second term as President, having previously served in that position in 1978.

"When angry, count four; when very angry swear" - Pudd'nhead Wilson's Calendar

Mark Twain

A special thanks to the Northwest Chapter for a great convention. Good programs, nice facilities and great people; what more could we ask ?

I want to briefly follow up on several comments I made at our annual meeting. Regarding our commitment to aggressively pursue and prosecute, if necessary, parties practicing land surveying without a license, new complaints are starting to come in. I think we've finally hit a nerve, and Professional Surveyors are tired of their markets being eroded and so many surveys being unnecessarily complicated by every Tom, Dick and Harry who has access to a transit. In Indiana today, many surveys are being performed by non-registrants functioning autonomously. They have separate fees for certified and uncertified work, and the certified work is accommodated by a plan stamper. These type practices are illegal and are relatively easy, although sometimes time-consuming, for us to pursue. The key is bringing them to our attention. The ISPLS Board of Directors will take the lead in filing the appropriate complaints. What we need from the membership is to keep your eyes open and to document that which you find.

Another practice causing problems is the Partnership or Corporation practicing land surveying without an owner/principal being registered. Several instances of plan stamping have been documented within this type organization, but to this point their plight of hardship and trying to do what's right have fallen on sympathetic ears. We will continue to pursue these cases and continue in our efforts to convince the appropriate agencies that these firms have no business being in the practice in the first place. It is probably time for Indiana to follow many other states who only allow licensed professionals to be principals in professional firms, and who only permit these firms to practice in the professions in which the principals are registered. It all seems so logical, but unfortunately even the logical needs to be legislated.



LIETZ

TOPCON

WILD

why
SEILER
is your best source
for on-site

INSTRUMENTS
and
SUPPLIES
STATE OF THE ART
EQUIPMENT

At Seiler we offer a broad selection of top quality equipment, competitively priced.

Stop by or give us a call today.

SEILER
INSTRUMENT

170 E. Kirkham Avenue • St. Louis, MO 63119 • Phone (314) 968-2282
1-800-654-6894 (Outside of Missouri)
950-0777-632-3338 (Nationwide and Missouri)

● WELL-EQUIPPED SERVICE DEPARTMENT
Your equipment is an investment, and we can help you take care of it. Our service department is staffed with highly-trained technicians who can tackle almost any repair or service problem you may have.

● ONE-STOP HEADQUARTERS
We're also your one-stop headquarters for sales, service, rentals and supplies used in the construction industry. At Seiler we're committed to quality and customer satisfaction.

Satellites Provide New Tools for Accuracy

by Cary B. Dodge, P.L.S.

Professional surveyors were roaming the woods at two in the morning around Amherst, Massachusetts last March. Why? Because residents there are on a health kick.

Prompted by a health-conscious citizenry desiring a safe, scenic option for outdoor recreation, municipalities throughout the Northeast are converting railroad beds, horse trails along former barge canals, and rural roads into bicycle paths. An increase in the number of enthusiasts looking to spend a leisurely afternoon in the fresh air justifies the expenditures for construction; government officials have enlisted the support of local firms in the surveying, planning, and design stages.

Following the success of a bike path constructed of Cape Cod, the Commonwealth of Massachusetts was looking for other land on which to build similar recreation facilities. Two years ago, the Massachusetts Department of Environmental Management purchased the right-of-way of the former Conrail railroad bed that winds through several communities in western Massachusetts.

The \$4 million project will connect existing trails which start in Amherst, wind through Hadley, and end nine miles later in the town of Northampton. Along the way, the path circumvents heavy traffic on Routes 9 and 116, and connects the five colleges in the area.

Early Morning Opportunity

So why were those surveyors roaming around at 2 a.m.? The trail is surrounded by forests and crosses several bridges along the way, and figuring your exact bearings in such terrain is difficult and time-consuming. And so C.T. Male Associates of Latham, New York, the interdisciplinary engineering and surveying consulting firm contracted for the project, used a new technique which relies on signals from satellites orbiting the earth to pinpoint the exact location and length of the bike trail. Unfortunately for the crew from C.T. Male's Greenfield office, the best time to do the survey at that particular time of year happened to be during the middle of the night. But it was worth the effort, in terms of saving

time and, most importantly, staying within the client's budget.

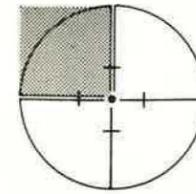
The heart of this method is called the Global Positioning System or GPS. It has allowed mapping experts to "relocate" the Empire State Building 120.5 feet northeast of where it was once thought to be, and "shifted" the Washington Monument northeast by some 94.5 feet. The space satellites provide much more exact bearings than were available from conventional survey techniques, which measured angles and distance on the ground.

New Tools for Accuracy

With GPS, the absolute position of each satellite is known, making them essentially "flying control points." Very simply, the distance between each satellite and an unknown point on the ground can be computed and used to calculate distance between survey points on the ground. There are several distinct advantages to this method. GPS gives high accuracy distance measurements, no matter what the obstacle between them; only the sky needs to be seen in GPS surveying. Thus GPS is the method of choice in situations involving long distance or where visibility between points is obstructed. The points can be on opposite sides of a mountain, building, or forest, and still accurate measurements can be calculated.

The bike path survey involved the positioning of five points, relative to a reference benchmark, or control point, on nearby Mount Holyoke. Each point was in forested land, ranging from three to six miles in distance from the benchmark, and no point had a clear line of sight to another.

