



Central Valley Chapter - California Land Surveyors Association  
[www.californiacentralvalleysurveyors.org](http://www.californiacentralvalleysurveyors.org)

# Central Valley Chapter THE PRISM

**Up  
Coming  
Meetings!**

**Date:** May 24, 2017

**Time:** 6:00 p.m.

**Location:** Perko's @ 901 North Carpenter Road, Modesto

**Speaker:** Thomas Davis, Drone for Hire

**Topic:** Operating a Drone in the Central Valley

**Date:** June 28, 2017

**Time:** 6:00 p.m.

**Location:** Perko's @ 901 North Carpenter Road, Modesto

**Speaker:** TBD

**Topic:** TBD

## Announcements

### SMA SEMINAR A POPULAR CHOICE

The Central Valley Chapter coordinated Michael Durkee to come to Modesto on April 26th for a Subdivision Map Act Seminar. The seminar was a huge success with 48 people attending.

### CHANGES TO SECTION 464 GO INTO EFFECT

Changes to Section 464 of Division 5 of Title 16 of the California Code of Regulation (CCR) related to the of the Corner Record form while practicing land surveying went into effect on April 1, 2017. The new form and instructions can be found at [www.bpelsg.ca.gov/pubs/forms/corner\\_record.pdf](http://www.bpelsg.ca.gov/pubs/forms/corner_record.pdf).

### NEWSLETTER OF THE YEAR

The Central Valley Chapter awarded Newsletter of the Year at the 2017 Annual CLSA Conference. This is the third time The Prism has been awarded this great honor. Thank you to all that contribute.

### 2016 EXAMINATION RESULTS IN

The Examination results for California in 2016 are as follows:  
 Principals and Practices (National) 36 out of 62 passed - 58% pass rate  
 Surveying (State Specific) 47 out of 120 passed - 28% pass rate

### 2017 Chapter Officers

President: Will Paul

Vice President: Rich Fultz

Secretary: Rich Brown

Treasurer: Warren Smith

Chapter Director: Warren Smith

Chapter Director: Rich James

Alt. Chapter Dir: Will Paul

Alt. Chapter Dir: Rich Fultz

### 2017 Chapter Committees

By-Laws Committee:

Keith Spencer (Chairman)

Education Committee:

Keith Spencer (Chairman)

Membership Committee:

Rich Brown (Chairman)

Monument Pres Committee:

Mike Quartaroli (Chairman)

Newsletter:

Rich Brown (Editor)

Professional Practices Committee:

Mike Quartaroli (Chairman)

Website:

Keith Spencer (Web Master)

### 2017 Chapter Programs

Public Outreach Committee:

Zachary Wong (Coordinator)

Workshops:

Rich Brown (Coordinator)

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# Classes, Training, and Continuing Education

# Mark Your Calendars

## CAD Masters - AutoCAD Level I (3-Day Course)

May 22-24, 2017, Sacramento  
 June 5-7, 2017 Walnut Creek  
 June 19-21, 2017, Sacramento  
 July 5-7, 2017 Walnut Creek

[Register here](#)

## CAD Masters - AutoCAD Level II (2-Day Course)

May 31-1, 2017, Sacramento  
 June 12-13, 2017 Walnut Creek  
 July 6-7, 2017, Sacramento

[Register here](#)

## CAD Masters - AutoCAD Level III (1-Day Course)

June 2, 2017, Sacramento  
 July 20, 2017, Walnut Creek

[Register here](#)

## CAD Masters - AutoCAD Map 3D (2-Day Course)

May 25-26, 2017, Walnut Creek

[Register here](#)

## CAD Masters - Civil 3D Introduction (3-Day Course)

May 15-17, 2017, Sacramento  
 May 30-1, 2017 Walnut Creek  
 June 12-14, 2017, Sacramento  
 June 26-28, 2017, Walnut Creek  
 July 10-12, 2017, Sacramento

[Register here](#)

## CAD Masters - Civil 3D Advanced (2-Day Course)

May 15-16, 2017 Walnut Creek  
 June 26-27, 2017, Sacramento  
 July 10-11, 2017, Walnut Creek

[Register here](#)

