

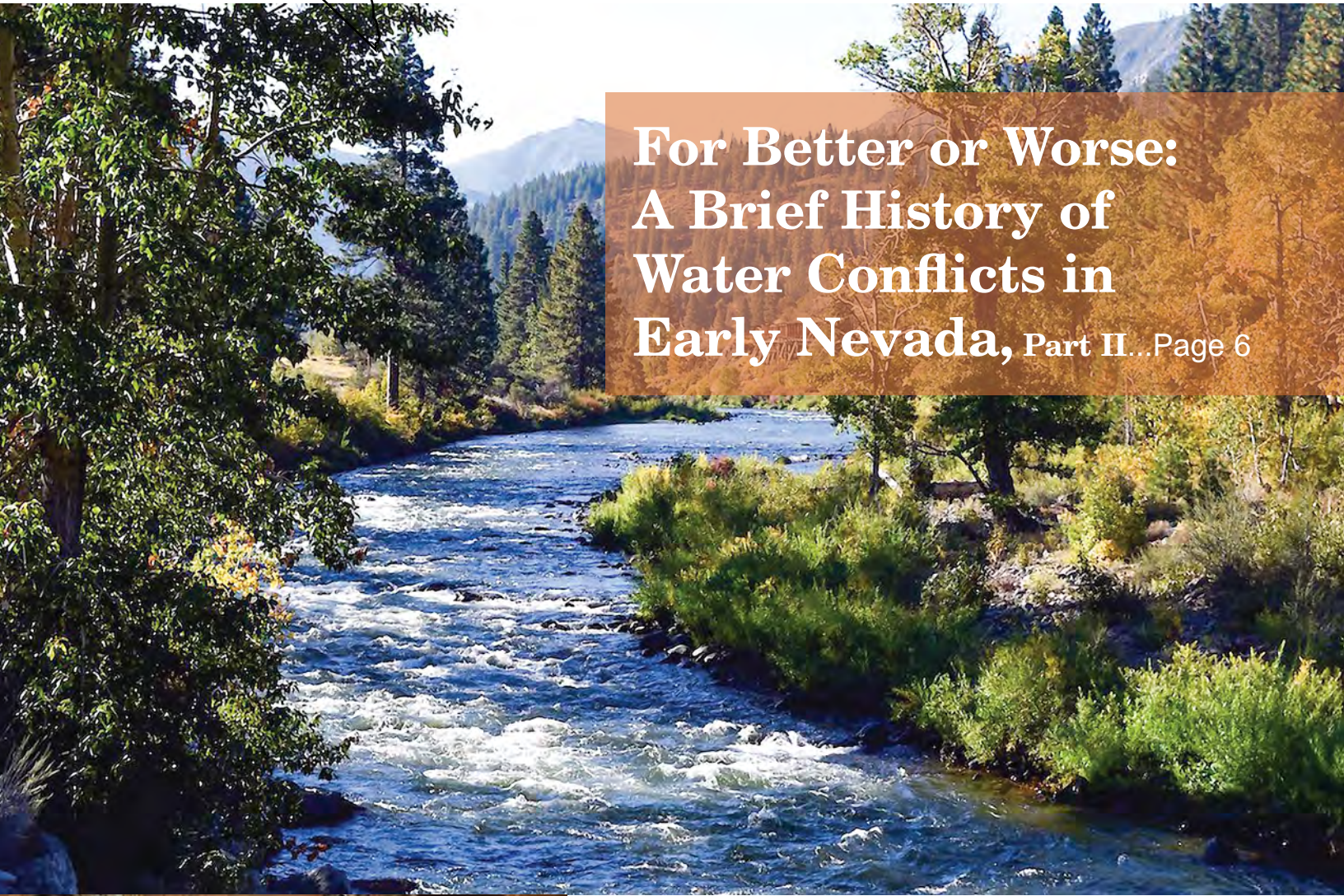


# THE NEVADA TRAVERSE

Journal of the Professional Land Surveyors of Nevada

Institutional Affiliate National Society of Professional Surveyors • Member Western Federation of Professional Surveyors