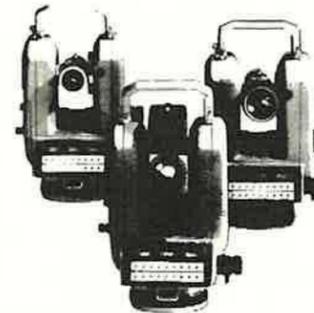
Although it uses sophisticated technology, the basic concepts of GPS follow a straightforward method called differential positioning. A receiver is placed over a known benchmark, or control point, and the second and third receivers are located at the points whose coordinates are unknown. By computing the range between each receiver and at least four satellites, the exact location of each unknown point, and its distance from the control point, can be calculated.



INSTRUMENT SALES & SERVICE OF INDIANA, INC.

6330 EAST 75TH STREET • SUITE 114 • INDIANAPOLIS, INDIANA 46250

317-849-7090
Toll Free - 1-800-533-2280



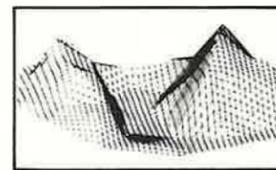
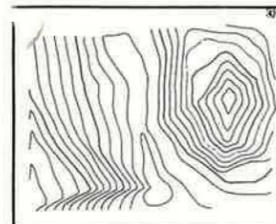
**WILD®
HEBRUGG**

- Total Stations
- Optical Theodolites
- Electronic Distance Meters
- Plummets
- Lasers
- Computer Systems
- Support
- Electronic Theodolites
- Data Terminals
- Levels
- Tripods
- Gyros
- Surveying Software
- Training
- Accessories



CADserv
INCORPORATED

RETRIEVER
AUTOMATED SURVEYING
& MAPPING SYSTEM
REFERENCE GUIDE



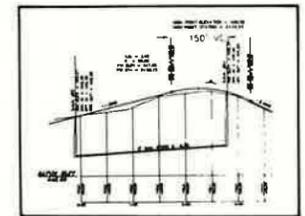
AUTOCAD®

D.C.A. & AutoMAP

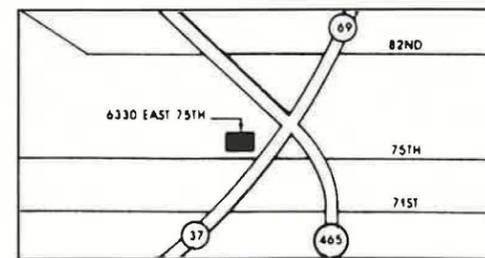
Software programs that
run completely
inside AutoCAD®.

Have you ever wondered how you can get a drawing into AUTOCAD with lines and symbols in place in under an hour from 500 raw data points, including Contours and Digital Terrain Model?

Survey Pac



WE SUPPORT WILD, TOPCORN, LIETZ, and NIKON SURVEYING INSTRUMENTS AND DATA COLLECTORS
WE CAN BRING IT ALL TOGETHER! CALL FOR A FREE DEMONSTRATION



Stop by and have a cup of coffee with us.
We look forward to serving you!

Hours: M-F, 7 a.m. - 6 p.m.
Sat., 8 a.m. - Noon (Donuts are on us)

- Computer Systems Sales, Training and Support (Hardware & Software)
- Instruments and Field Support (Sales, Service and Rentals, including FREE Loaners)
- On-Site Demonstrations and Delivery

AutoCAD® is a registered trademark of Autodesk, Inc., Sausalito, CA

To figure the bearings of the unknown points, C.T. Male set up three ISTAC-SERIES GPS Positioner 2002 (tm) systems, provided by Boulder Systems Inc. of Pasadena, California. Each unit consists of a compact antenna/receiver, internal batteries and charger, and a portable computer to collect the radio signals broadcast from the satellites.

With this equipment, the survey crew was able to accurately determine all the distances involved, meeting or exceeding the surveying accuracies required by the client. A surveying crew using conventional survey techniques would take approximately two weeks to achieve the same results. C.T. Male completed the project in approximately one-third the time and at a considerable savings to the client.

Applications of GPS

On larger and more complex jobs, it is not uncommon for GPS to appear even more favorably in comparison. Any surveying or positioning application that involves points spaced further than one-half to one mile apart, or where points are not visible from one to another can be done faster and more effectively using GPS.

C.T. Male first used GPS in the survey of a 10,000 acre plot deep inside a rugged 35,000 acre township in remote northern Maine. Crews accomplished that project in half the time (compared to conventional survey techniques), at a savings of approximately \$40,000. Another project involves mapping a 16,000 acre plot with a 33-mile boundary. The terrain is extremely rugged, with swamps, steep elevations, and dense underbrush. Using GPS, 18 man-months or \$70,000 will be saved.

Other applications well-suited to GPS include: urban tax mapping projects; large mapping projects in high terrain or extremely rugged areas; coastal surveys; control surveys for new shopping centers, office parks and industrial or institutional complexes, large residential development surveys; and transmission line siting.

Design Stage on Schedule

Thanks to the wealth of accurate information provided by GPS for the bike path, planning is proceeding on schedule. Vanasse/Hangen, a consulting engineering and planning firm out of Boston, Massachusetts, has been selected to provide design services. Funding for the project is administered by the Commonwealth's Department of Public Works. Project details call for major improvements to the railroad bed, including updating five railroad bridges dating from the early 1900's. The most dramatic aspect of the project is the refurbishment of a 1700-foot-long railroad bridge that spans the Connecticut River and offers spectacular views. That even makes standing in the cold at 2 a.m. worthwhile.

Author Information

Cary Dodge is an Indiana Registered Professional Land Surveyor who managed his own abstract and title company in Monticello, Indiana from 1982 to 1986. Last year Cary moved to Greenfield, Massachusetts to become Branch Office Manager of C.T. Male's Greenfield office.

C.T. Male Associates is an interdisciplinary consulting firm offering capabilities in civil, environmental, mechanical, electrical, and structural engineering; surveying, land planning and site development; landscape architecture; architecture; and laboratory testing. Clients include private developers, government, industry, commercial businesses, attorneys, realtors, and other professionals.



