



Central Valley Chapter - California Land Surveyors Association
www.californiacentralvalleysurveyors.org

Central Valley Chapter THE PRISM

**Up
Coming
Meetings!**

Date: September 26, 2017

Time: 6:00 p.m.

Location: Michael's Pizza Bar and Grill
 @ 500 North Carpenter Road, Modesto

Vendor Night

Topic: Vendor Night

Date: October 25, 2017

Time: 6:00 p.m.

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

Speaker: TBD

Topic: TBD

Announcements

VENDOR NIGHT SET FOR A TUESDAY IN SEPTEMBER

The Central Valley Chapter is in the works to have a Vendor Night for it's September Chapter meeting. **THIS MONTH ONLY, OUR CHAPTER MEETING WILL BE HELD ON TUESDAY, SEPTEMBER 26TH.** So make sure you **SAVE THE DATE!!!**

2018 CHAPTER OFFICERS APPROVED

The Central Valley Chapter Officers for 2018 are as follows:

President - Rich Fultz

Vice President - Will Paul

Secretary - Rich James

Treasurer - Warren Smith

Director - Warren Smith

Director (Odd Year) - Rich James

Alternate Director - Will Paul

Alternate Director (Odd Year) - Rich Fultz

2018 CLSA CONFERENCE HAS LOCAL VENUE

The CLSA Annual 2018 State Conference is set for March 23-27, 2018 at the Hyatt Regency Hotel, in Downtown Sacramento. Go to <http://www.californiasurveyors.org/conference.html> for more information.

NEXT ISSUE OF THE PRISM TO BE JANUARY 2018

The November issue of the Central Valley Chapter's newsletter, The Prism, will not be released. Please look for the next issue in January 2018. Have a wonderful Thanksgiving, a joyous Christmas, and a safe New Year. See you in 2018.

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

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

Oct 9-11, 2017, Sacramento

Oct 23-25, 2017 Walnut Creek

Nov 6-8, 2017, Sacramento

Nov 20-22, 2017 Walnut Creek

[Register here](#)

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

Oct 10-11, 2017 Walnut Creek

Nov 9-10, 2017, Sacramento

Nov 27-28, 2017, Walnut Creek

[Register here](#)

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

Nov 16, 2017, Walnut Creek

[Register here](#)

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

Oct 2-4, 2017, Sacramento

Oct 16-18, 2017 Walnut Creek

Oct 30-1, 2017, Sacramento

Nov 13-15, 2017, Walnut Creek

Nov 27-29, 2017, Sacramento

[Register here](#)

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

Oct 30-31, 2017 Walnut Creek

[Register here](#)

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

Nov 1-2, 2017, Walnut Creek

[Register here](#)

Mark Your Calendars

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

Nov 26-27, 2017, Walnut Creek

[Register here](#)

CLSA Webinars

The Railroad Taper or Transition Curve

Oct 25, 2017, 11:00am-12:00pm

[Register here](#)

Elevation Certificates: Surveyor's Notes

Nov 8, 2017, 11:00am-12:00pm

[Register here](#)

3D Subdivisions

Dec 6, 2017, 11:00am-12:00pm

[Register here](#)

2018 CLSA Annual Conference

Hyatt Regency, Sacramento

March 23-27, 2018

[More Information here](#)

If you have information about a training or class, please submit to: editor@californiacentralvalleysurveyors.org

Secretary's Message



It is with a heavy heart that I inform the members of the Central Valley Chapter of CLSA that I will be stepping down as your Chapter Secretary at the end of the year.

I took over the Secretary duties in October 2011. Through these past 6 years I have seen our Chapter grow into a well-known part of CLSA, winning several State awards, including Chapter of the year twice. Members have orchestrated Adopt-A-Road clean up days, Boy Scout Survey merit badges, and awarded over \$10,000 in scholarships to local college students. I have seen membership grow to the largest in Chapter history, and our website & newsletter are known throughout the State.

It is my greatest wish that we start mentoring our young surveyors that are just getting started, and get them involved. Show them that it is not time wasted, but time invested.

As I move on to other adventures, I can only hope that I am not alone in my feelings about what we have accomplished. I am excited to imagine the great things instore for the Central Valley Chapter and its members.