## CAD Masters - Civil 3D for Surveyors (2-Day Course)

May 17-18, 2017, Walnut Creek

[Register here](#)

## CLSA Webinars

Boundary Surveys for Large Public Works

June 14, 2017, 11:00am-12:00pm

[Register here](#)

Demystifying Reference Frames and 3D Datums

July 12, 2017, 11:00am-12:00pm

[Register here](#)

If you have information about a training or class, please submit to: [editor@californiacentralvalleysurveyors.org](mailto:editor@californiacentralvalleysurveyors.org)

## Editor's Message



As most of you know, I am a very strong advocate of job site safety. From proper signage, to personal protective equipment (PPE), it is very important to not cut corners and sacrifice safety for time saved. It is important to complete the job at hand, but it is more important to come home safe every evening.

As temperatures start to rise in the Central Valley I would like to take this opportunity to remind everyone the importance of protecting yourselves from heat illness. Always be aware of what your body is saying, and in some cases, what it's not saying. CalOSHA suggests that when you are working in the heat you should drink one or more quarts of water per hour. Be aware of the signs & symptoms of heat illness, and know what to do in the event that you or a co-workers becomes ill. Have plenty of drinking water available, and

have shaded/cool area close by.

Please remember that our jobs are dangerous enough. Please do not add problems to it. Come home SAFE!

If you would like to comment on this topic or suggest another, please submit it to: [editor@californiacentralvalleysurveyors.org](mailto:editor@californiacentralvalleysurveyors.org)

## Chapter News

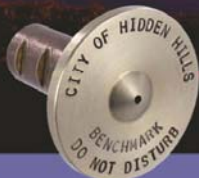
### The Prism Awarded Newsletter of the Year

Central Valley Chapter's Newsletter, The Prism, was awarded the "2016 Newsletter of the Year" at the 2017 State Conference in Anaheim.



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# SANDIS IS HIRING!

SANDIS is hiring numerous employees throughout the Central Valley to staff our work with California High Speed Rail.

[CLICK THIS AD TO SEE OPEN JOBS!](#)

## ABOUT SANDIS

SANDIS has been in the engineering and surveying industry for over 50 years and has over 165 employees. We actively recruit well-rounded individuals whom are technically skilled, team oriented, honest, optimistic, energetic and communicative. Through structured internal and external training programs, we continuously invest in our people to ensure that skill proficiency remains at the forefront of technological and industry advancements.

## BENEFITS

SANDIS employees enjoy numerous benefits including medical, vision, dental, 401k matching, health savings accounts (HSA), transportation benefits, and educational reimbursement. We do more than the benefits you see on paper though, this year employees were treated to motorcycle rides, a family trip to Great America, and multiple ski trips.



## OPEN POSITIONS

**Project Surveyor** | 3+ Years of experience | Manteca, CA

**Project Surveyor** | 3+ Years of experience | Selma, CA

**CAD Technician** | 3+ Years of experience | Manteca, CA

**CAD Technician** | 3+ Years of experience | Selma, CA

**Field Party Chief** | 5+ Years of experience | Selma, CA (multiple positions open)

**Field Chainmen** | 2+ Years of experience | Selma, CA (multiple positions open)

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## State News

### Unmanned Aerial Vehicles and Land Surveying Practice in California

By Steve Wilson, P.E., PLS, and Dallas Sweeney, PLS

The equipment used by land surveyors to produce accurate topographic maps has evolved over the last 20 years. Not long ago, land surveyors gathered field data one point at a time using traditional field equipment and larger field crews, then duplicated the tedious field work on vellum paper taped to a drafting table. Now, traditional aerial photogrammetric mapping procedures that used very expensive equipment are being replaced by terrestrial scanners and low-altitude drones, which can be a viable means of mapping smaller areas.

However, no matter how field data are acquired, the process of locating any fixed works designed by a civil engineer or determining alignments or elevations is required by law to be performed by, or under the responsible charge of, persons licensed to perform land surveying.

The lower investment cost for using unmanned aerial vehicles (UAVs) or low-altitude drones to capture and orthogonally rectify photo images to the shape of the Earth has encouraged widespread use. As a result, the ease at which the low-cost equipment can be used and the availability of the software to process the photography and data have tempted some to enter into the unlicensed practice of land surveying.