ISTAC Model 2002
Photo by Barry A. Donahue/C.B.R. 1987 ©

CALCOMP NEC KERN TOPCON LIETZ NIKON

HEWLETT PACKARD

DAVID WHITE

NIKON

LIETZ

TOPCON

KERN

DAVID WHITE

HEWLETT PACKARD

CALCOMP

NEC

KERN

TOPCON

When
you're ready
to buy . . .



For the BEST PRICE . . .

CALL US LAST

800-225-1945

In MA (617)864-4840

Or call for our new 168 page catalog.



HEINRICH
711 Concord Avenue
Cambridge, MA 02138

1988 ISPLS Annual Convention a Success

A variety of excellent technical sessions, encouraging reports and actions at the annual meeting, a well-planned social agenda and good attendance all combined for another highly successful Merrillville convention this past January.

Technical Sessions

On Thursday a well received presentation on the Chicago deep tunnel project started the sessions off on a high note.

Many were not even aware that the multi-billion dollar project to alleviate flooding and pollution in the Chicago area was underway, but the presentation brought everyone up to date on the progress of this monumental undertaking.

The Thursday afternoon concurrent sessions were well attended and subsequently generated a great deal of talk during the rest of the convention. At the two sessions attended by this reporter, Lorraine Petzold of the Ontario Land Surveyors told listeners how to take control of their professional destiny through our professional organizations and John Harris described how to be more effective in our oral communications. Both were excellent, useful sessions.

On Friday, the sessions were once again well received with the highlight being the GPS program which was attended by members of the Western Great Lakes Region of ASPRS. Sessions presented by Milt Denny and Stu Walesh also proved very beneficial and informative.

Exhibit Hall Popular

The exhibit hall was full as usual and a great deal of traffic was observed passing through the doors. More than one exhibitor reported excellent sales and a number of good prospects.

The following vendors are to be thanked for their generous contributions of many fine products which were awarded in a drawing at the Friday evening banquet:

Air Maps
Chicago Steel Tape
G. Lengeman Co.
Hickerson Instrument Co.
Instrument Sales and Service
Kara Co., Inc.

National Surveying Instruments Inc.
Seiler Instrument Co.
Vincennes University

Awards Presented

ISPLS President Don Bengel recognized the efforts of many society members throughout 1987 at the Friday Evening banquet.

Joe Blevins, Wes Day and Luther Condre received Presidential Citations for their efforts. Joe donated a computer to ISPLS during the year and did most of the work on the preparation and printing of the new society roster. Wes was recognized for his work on the survey standards and as registration board liaison and Luther was cited for his efforts on the registration board on behalf of the society.

The Bridge Award was, for the first time, awarded to two persons. John Schneider and Jake Hall, both previous recipients of the award were recognized for their outstanding contributions to ISPLS in 1987.

**Interested In
Joining Your National
Association?...**

Complete the form below to receive information about the American Congress on Surveying and Mapping.

Yes, I am interested in receiving information about ACSM. Please send information to:

Name _____

Address _____

City _____

State _____ Zip _____

Telephone _____

RETURN FORM TO:
ACSM Membership Department
210 Little Falls Street
Falls Church, Virginia 22046
703 241-2446



Clockwise from upper left: Dan Pusey kicked off the Vincennes and Purdue Universities scholarship endowment drive; former ISPLS presidents Bob Bigelow and Pat Cunningham in the ISPLS booth; Ross Holloway gets the pitch from Maptech representative Larry Worley; Director Brad DeReamer and Ed Hutson; ACSM Vice-President James Weidener and Ontario Land Surveyors Executive Director Lorraine Petzold; Purdue professor Howard Turner and Ordell Gertsmeier; the exhibit hall was well-attended; Michigan Registered Land Surveyors President Jim Granger.

**ISPLS Membership and Board Endorse Scholarship Endowments
at Purdue and Vincennes Universities**

The ISPLS Board of Directors at its January 13th meeting acted on a motion by Dan Pusey and approved the establishment of endowments for surveying education at Purdue and Vincennes Universities.

\$10,000 Goal Set for Each University

A goal of raising \$10,000.00 for each university by the end of 1988 was set. \$5000.00 is the minimum allowed for the establishment of an endowment.

Society Funds Dedicated in Separate Actions

At the Board meeting, the Board voted to present \$1,250.00 to each university to begin the fund raising effort. The motion also included a provision by which ISPLS would provide whatever additional funds might be necessary to reach \$5000.00 at each university should the fund raising efforts fall short of those numbers.

Subsequent action at the annual meeting added to that commitment. Acting on a motion by John McNamara, the membership voted

unanimously to increase dues \$20 per year for the next two years with the increase going to the endowments.

**Scholarship Committee to Spearhead
Fundraising Effort**

The ISPLS Scholarship Committee, headed by chairman Dan Pusey, will coordinate the 1988 fund raising effort. Mailings will soon be sent and personal contacts made to encourage donations to the universities. Details on how to make out your check and where to mail it will soon be available and will be included in the mailing. IRS regulations require that we make special notice of the fact that donations to non-profit organizations are not tax deductible. For this reason donations should not be made to ISPLS, but rather to the appropriate University entity when that information is made available.

Watch for details in your mailbox and be prepared to make your donation !!

Word has been received that a substantial corporate donation of \$1000.00 is already in the hands of the Scholarship Committee !!

SERIES E – the new electronic line from Carl Zeiss.