Rich Brown

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

Technology & Info

Remote Control

By Erik Dahlberg

In the remote northern portion of South Africa, projects are underway to tap the region's rich resources for wind and solar energy. The work is fueled by the country's drive to increase the use of renewable energy. In 2015, renewable sources in South Africa produced roughly 1,700 megawatts of electricity. South Africa's government wants to increase that number to 6,000 megawatts by 2020. The strategy is creating new opportunities and challenges for South Africa's surveying professionals.

Working with South Africa's national electric utility, independent power producers are building large wind and solar farms. By leveraging recent work to electrify South Africa's rail system (which effectively expanded and modernized parts of the national electric power grid), new farms can be built quickly and readily connect to the grid.

In the province of Northern Cape, planning for the Khobab Wind Farm included determining the location for 61 large wind turbines that will be capable of powering 120,000 homes. In addition to the turbine locations, planners defined the service roads, substations and power lines needed to build the wind farm and the 25-km (15 mi) connection to the national grid.

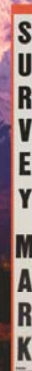
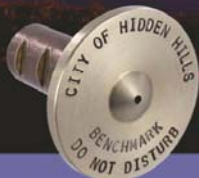
Khobab developers selected Cape Survey Ltd., a Cape Town-based surveying firm, to provide essential services for the project. Before construction could begin, Cape Survey needed to define the easements and rights-of-way for the land use agreements and servitudes associated with the project. They would also install control points for use by the construction crews by setting points at intervals of roughly 1 to 2 km (0.6 to 1.2 mi). South African regulations called for required accuracy of 10 cm (0.3 ft); the construction control points were provided with accuracy of roughly 2 cm (0.06 ft).

Working Without a Net

Continued on page 6

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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.



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

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

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State News

A Message from Our President

By Ian Wilson, PLS



This is my first “message” as President of the California Land Surveyors Association. And, I admit to being more than a little intimidated by that. CLSA has featured prominently during my career in land surveying. From the first meeting I attended 29 years ago to the San Francisco Chapter Meeting I attended last week, CLSA has offered me opportunities for learning, mentorship, both ways, now, comradery and professional sharing. Our responsibility as an organization, at the state level, is “...to promote and enhance the profession of surveying, to promote the common good and welfare of its members, to promote and maintain the highest possible standards of professional ethics and practice, and to elevate the public’s understanding of our profession...” Our membership is open to all involved in the practice of land surveying, whether licensed or not; employed in the private sector or public sector; business owners or employees. Everyone is welcome. Everyone brings valuable contributions and assets. Lately, we have experienced a polariza-

tion among our members. The effect of that is that some of our members have left the organization. We need to heal that rift and get back to the business our organization was formed to do 51 years ago. In a “family” as large as ours, with people so vastly diversified, over a state as large and varied as ours, it is only natural that we have differences of opinion. Frankly, those differences are our strongest asset. Those differences allow us to ensure that we have all points of view brought to the table during discussions, at Chapter level as well as at the Board Meetings. It is those diverse views that help us to come to the best decision for the Association. Democracy works. It gets hijacked from time to time, but it always returns, because democracy works. Democracy works because, in the long run and with honorable people, the decisions taken even out to being the best decisions for the group. Some will not like the decision taken. Some will gloat over being on the “right side.” That is natural, but we need to work to make sure that it doesn’t polarize the group. We have come through some very

[Continued on page 11](#)

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...For the Total Project

Remote Control, cont. from [page 3](#)

Cape Survey conducted initial surveys in 2014. While the Khobab site provided excellent conditions for GNSS, its remote location made it difficult to achieve the required accuracy and ties to South Africa's reference system. There was no connection to cellular service and the nearest survey reference station was more than 100km (62 mi) away.

Ian Thompson, a professional surveyor with Cape Survey, said his team used postprocessed static and real-time kinematic GNSS for the initial work. In order to create accurate control points, Thompson used Trimble R7 and R8 GNSS receivers for long-observation sessions. He processed the data using Trimble Business Center software to produce precise coordinates tied to the South African reference system. Cape Survey crews then used RTK to locate key points and to set out locations for planned roads, towers and other facilities.

Although the R8 and RTK was the best tool for the job, Thompson's team could not move as quickly as they wished. The gently rolling terrain often blocked RTK radio signals and regulations on radio output power further reduced performance. As a result, the team's RTK range was limited. They frequently needed to create new control points and move the RTK reference stations to cover the 25km x 30km (15 x 19 mi) site. Each move took at least an hour out of their already busy days.