There are a variety of new companies with entrepreneurs offering services, including drone flight planning, drone piloting, and obtaining the photography. Although regulated by the Federal Aviation Association, these specific activities are not regulated by the Professional Land Surveyors' Act. What is regulated by the Professional Land Surveyors' (PLS) Act, and the Professional Engineers (continued on page 7) (PE) Act to a lesser degree, is the production of any work depicting the locations or elevations of what is captured in the photography relative to the Earth's surface.

The essential part of getting the photo images into useful data is when the licensed land surveyor employs field auditing procedures to verify that the ground control points and software mapping are accurate within the tolerances specified for the project.

Any civil engineering or architectural product, when designed in relation to any property

**Continued on page 11**

# Carlson for Surveyors

From field... to finish

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# Taking the Test

## Programming the HP33s

### Area-1 (2 Labels)

#### Solve for Perimeter Length & Area

**XEQ A** (Area by Coordinates)

**XEQ A** to start the program.

At the prompts, enter a value for the following and press **R/S**

**N?** Northing (Y)  
**E?** Easting (X)

The following unknowns will be displayed after completing all coordinates:

**P?** Perimeter Length  
**F?** Area in Square Feet  
**A?** Area in Acres

**A01. LBL A**  
**A02. CLVARs**  
**A03. FIX 8**

**A04. SF 10**

**A05. "AREA BY COORDI-  
 NATES"**

**A06. PSE**  
**A07. "ENTR NORTH(Y)"**  
**A08. PSE**  
**A09. INPUT N**  
**A10. STO Y**  
**A11. STO C**  
**A12. "ENTR EAST(X)"**  
**A13. PSE**  
**A14. INPUT E**  
**A15. STO X**  
**A16. STO D**

**B01. LBL B**  
**B02. "ENTR NORTH (Y)"**  
**B03. PSE**  
**B04. INPUT N**  
**B05. "ENTR EAST (X)"**  
**B06. PSE**  
**B07. INPUT E**  
**B08. RCL Y**  
**B09. x**  
**B10. RCL N**  
**B11. RCL X**  
**B12. x**  
**B13. -**  
**B14. RCL F**  
**B15. +**  
**B16. STO F**  
**B17. RCL E**  
**B18. RCL X**  
**B19. -**  
**B20. RCL N**  
**B21. RCL Y**  
**B22. -**

**B23. y,x÷0,r**  
**B24. RCL P**  
**B25. +**  
**B26. STO P**  
**B27. RCL N**  
**B28. STO Y**  
**B29. RCL E**  
**B30. STO X**  
**B31. RCL D**  
**B32. xKy**  
**B33. GTO B**  
**B34. RCL N**  
**B35. RCL C**  
**B36. xKy**  
**B37. GTO B**  
**B38. RCL P**  
**B39. "PERIM LENGTH="**

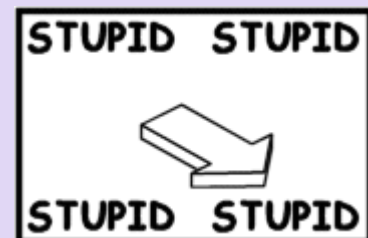
**B40. PSE**  
**B41. VIEW P**  
**B42. RCL F**  
**B43. 2**  
**B44. ÷**  
**B45. STO F**  
**B46. "AREA IN SF="**  
**B47. PSE**  
**B48. VIEW F**  
**B49. 43560**  
**B50. ÷**  
**B51. STO A**  
**B52. "AREA IN AC="**  
**B53. PSE**  
**B54. VIEW A**  
**B55. RTN**




# Just For Laughs

## REBUS PUZZLES

These are popular word picture puzzles with hidden meanings to solve from the pictogram