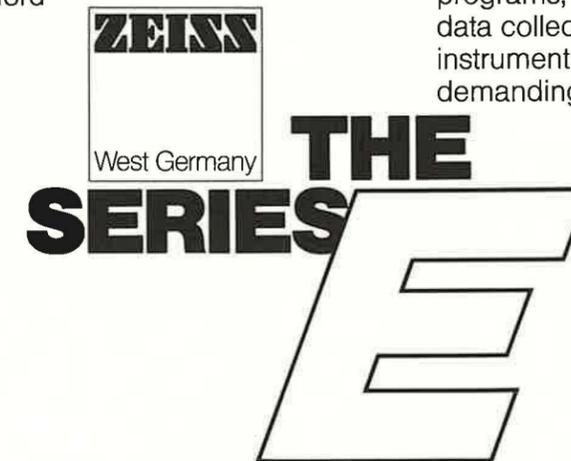
Total Stations with advanced electronics



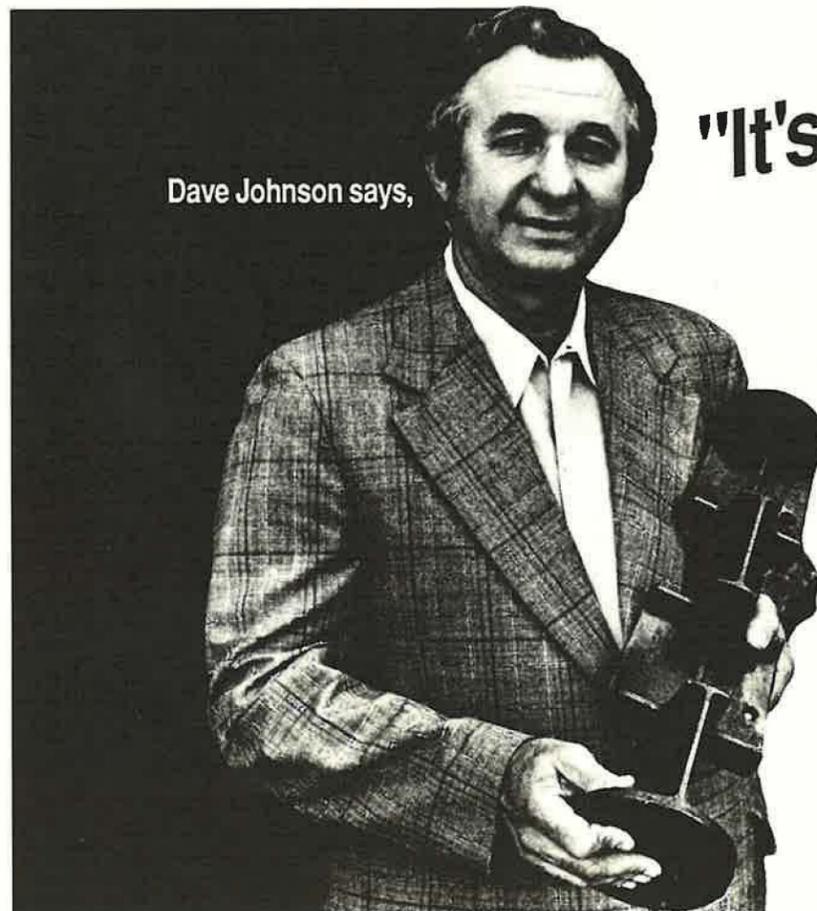
Zeiss Elta 4 – a state-of-the-art Total Station with high-performance programs and three-second accuracy – at an extremely affordable price.

Zeiss Elta 3 – a Total Station with two-axis compensator, one to two-second accuracy, selectable measuring programs, interface for data collection. The instrument for the most demanding surveyor.

Zeiss Series E – modern surveying instruments where the flexibility and ease of operation made possible by advanced electronics are combined with the reliability and attractive pricing of conventional instruments.



For details, contact your nearest authorized Zeiss dealer or Carl Zeiss, Inc. One Zeiss Drive Thornwood, NY 10594 (914) 681-7367



Dave Johnson says,

"It's stubborn!"

That's a Harrison.

Hit it hard with a shovel. Smash into it with a plow. The top cracks off, but the base still holds its ground!

Even dig it out—the residue marks the corner. Let's face it: Harrison markers could be forever.

Write or call for information.

**HARRISON
MARKER and
INSTRUMENT CO.**

Box 66, Anoka, MN 55303
Telephone (612) 421-1445

President's Address

The following comments were made by ISPLS President John Schneider in an address to the ISPLS Convention banquet attendees on January 15, 1988

I would like to say a few words regarding professionalism and Land Surveying as a profession. This topic was a recurring theme this week. There was a time in our country's history when the land surveyor was a highly respected professional. No one in this room has to be told about Abraham Lincoln, George Washington or Thomas Jefferson and their relation to the profession. I believe the reason the profession was held in such high esteem in the distant past was because the surveyor of that era was highly learned, and not just in a technical sense. They had broad educations, some of it formal, but most acquired through their commitment to self education and self improvement. And they knew as leaders, that they could pass on the benefits of their efforts to their peers and those that followed.

At some point this changed; the pendulum swung to the other side, and the profession was permeated by another personality type. The mental picture that I draw is of an uneducated person who didn't understand land surveying, but who knew how to manipulate, use, and beat the system. For instance, he didn't recover original corners and perpetuate them, he just carried an assortment around in his vehicle and set them when convenient. He didn't know or understand mathematics, but he could fake it with his transit, tape, scale, and protractor. Unfortunately for us today, a few of his descendants persist, and we run into them more than we like.

One of our members relayed a story to me the other day of a land surveyor in his 60's. He apparently acquired his license through the grandfather clause when land surveyor registration was enacted. Our member and this other surveyor were discussing a problem that arose on what should have been a common line, and the other surveyor commented "I didn't realize that there are angle breaks at the quarter corners". It's sad to think that this man has been practicing surveying for probably 40 years, and yet he hasn't enough respect for the profession to pick up a book and learn the elementary principles of property surveying.