While RTK provided the needed accuracy, it was a difficult process for this remote project. Knowing they would be working at Khobab again, Thompson needed a better solution.

As the Khobab Wind Farm neared completion in 2017, Cape Survey was called upon to verify the as-constructed locations of the farm's roads and power lines. The information would be used to finalize the servitude documentation. While Cape Survey would need to collect fewer than 50 points for the documentation, Thompson knew from the earlier experience that the work would be challenging. He budgeted three days for the job.

The Cape Survey crew arrived at Khobab equipped with a new Trimble R2 GNSS receiver and a subscription to Trimble CenterPoint® RTX correction service. The Trimble R2 and CenterPoint RTX provided precise real-time positioning without the need for RTK base stations or cellular connection to the Internet.

Using the Trimble R2 with a Trimble TSC3® controller running Trimble Access™ software, the crew initialized their survey and began collecting points. They checked into the 2014 control points with good results and used the points to calibrate precisely to the project grid. Because they could work without ties to a RTK base, they could move freely--or as fast as the deep sand and rutted roads would allow.

Instead of the three days planned for the work, the Cape Survey collected all the needed points in just one day. The time savings made everyone happy--especially the surveyors. Instead of spending two nights in very uncomfortable accommodations--Thompson said they would have slept on-site in shipping containers--the crew returned to their homes.

Checking the Accuracy

In addition to the Trimble R2, the team also carried their Trimble R7 and R8 receivers, which would be used for RTK if needed. But that backup wasn't required, so the team set up the R7 and R8 to collect raw data on two project control points. Thompson later processed that data with data collected onboard the roving R2. He used postprocessed kinematic (PPK) techniques to double-check the RTX positions. "The RTX compared very well to the PPK results," Thompson said. "We were consistently around 20 mm accuracy." He added that the CenterPoint RTX solution initialized in 15 to 20 minutes and could be done while driving to the first points. Once converged, the satellite-delivered RTX solution could be held as the team moved around the site. "The main thing is time and cost savings and the consistent availability of the signals," Thompson said. "Field time is cut dramatically and we can use smaller crews."

The Cape Survey team and their clients were impressed with the performance of the R2 and RTX service. In addition to cutting the time on site by two-thirds, the system's accuracy consistently exceeded the project requirements. "The value of the system is clear," Thompson said. "On just this one job we've more than paid for the year's subscription to RTX."

Thompson said that CenterPoint RTX solution provides accuracy approaching RTK without the need for the additional equipment and processes. Cape Survey crews no longer need to carry RTK gear when working in remote areas. They are confident that the Trimble solution will provide the accuracy and reliability they need.

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American Surveyor Magazine

Just For Laughs

| | | | | | | | | |
|---|---|---|---|--|---|---|---|---|
| | | 7 | 6 | | | | | 2 |
| 2 | | | | | | 6 | 3 | 5 |
| 1 | 8 | | | | 3 | | | |
| | | 1 | 9 | | | 8 | 4 | |
| | | | | | | | | |
| | 2 | 9 | | | 6 | 3 | | |
| | | | 7 | | | | 1 | 4 |
| 4 | 1 | 2 | | | | | | 8 |
| 7 | | | | | 4 | 9 | | |

Sudoku:

The objective is to fill a 9×9 grid with digits so that each column, each row, and each of the nine 3×3 sub-grids that compose the grid (also called "boxes", "blocks", "regions", or "sub-squares") contains all of the digits from 1 to 9