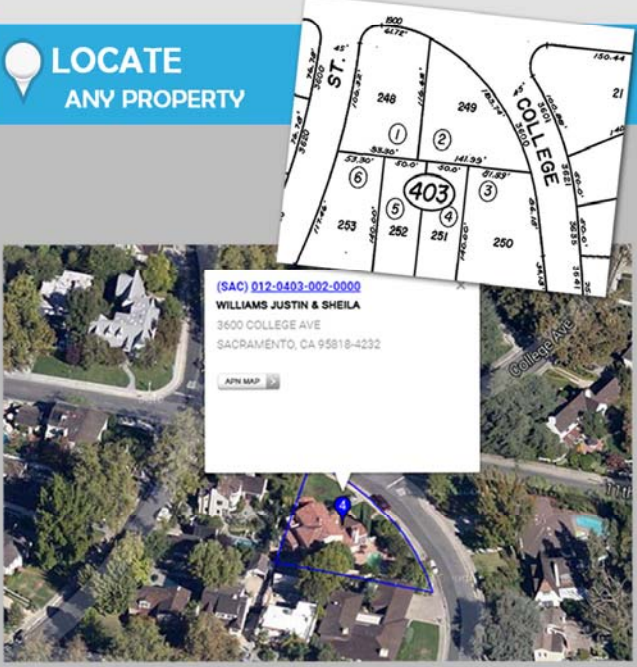



**PARCELQUEST**

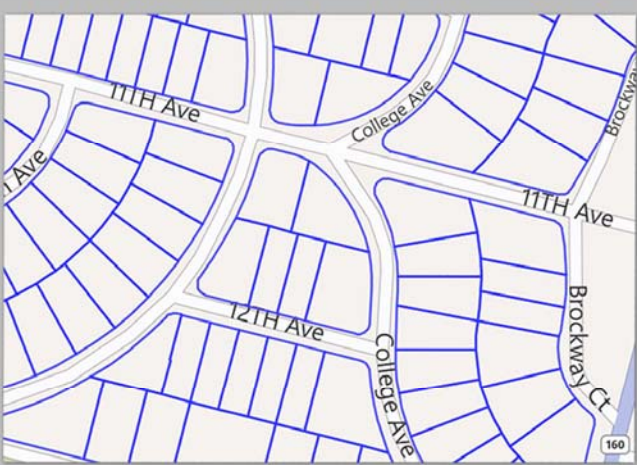
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## Pictures of the Issue

2017 State Conference, March 26-28, 2017 Anaheim, CA



Above: Kim Oreno and  
Jennifer Blevins  
CLSA Central Office



Above: CLSA State President  
Ian Wilson and his wife Laura



Left: Keith Spencer, State  
Treasurer & Natalie Thurn,  
CLSA Central Office

If you have a historic or interesting photo you would like to see in a future edition of The Prism, please submit to:  
[editor@californiacentralvalleysurveyors.org](mailto:editor@californiacentralvalleysurveyors.org)

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# Classifieds

## CITY OF MODESTO LOOKING FOR SR. LAND SURVEYOR

The City of Modesto will be recruiting for a Sr. Land Surveyor in the next few months, for the position description go to <http://modestogov.com/346/Job-Descriptions> . When available, the job posting will be available on the City of Modesto website at <http://modestogov.com/345/Job-Listings>.

## MID-VALLEY ENGINEERING LOOKING FOR SURVEYOR/L.S.I.T. TO FILL POSITIONS

Mid-Valley Engineering is looking to fill several Surveying positions including Licensed Land Surveyors and L.S.I.T.'s. Mid-Valley Engineering has been in business for more than 47 years and is always hiring talented people. Please go to <http://www.mve.net/career-opportunities.html> for more information. If you are interested in being a part of our team, please submit your resume to [jobs@mve.net](mailto:jobs@mve.net).

## OFFICE SURVEY TECHNICIAN and CHIEF OF PARTY!

Mountain Pacific Surveys is located in Fairfield with a satellite office in San Mateo.

### Office Technician (Office Position)

Applicant will be working closely with and under the direction of licensed land surveyors performing mapping and construction calculations duties. This is an office position, but may also require time in the field under the direction of a Party Chief as project needs dictate.

### Key Requirements:

- 5+ Years of Land Surveying experience preferred, LSIT preferred.
- Extensive mapping experience with AutoCAD is required, Civil3D preferred.
- Familiar with the reduction, analysis and incorporation of field data into a finished mapping product.
- Ability to read and interpret construction documents and plans to prepare staking calculations and facilitate the dispatch of survey field crews.
- Experience performing property boundary and record research with utilizing government and private sources.
- Proficient with Microsoft Office (Word, Excel, Outlook...)