Fortunately however, I see the pendulum swinging back. Surveyors are becoming more educated formally and informally. They are demanding quality educational programs like what we witnessed here this week. They have demanded standards and continuing education, and with our computers, CAD, total stations, data collectors, and GPS equipment, we are operating in such a sophisticated world that the incompetent and unscrupulous surveyor is not going to be able to fake his way through much longer.

We are on the brink of a future filled with hope and excitement and I applaud the Indiana surveyors for their effort in bringing us to this point. But there will be new perils awaiting us in this future, and it is imperative that our Society GROW and PROSPER and UNIFY so we can meet the challenges of the future head on.

Serving You Direct In Northern Illinois, Northwest Indiana and Eastern Iowa



- Total Stations
- Optical Theodolites
- Electronic Distance Meters
- Plummets
- Lasers
- Computer Systems
- Support
- Electronic Theodolites
- Data Terminals
- Levels
- Tripods
- Gyros
- Surveying Software
- Training
- Accessories



Whatever your surveying needs and related computer requirements for Software, Hardware, or Peripherals — take advantage of Wild's unmatched reputation for quality, service and value.

- Computer Systems Sales, Training and Support (Hardware & Software)
- Instruments and Field Support (Sales, Service and Rentals, including FREE Loaners)
- On-Site Demonstrations and Delivery
- Wild Lease Program

Please call:

- Bennett Golden 312-798-7384
In Northern Illinois, Indiana's Lake County, and Iowa Counties of Clinton, Dubuque, Jackson & Scott

or CALL TOLL FREE 1-800-645-9190



GSA Contract No. GS00F-78082



Wild Heerbrugg Instruments, Inc. • 24 Link Drive, Rockleigh, NJ 07647
800-645-9190 • 201-767-1100

WILD
HEERBRUGG

The Surveyor's Report

by Gary R. Kent, L.S.

Introduction

The Indiana Survey Standards were adopted by the membership of the Indiana Society of Professional Land Surveyors at the annual meeting held in Evansville in January 1986. An integral part of the standards is the concept of the *Surveyor's Report*.

The Standards state "*The surveyor should: . . . Furnish the client with a written Surveyor's Report which in addition to other pertinent data gives the Surveyor's professional opinion of the amount of theoretical uncertainty (tu) in the lines and corners used in the Survey because of each of the following: a) Availability and condition of referenced monuments b) Clarity or ambiguity of the record description used and/or adjoiner's descriptions and effective June 1, 1989; c) random errors in measurements, both linear and angular*".

The Schneider Engineering Corp. Experience

A version of a Surveyor's Report was created at Schneider Engineering Corp. in order to comply with the standards. It has been used in one form or another successfully and without serious challenge since January 1986.

The purpose of this article is to explain the concepts used in the Schneider *Surveyor's Report*, to discuss questions that have been raised related to the Report and to encourage to use of this or a similar form of Report across the state.

On the opposite page is the standard report form used. Details related to the particular survey are filled in as directed and explained by the parenthesized, italicized wording.

Writing the Report

In the body of the Report, a brief explanation of how the survey was performed is presented first. This explanation is specific only to the extent necessary to identify the "reference monuments" used (section corners, subdivision monuments, curb or building lines, etc.) and to give an opinion as to the integrity of (or uncertainty in) those monuments. This opinion is used later in identifying the variance in the corners and lines of the surveyed tract.

Following the discussion of reference monuments is a thorough explanation of any and all problems found with the record description or plat. These problems might typically include noting the magnitude and direction in the misclosure of a metes and bounds description or the lack of sufficient dimensioning on a plat. It would also include any deed overlaps or gaps discovered in the process of the research associated with the survey. These uncertainties are used later in identifying the discrepancies relating to the corners and lines of the surveyed tract.

Finally, any evidence of lines of possession is identified and the relationships to the surveyed lines explained. Such evidence normally includes fence lines, buildings located close to property lines, corner monuments found in the course of a survey and encroachments discovered. As with the other items, this information will be used later in identifying the inconsistencies in the lines and corners of the property.

Once the discussion in the body of the report is complete, all of the sources of uncertainties and their magnitudes and relationships to the various lines and/or corners of the survey are spelled out concisely and with clarity.

When Questions Are Raised

When quizzed about a particular item in the report which may be bothering an attorney, lender or title company, we briefly explain what we are trying to accomplish by making the disclosure. Normally this involves explaining the source of the particular uncertainty in a little more depth. Emphasis is placed on the fact that the uncertainties are normally related to circumstances or facts beyond the control of the surveyor.

As an example, two feet of inconsistency may be placed on a corner where an unexplained iron pipe was found two feet from the surveyed corner. This is a fact that is being reported for the benefit of the client and the attorneys, lenders and title companies involved with the real estate transaction. It is not an opinion or interpretation being made to lower the purported accuracy of the survey.

We have found that without exception, once the situation is explained in an

The Surveyor's Report continued

Surveyor's Report

1) In accordance with the Indiana Survey Standards as adopted by the *Indiana Society of Professional Land Surveyors* on January 17, 1986, the following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established on this survey as a result of:

- a) Variances in the reference monuments;
- b) Discrepancies in record descriptions and plats;
- c) Inconsistencies in lines of occupation as related to the surveyed lines:

(Discuss here the availability, use and integrity of reference monuments. These might be section corners, curb lines, and/or subdivision monumentation. This information is condensed and specifically applied to the affected lines and corners below.)

(Explain here any discrepancies discovered in deeds or plats. This would include magnitude and direction of misclosure, plats or blocks that do not close or overlaps and gaps with adjoining. This information is condensed and specifically applied to the affected lines and corners below.)