Last Months Puzzle

Find the Differences

Find the four (4) differences between the two (2) pictures



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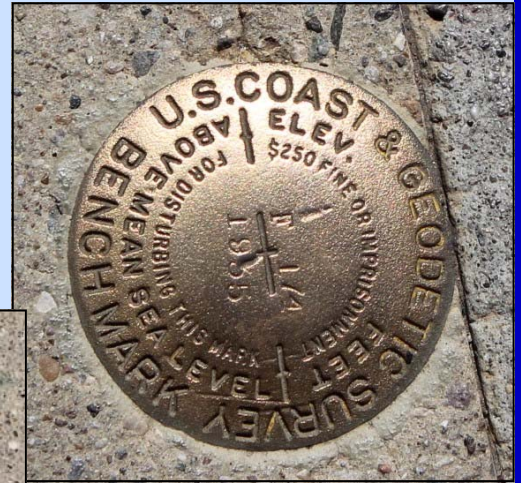
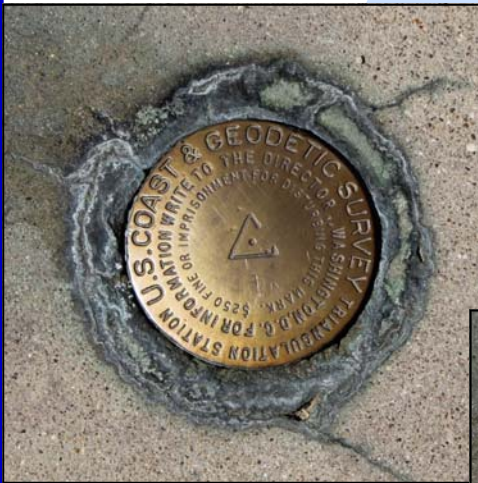
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Pictures of the Issue

Hoover Dam, July 28, 2018

By Rich Brown



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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.

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

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.

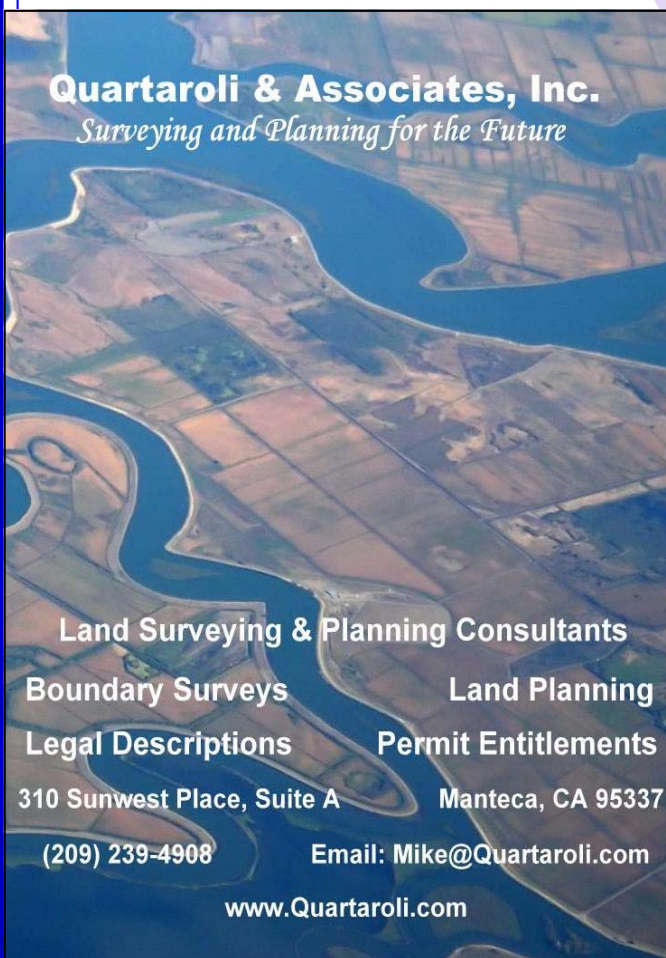
Key Requirements:

- 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

Questions? Call us at 707-425-6234.

If you know of a Survey related position available in the area, please send the information to