Competitive Benefits Available and Pay DOE – Please send your resume to [steve@mtpacsur.com](mailto:steve@mtpacsur.com)

### Chief of Party (Field Position)

Looking for a full-time, permanent Chief of Party. Applicant will be primarily running as a one-man robotic survey crew (chainman available when required due to project conditions or requirements) operating through Northern California / Bay Area on a wide range of projects.

### Key Requirements:

- 5+ Years of Land Surveying experience, 2+ as Chief of Party preferred, LSIT preferred but not required.
- Experience performing a multitude of different types of surveys, including but not limited to boundary, topographic, monitoring, GPS, ALTA and FEMA surveys.
- Strong knowledge of survey field operations using GPS, Robotic Total Station, Automatic/Digital Levels, and Data Collectors.
- Applicant must have the knowledge and professionalism necessary to lead a survey crew and interact with clients and project representatives.

Pay based upon Operating Engineers Union Scale – Please send your resume to [steve@mtpacsur.com](mailto:steve@mtpacsur.com)  
Questions? Call us at 707-425-6234.

## TUOLUMNE COUNTY HAS OPENING FOR LAND SURVEY I/II

The Tuolumne County Surveyor's Office in Sonora, CA has an opening for Land Surveyor position

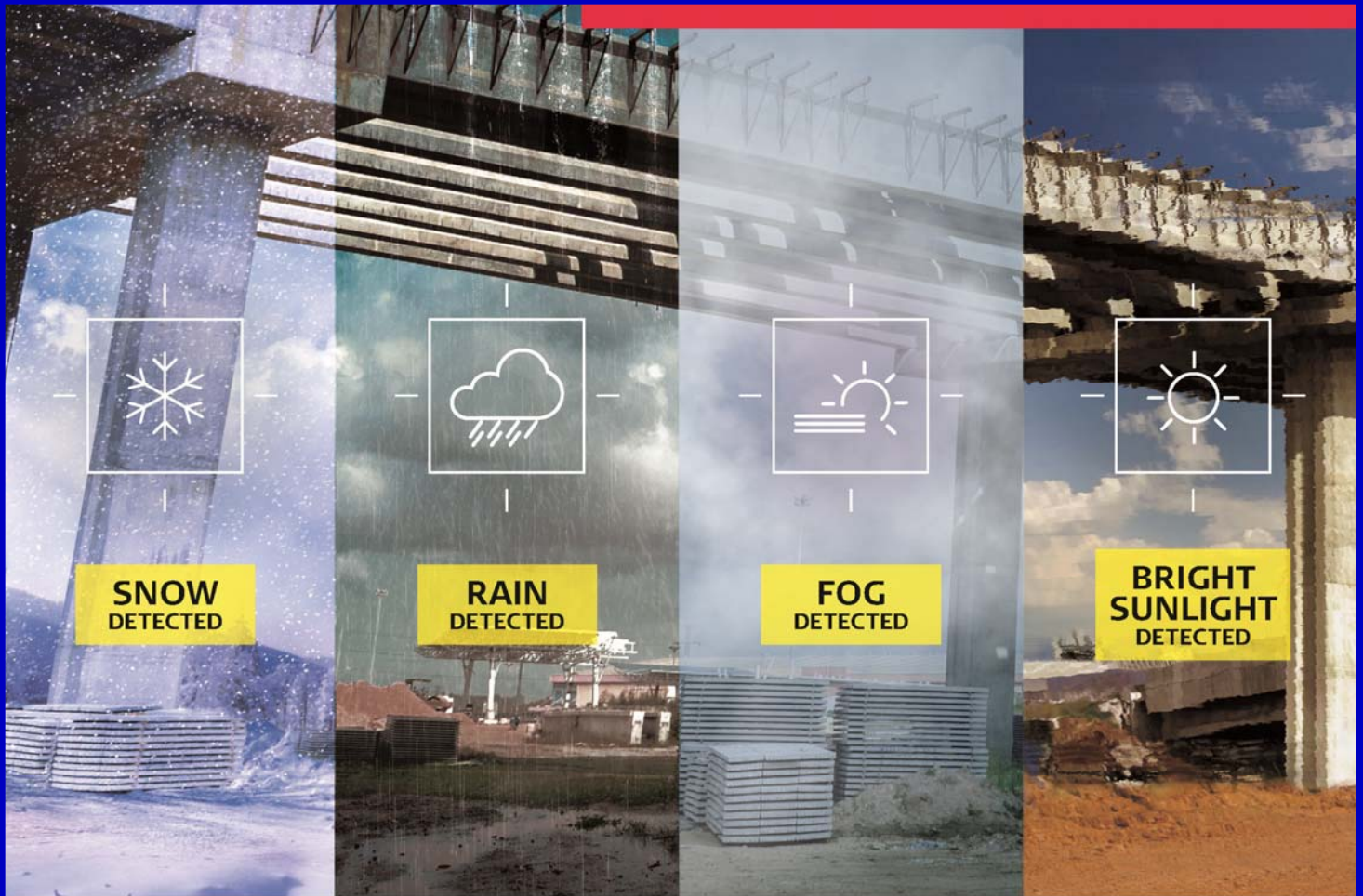
### Requiements:

Land Surveyor I requires possession of a L.S.I.T.

Land Surveyor II requires possession of a P.L.S. or Pre-1982 P.E.

Open until May 24, 2017

Go to <https://goo.gl/qNDKdc> for complete position details.



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## Unmanned Aerial, *cont.* from [page 5](#)

boundaries, setbacks, or existing physical (fixed) improvements, requires dependable and accurate topographic information. No matter what tools are used to gather and depict the field data, the responsibility and liability for accuracy lie with the professional authorized to practice land surveying.

Professional land surveyors are required to be responsible for the accuracy and correctness of their work. Mapping produced by those who may not have the training, education, and experience and who have not proven themselves competent to recognize potential errors or inaccuracies has the potential to cause harm to the public from any number of problems that may arise during subsequent use of the data. It is in the best interest of all design professionals to insist on accurate and reliable mapping.

### When is an operator of a UAV performing land surveying?

Simply put, when the operator creates a topographical survey or overlays a boundary on an orthogonally rectified photo and provides the finished product to a private client or public agency, the operator must be authorized by law to perform land sur-

veying. Persons who offer to do more than flying the UAV and obtaining the photography would be violating the law if their services also include orthogonally rectifying the photography to the surface of the Earth or preparing a map that shows any of the items contained in PLS Act Sections 8726(a), (b), and (f) and 8775.1 or Section 6731.1(a) and (b) of the PE Act, unless that work is performed by, or under the responsible charge of, a person authorized to perform land surveying.

### What can BPELSG do to help with this problem?

One method is through education. BPELSG is available to collaborate with the professional organizations within the state to educate the users of UAVs by explaining which processes must be done by, or under the responsible charge of, a person authorized to perform land surveying. This may be a very valuable resource to help reduce the possibility of offering land surveying services without a license.

The other is through enforcement. If you know of an individual or company that you believe is offering unlicensed land surveying services, contact the Board. You can either submit an inquiry or file a complaint with our Enforcement Unit. Once we have the information, we would contact the individual or company and discuss with them how they may be in violation of the laws. Based on this contact and the response or actions of the individual or company, the Enforcement Unit will determine the proper course of action.

*Reprinted with permission from  
BPELSG Spring Bulletin*

The logo for VISTA International Insurance Brokers Ltd., LLC. It features the word "VISTA" in a large, bold, serif font. To the right of "VISTA" is a small globe icon. Below "VISTA" is a large, stylized graphic of a checkmark or a large "V" shape, composed of teal and light purple colors. To the right of this graphic, the word "INTERNATIONAL" is written vertically in a bold, serif font. At the bottom of the graphic, the text "Insurance Brokers Ltd., LLC" is written in a smaller, serif font.



# US SURVEY SUPPLY

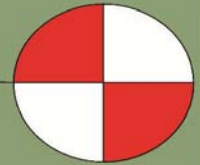
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CLSA EDUCATION FOUNDATION

*Land Surveying Photo Gallery*



California Land Surveyors Association Education Foundation would like to thank Bryant Sturgess for generously donating his collection of historic images.

The proceeds from the photos sold on this website will be used to fund scholarships for land surveying students.

## Sponsors

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