(Identify here all evidence of possession lines or lines of occupancy. This includes fences, buildings on or near lines, property corner markers found and encroachments observed. This information is condensed and specifically applied to the affected lines and corners below.)

As a result of the above observations, it is my opinion that the uncertainties in the locations of the lines and corners established on this survey are as follows:

*Due to Variances in reference monuments: *****
Due to Discrepancies in the record description: *****
Due to Inconsistencies in lines of occupation: ******

2) The within described tract of land does/does not lie within that Special Flood Hazard Zone A as said tract plots by scale on Community Panel Number ***** * of the Flood Insurance Rate Maps for the City of Indianapolis (maps dated May 15, 1984), Indiana.

Prepared ***** ***
Job #*****
Document Number *****.DOC

continued

informative manner, the persons raising the question are satisfied and pleased - *satisfied* that they know more

about the property and what affects the lines and corners and *pleased* that someone took the time to educate them.

In one actual case, a survey was performed on a metes and bounds tract, the record description of which gave the north-south distances as "200 feet, more or less". The northerly adjoiner's deed description also gave more or less dimensions. Based upon the 200 foot dimension, the northerly adjoiner's long-standing fence was found to be 20 feet across the line and his garage was 16 feet over the line. The Surveyor's Report noted a discrepancy of 20 feet in a north-south direction along the north line of the subject tract.

As anticipated, the client called to question why the accuracy of the survey was being "disclaimed" by 20 feet along the north line.

After explaining the lack of a definitive deed distance, the effect of a "more or less" distance and the possible unwritten rights associated with the fence, the client was satisfied that we had done our job. (Against our advice; however, he was interested in trying to claim the 20 feet).

The important result was that rather than thinking that he was being provided with a survey which we could get no closer than 20 feet, he was more educated about his property and better informed about surveying in general.

Working with the Title Company to Resolve Deed Problems

In another case, a title officer called and related that since the building on a surveyed tract was only 3 feet from the south line, the stated uncertainty of 2 feet for that particular line was too great for the title company to agree to. She asked what we would need to do to reduce the uncertainty related to that line.

We explained the various sources of uncertainty and how they affected the south line. The greatest problem was a record description which gave an inaccurate distance for the east line of the tract and failed to call for coincidence with the north right of way of a railroad along the south line of the tract.

We offered that we could write a new description, but could not certify that it would describe exactly the same property as that described in the record deed.

After some additional research by the title company, the title officer agreed to insure the new description which corrected the insufficiencies of the record description, thus allowing us to reduce the uncertainty on the south line to only 0.3 feet.

This experience resulted in a "victory" for all parties involved and represents exactly how the *Surveyor's Report* can be used as a vehicle to assist in the resolution of problems involving substantial uncertainty. The key is that the Report contains the necessary information needed by the client to right any problems that might exist.

A Typical Report

On the following page is a typical report. Although the reader does not have the benefit here of also reviewing the plat of survey to which this report was attached, the general idea of reporting the facts should be obvious.

After reading this report and reviewing the plat of survey, a client, attorney or title company should understand, at least on a basic level, that certain facts have resulted in uncertainties related to the lines and corners of the surveyed tract. Most importantly, they will understand the magnitude associated with those uncertainties.

Conclusion and Recommendations

The time has come for full disclosure to our clients of what we ourselves have always known about surveying - that due to factors beyond our control we are not, never have been and never will be perfect. This is why surveying is an art and not a science.

The surveyors in the state of Indiana must look closely at the factors which affect the integrity of the property corner markers they place. They must know and understand the magnitude of the uncertainties of the lines and corners they establish and they must decide how best to put this information into writing for the client. Hopefully this discussion has provided some insight into the various aspects involved in analyzing and communicating uncertainties.

... continued

Surveyor's Report

1) In accordance with the **Indiana Survey Standards** as adopted by the *Indiana Society of Professional Land Surveyors* on January 17, 1986, the following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established on this survey as a result of:

- a) *Variances in the reference monuments;*
- b) *Discrepancies in record descriptions and plats;*
- c) *Inconsistencies in lines of occupation as related to the surveyed lines.*

The dimensions of the northeast quarter of Section 30 were determined based upon prior surveys in the quarter section. The northeast corner of the quarter is a brass plug found per county references. In my opinion there is a negligible amount of uncertainty related to its position. The northwest corner of the quarter is a hinge nail found per county references. The estimated amount of uncertainty in its location is 0.3 feet. The southwest corner of the quarter is a rebar which, in my opinion has an estimated uncertainty in its position of 0.3 feet.

The corners of the subject tract were established per the description provided. An iron pin at the northeast corner of the subject tract was found 0.2 feet north and 0.7 feet west of the corner and an iron pin at the northwest corner was found 0.4 feet west of the corner.

A fenceline along the east line of the subject tract is about one foot west of the line. A fenceline along the south line varies from 1 to 5 feet north of the line. A fenceline along the north line of the subject tract is 0.4 feet south of the line at its west end and 0.1 feet north of the line at its east end. *The east, north and south lines of the subject tract may be affected by unwritten rights related to these fencelines.*

As a result of the above observations, it is my opinion that the uncertainties in the locations of the lines and corners established on this survey are as follows:

- Due to Variances in reference monuments: 0.3 feet*
- Due to Discrepancies in the record description: none*
- Due to Inconsistencies in lines of occupation: 0.2 feet north-south and 0.7 feet east-west at the northeast corner and 0.4 feet east-west at the northwest corner.*

2) The within described tract of land does not lie within that Special Flood Hazard Zone A as said tract plots by scale on Community Panel Number 180159 0060 C of the Flood Insurance Rate Maps for the City of Indianapolis, Indiana (maps dated 5/15/84).