Vol. 45, No.1 • March 2018



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Water Conflicts in  
Early Nevada, Part II...Page 6**



**Possible New Work for  
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# The Nevada Traverse

This publication is issued quarterly by the **Nevada Association of Land Surveyors (NALS)** and is published as a service to the Land Surveying profession of the state of Nevada. *The Nevada Traverse* is an open forum for all Surveyors, with an editorial policy predicated on the objective of NALS and Bylaws, Article II, which reads:

"The purpose of the association shall be to promote the common good and welfare of its members in their activities in the profession of Land Surveying; to promote the common good and welfare of the public in terms of professional land surveying activities; to promote and maintain the highest possible standards of professional ethics and practice; to promote public awareness and trust in Professional Land Surveyors and their work.

This organization, in its activities and in its membership, shall be non-partisan, non-sectarian, and non-discriminatory."

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# The Editor's Corner



by Carl C. de Baca, PLS

**W**elcome to the New Year and the first issue of the Nevada Traverse for 2018! This is the Chinese Year of the Dog so to all you dogs out there, and you know who you are, have a lucky and prosperous year.

As of this writing I just got back from Elko where I paid a visit to the California Trail Interpretive Center, a free museum on the outskirts of Elko, focused on the pioneer emigrant experience. The center is sited near where the Hastings Cutoff comes back into the Humboldt trail and looks out over the confluence of the Humboldt and South Fork of the Humboldt Rivers. Currently displayed at the center is the travelling exhibit entitled "Whose Land is This?", a two-room photographic exhibit with information and old

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newspaper clippings regarding the public domain, the origins of the BLM, the early days of the PLSS, USGS survey crews, GLO survey crews, railroad surveys, reproductions of township plats, field notes, and more. Watching visitors puzzle over some of the things we take for granted, things in our very DNA, will make you want to act like a docent and explain everything in the rooms. Well it made me feel that way, anyway. One thing I learned while there was that the 2<sup>nd</sup> director of the BLM, Robert Marion Clawson, was born in Elko and raised on Elko county ranches. There is great picture of a teenaged Clawson sitting on a stump in Midas during World War I, reading an issue of American Boy. Clawson went on to graduate from UNR and become an accomplished economist as well as BLM director, appointed by President Truman. If you have never stopped at the Trailhead Center while passing through Elko, I urge you to do so next time. The public lands exhibit is there until March, but the permanent exhibits alone are worth the trip.

NGS Needs You! The national Geodetic Survey arm of NOAA, the National Oceanic and Atmospheric Administration, needs help gathering GPS data on benchmarks across the nation to help with the next hybrid geoid model to, in their words, "increase access to NAVD88 and enable conversions to the new vertical datum in 2022." For more information on how you and NALS can help, visit the "GPS on Benchmarks" page on the NGS website: [www.ngs.noaa.gov/GPSonBM/index.shtml](http://www.ngs.noaa.gov/GPSonBM/index.shtml). According to Sean Fernandez of the Utah Automated Geographic Reference Center (AGRC), the NGS has a list of 188 benchmarks across the state of Nevada that would be beneficial to recover and occupy. The deadline for getting this done is the end of August, this year. Let's make a team sport of this and help out the next geoid!

As I write this, our conference is just around the corner! With any luck this issue will have reached your mailbox before the big event. I certainly hope so. This is going to be a big conference, with Nevada, Utah, Arizona and the Western Federation of Professional Surveyors participating. We'll be drawing attendees and vendors from all over the west and really from all over the nation since the NSPS has scheduled their spring meeting in conjunction with our conference. One of the highlights of the national meetings will be the student competition with something like fifteen schools competing, including our own Great Basin College. GBC, fielding a team of six aspiring baccalaureates, will be competing for the second time ever (the first time they brought home the second place trophy). Go team!