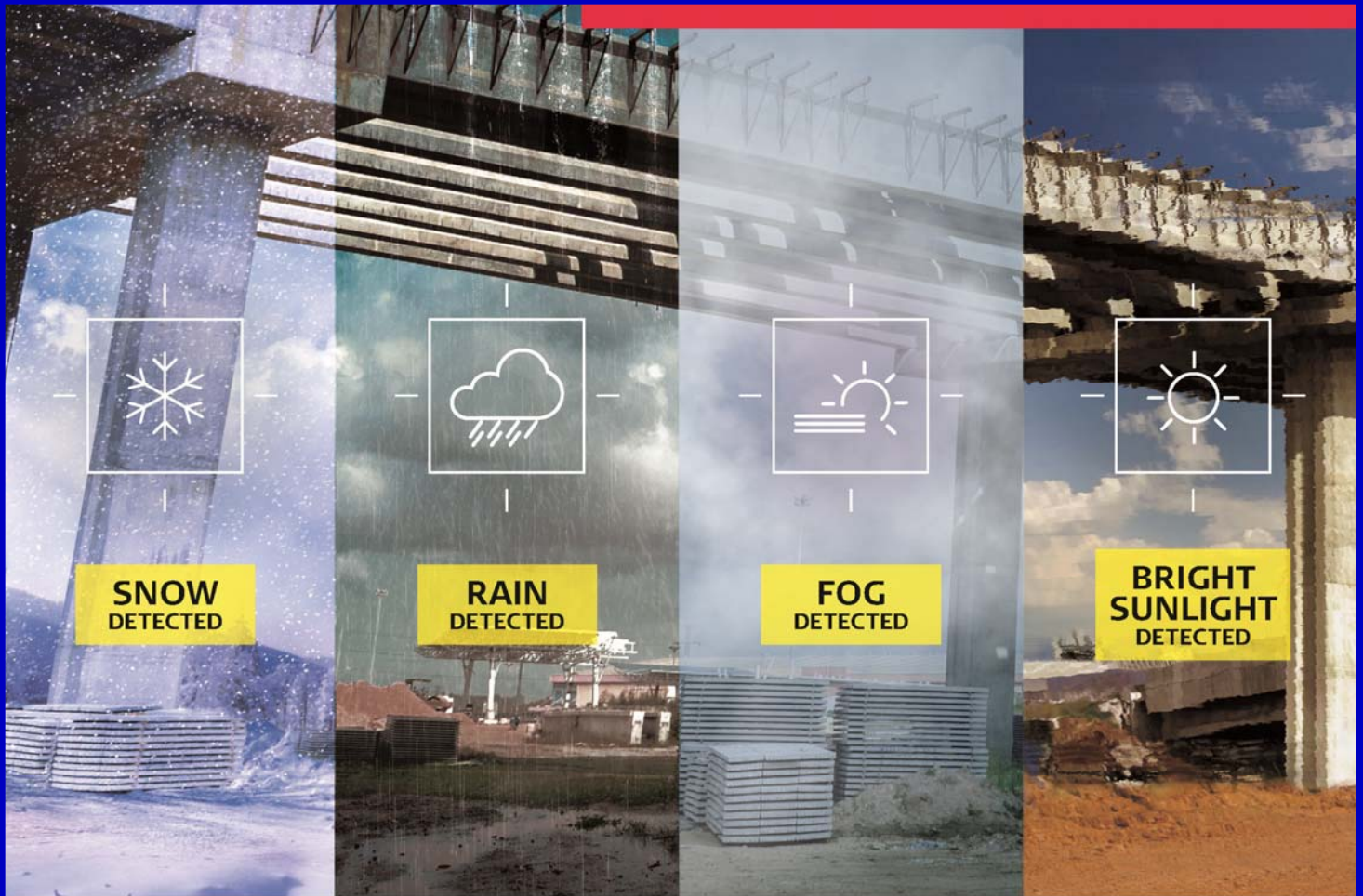
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Message from Our President, *cont. from page 5*

difficult times over the past few years. We have made significant changes in the way we do business. Some of the changes have been good; some have not. Only by pulling together and working together can we strengthen CLSA and get on with realizing our goals over the next 50 years. Nothing stays the same. Everything changes. Change is neither good nor bad. It is a fact of life. Regardless of whether you like the change or dislike the change, join with the rest of your colleagues and peers at CLSA to ensure that our voice IS the voice of land surveying in California and that our voice is clear and strong. Those of you who have not renewed your membership this year, for whatever reason, we need your voice. Please come back. Those of you in the public sector who left many years ago. Consider returning. We really could use your input from the public sector viewpoint. Those of you who have never been members, jump in. We need your efforts. There are more than 4,000 licensed surveyors in California and many, many more people who are LSITs. We need your voice to add to ours. Those of you who have been members for many years, seek out colleagues who have not. Invite them to a Chapter Meeting. Encourage membership. To everyone, get involved. Attend Chapter Meetings. Join the discussion. Bring your point of view. Get on a committee that strikes your passion. Voice your opinion. That's how CLSA will last another 50 years. With your strength. An elephant can crush a single straw. Stand thousands of them on end and they can easily support the elephant. Thank you all for your support! I am humbled to be your President.


Ian Wilson, PLS CLSA President 2017


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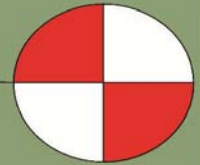
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CLSA EDUCATION FOUNDATION

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.

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