Prepared April 13, 1987 GRK
Job #01-87-137
Document #0187137R.DOC

Calendar

March 13-18, 1988
ACSM-ASPRS
Annual Convention
St. Louis, Missouri

September 12-18, 1988
ACSM-ASPRS
Fall Convention
Virginia Beach, VA

January 25-28, 1989
ISPLS Convention
Indianapolis

January 1990
ISPLS Convention
Fort Wayne

* * * * *

Notices

The recently printed ISPLS *Standards of Practice* Brochures are still available through headquarters free of charge.

ISPLS Membership Committee Chair Joe Blevins has announced that the new ISPLS roster is "in the mail" to those members who did not attend the January Convention at Merrillville. Joe asks that any corrections be MAILED to his attention at ISPLS Headquarters (5355 East 38th Street, Suite 209 Indianapolis, Indiana 46218).

* * * * *

Indiana State Board of Registration Meeting Schedule

May 5-6, 1988
July 21-22, 1988
September 8-9, 1988
November 17-18, 1988

* * * * *

For Sale

HP-86B COMPUTER, HP-83913A monitor, HP-9121D disk drive, ROM drawer w/Advanced Programming, Matrix, Plotter, I/O Roms, HP-82938A HP-IL interface, LEWIS & LEWIS Surveying Software. Package purchased new from Lewis & Lewis. \$2500.00 317/872-8400.

ISPLS Joins with ICIC in Legislative Monitoring

ISPLS has joined with the other organizations of the Indiana Construction Industry Council in the hiring of a legislative intern to assist the organizations in the monitoring of legislation during the 1988 General Assembly.

Carole Spinner of Indianapolis agreed to serve as the Council's legislative intern this session. Ms Spinner is an IUPUI student pursuing a Master of Public Administration degree. She served as an intern in the Indiana Senate during the 1987 session.

The ICIC member organizations will be able to reach Carole by a telephone pager. She will provide copies of bills and will follow the status of bills which are of concern to the memberships.

* * * * *

Occupational Risks of Surveying

In an article from the *Journal of Occupational Medicine* entitled "*Estimates of the Probability of Job-Related Death in 347 Occupations*", it was reported by J. Paul Leigh of San Jose State University that Surveyors face an occupational death rate of 0.061 per 1000 workers. Among white-collar and clerical workers, this puts surveyors just above building managers and superintendents who check in at a 0.058 rate and just below athletes who registered 0.066.

The top risk in the same category were pilots with a rating of 0.976. Insurance adjusters, examiners and investigators showed the lowest numbers with only a 0.049 rating.

* * * * *

Member News

ISPLS Life Member Robert Fickle died on March 3rd in Indianapolis. Mr. Fickle owned a business in Lafayette for 30 years and had worked for the Indiana State Highway Commission for 20 years, retiring in 1975. He is survived by his wife and two sons.

1987-1988 ISPLS SUSTAINING MEMBERS

Accu-Air Surveys, Inc.
PO Box 63, 1220 "A" Ave., Freeman Field
Seymour, Indiana 47274

Allied Manufacturing Co., Inc.
SURV/KAP
P.O. Box 27367
Tucson, Arizona 85726

Ellerbusch Instrument Company
4509 Vine Street
Cincinnati, Ohio 45217

G.Lengeman Company
2314 N. 5th Street PO Box 496
Niles, Michigan 49120

Harrison Marker and Instrument Company
Box 66
Anoka, Minnesota 55303

Hickerson Instrument Co., Inc.
6011 E. 34th Street
Indianapolis, Indiana 46226

Instrument Sales and Service of Indiana
6338 E. 75th Street Suite 114
Indianapolis, Indiana 46250

Kara Company, Inc.
4400 Riverside Ave.
Lyons, Illinois 60534

The Lietz Company
P.O. Box 2934
9111 Barton Street
Overland Park, Kansas 66201

Marbaugh Engineering Supply Co., Inc.
121 W. North Street
Indianapolis, Indiana 46204

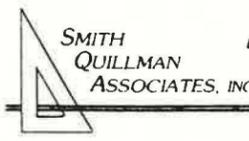
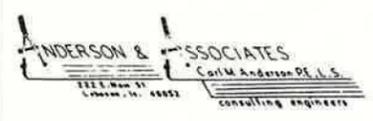
National Surveying Instruments Inc.
4050 West Parker Avenue
Chicago, Illinois 60639

Schonstedt Instrument Company
1775 Wiehle Ave.
Reston, Virginia 22090

Wild Heerbrugg Instruments, Inc.
24 Link Drive
Rockleigh, Maryland 07647

THANK YOU FOR YOUR CONTINUED SUPPORT !!

Firm Members

 <p>WEIHE ENGINEERS INC. ALLAN H. WEIHE, P.E., L.S. PRESIDENT 10505 N. College Indianapolis, In 46280 (317) 846-6611 VOORHEES C. (JIM) DALTON Res. Telephone: 898-5097 CIVIL ENGINEERS LAND SURVEYORS LAND PLANNERS</p>	 <p>MAJ CIVIL/SURVEYING, INC. Merrill A. Jones, A.I.A., P.E., L.S. President 435 East Main Street, Suite H P.O. Box 89 Greenwood, Indiana 46142 (317) 888-4496</p>	 <p>4625 Morningside Dr Post Office Box 155 Bloomington, IN 47402 (812) 336-6536 SMITH QUILLMAN ASSOCIATES, INC. Civil Engineering, Land Surveying, Landscape Architecture</p>
 <p>ANDERSON & ASSOCIATES 3121 N. 31st St Indianapolis, IN 46218 Specialists In Site Engineering Phones (317) 482-5141 873-2515</p>	 <p>James E. Dankert, PE., LS. Partner PAUL I. CRIPE, INC.</p>	 <p>ORDELL L. GERTSMIEIER Reg. Pro. Engr., Ind. 9511 Ind. Pro. Land Surv., 9970 158 NAPOLEON VALPARAISO IN 46383 219 462 1158</p>
 <p>SCHNEIDER ENGINEERING CORPORATION Civil Engineering - Land Surveying JOHN V. SCHNEIDER, P.E.L.S. PRESIDENT 3020 N. Post Road P.O. Box 26068 Indianapolis, Indiana 46226-0068 OFFICE 317 898 8282</p>	<p>JOHN R. DONOVAN, P. E. CIVIL ENGR. & LAND SURVEYOR Off. 424-7418 Res. 483-3313 2030 INWOOD DRIVE EXECUTIVE PARK FORT WAYNE, IND. 46815</p>	
	<p>13171 872-8400 JOE M. BLEVINS, L.S. Vice President FINK ROBERTS & PETRIE, INC. CONSULTING ENGINEERS 3007 WEST 18TH STREET INDIANAPOLIS INDIANA 46208 SPECIALTY: SITE SURVEYING, SITE DEVELOPMENT, STUDIES</p>	 <p>Mid States Engineering, Inc. Sol C. Miller, P.E., L.S. President 941 North Meridian Street Indianapolis, Indiana 46204 317-634-6235</p>
 <p>Plumb Tuckett & Associates 120 East 99th Drive • Merrillville, IN 46410 • 219-718-0955 ARCHITECTS SURVEYORS ENGINEERS William Arden Jr. L.S. Vice President</p>	<p>Paul Primavera & Associates P.O. Box 123 Corydon, Indiana 47112 812/738-4540</p>	<p>317-653-5603 317-653-6710 Alan Stanley & Associates, Inc. ENGINEERING AND SURVEYING 15½ S. Indiana Street Greencastle, Indiana 46135 ALAN STANLEY President</p>
<p>Brady Land Surveying 55308 Jay Dee Street Elkhart, Indiana 46514 219/293-3611</p>	<p>Site Line Inc. 610 W. Main Street Greenwood, Indiana 46142 John Silnes, L.S. (317) 882-9301</p>	<p>Land Surveyors Consulting Engineers  United Surveying, Inc. 5255 N. Tacoma Ave., Suite 4 Indianapolis, IN 46220 DANIEL R. WOO, Pres. Bus.: 317/253-4996 Registered Land Surveyor Res.: 317/894-8172</p>
 <p>REID QUEBE, ALLISON, WILCOX & ASSOCIATES, INC. 4740 KINGSWAY DRIVE • SUITE 500 • INDIANAPOLIS, IN 46205 317-255-6060</p>	 <p>United Consulting Engineers, Inc. 5332 N. Temple / Indianapolis, Ind 46220 JACOB E. HALL Professional Engineer Land Surveyor Bus. (317) 253-1533 Res. (317) 356-1163</p>	<p>VESTER & ASSOCIATES, INC. SURVEYING & SUBDIVISION DESIGN PATRICK N. CUNNINGHAM, R.L.S. PRESIDENT TELEPHONE 128 NORTH 3RD STREET (317) 742 6479 LAFAYETTE INDIANA 47901</p>

ISPLS APPLICATION FOR MEMBERSHIP

Effective through June 1988 only

(Type or Print all information - check box for mailing address desired.)

NAME _____ AGE _____
Last First Middle

HOME ADDRESS _____ PHONE _____
Street and Number City State Zip

BUSINESS ADDRESS _____ PHONE _____
Street and Number City State Zip

PRESENT OCCUPATION _____
Firm Name Position

SCHOOL ATTENDING _____
Name Grade

REGISTRATION STATUS _____
L.S., P.E., or S.I.T. Number State

MEMBER OF AMERICAN CONGRESS ON SURVEYING AND MAPPING
Yes _____ No _____

MEMBER OF LOCAL CHAPTER OF I.S.P.L.S.
Yes _____ No _____ Chapter _____

TYPE OF MEMBERSHIP DESIRED

MEMBER \$100.00
 JUNIOR \$50.00
 ASSOCIATE \$50.00
 STUDENT \$10.00

Check One

REFERENCES

Name	Address	Phone
_____	_____	_____
_____	_____	_____
_____	_____	_____

I hereby certify the above statements are true and correct and that I will abide by the Constitution and By-Laws of the "Indiana Society of Professional Land Surveyors" and will promote and uphold its principles and objectives.

Signature _____ Date _____

MEMBERSHIP CLASSIFICATIONS

Member: A member of this Corporation shall be limited to Registered Land Surveyors in good standing with the Indiana State Board of Registration for Land Surveyors. A member shall be eligible to vote, hold office and to participate fully in the affairs of the Corporation.

Junior: A Junior Membership will be granted to those non-registered individuals who are endeavoring to make Surveying their chosen career. A Junior Member is entitled to vote and participate fully in the affairs of the Corporation but shall not be entitled to hold office.

Associate: An Associate Membership will be granted to anyone who is associated or affiliated with the Land Surveying profession but is not otherwise pursuing registration or any non-resident who is registered and in good standing as a Land Surveyor. An Associate Member is not entitled to vote or hold office but will receive Newsletters and be invited to participate in meetings.

Student: A Student Member shall have the same eligibility requirements as those of a Junior Member, except that this class of Membership shall apply for a period of four (4) years only. A Student Member is not entitled to vote or hold office but will receive Newsletters and be invited to participate in meetings.

THE HOOSIER SURVEYOR

Indiana Society of Professional Land Surveyors, Inc.

5355 E. 38th Street, Suite 209

Indianapolis, IN 46218

Bulk Rate
U. S. Postage
PAID
Indianapolis, Ind.
Permit No. 4056