This issue contains a little bit of everything. Paul Pace, Jeff Miller, Justin Moore and Jason Caster have all contributed and helped prove that a magazine for Nevadans, featuring articles about Nevadans written by Nevadans can be comprehensive, interesting and entertaining. The BLM gets caught up on notifying us of completed surveys in public lands. Check out the latest on the ongoing threats to the sanctity of licensure. Meet the 2018 officers. Happy reading and Happy Year of the Dog!



# Meet Your Officers!

The Nevada Association of Land Surveyors is proud to introduce the newly elected state officers for 2018. **Jerry Juarez** is your **2018 President**. **Jason Higgins** is your **President-elect**. **Greg Phillips** is your **Secretary** and **Jason Fackrell** is your **Treasurer**. These folks have stepped forward to serve the organization, face the various challenges presented to them and to carry on the great traditions of the organization. They deserve a healthy round of applause, but hey, this is a magazine so you'll have to clap by yourself. Make sure to congratulate them when you see them at a chapter meeting or the upcoming conference!

## 2018 President Gerald (Jerry) Juarez PLS 12140



Jerry is in his 37<sup>th</sup> year of experience and 22<sup>st</sup> year as a professional beginning his career in Las Vegas with the U.S. Bureau of Reclamation. After five years in public service he continued his career in the private world. In 1993, an opportunity to manage multiple crews at one of the largest multi-discipline engineering firms in Las Vegas presented itself, which was a turning point in his career. He was licensed in 1996 and continued his career, as Survey Manager leaving his home town of Las Vegas in 2003 and moved to Reno. Jerry became involved with NALS while in Las Vegas serving as director, treasurer and secretary of the Southern Chapter and later, in 2008, served as president of the Lahontan Chapter. By far his proudest achievement is starting the NSPS TrigStar program in Nevada in 2004. Jerry continues to serve as the Nevada TrigStar chair and in 2012 he was appointed NSPS TrigStar chair, as well.

## 2018 President-Elect Jason Paul Higgins, PLS 13601



Jason began his land surveying career in his native state of Maryland in 1983. Upon moving to Southern Nevada in 1996, he has served in various positions within the NALS organization and served as President of the Southern Chapter in 2007. From 2013-2017, he served as the Chairman of the Mojave-Southern Great Basin Resource Advisory Council for the Bureau of Land Management. In 2016 Jason was appointed to the Nye-White Pine County Resource Advisory Council by the United States Department of Agriculture, representing Energy and Mineral Development. He has presented seminars and lectures on land surveying topics for land surveying associations, federal agencies and private corporations since 1999. Jason is the Executive Vice President of Wallace Morris Kline Surveying, LLC in Las Vegas, directing the Public Works, Utilities and Water Rights Group.

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## Electronic BLM Manual The Manual of Surveying Instructions 2009

Currently available on the BLM website:

[http://www.blm.gov/pgdata/content/wo/en/prog/more/cadastralsurvey/2009\\_edition.html](http://www.blm.gov/pgdata/content/wo/en/prog/more/cadastralsurvey/2009_edition.html)

# The President's Message

by Jerry Juarez, PLS



**H**ere we are...2018! First, I want to thank Alan Dill for his leadership in 2017. He left the association better off than when he started last January! So many positives last year including a very successful conference here in Reno! Of course, we couldn't do that without the hard work from Nany Almanzan, Crissy Wilson and the Conference Committee. With the help of Marty Crook and me wearing florescent orange high heels (that's another story) NALS raised over \$15,000 for our Scholarship Fund! I also want to welcome my board for the coming year. I truly believe this is one of the strongest boards NALS has seen in quite some time. Jason Higgins will serve as President Elect, Greg Phillips, secretary and Jason Fackrell, treasurer. There are some very important issues we as professionals' face and with this group I have every confidence we'll be able to take them head on and come out the other side with some big wins!

Speaking of the Conference and Scholarship Fund, we're only 4 short weeks away from the Western Regional Survey Conference at the Luxor Hotel & Casino in Las Vegas from February 21-24. It's the largest conference NALS has seen in years! Nevada, Arizona and Utah's associations are coming together for the first time and with West Fed & and the NSPS Board meetings this is sure to be an amazing conference! If you haven't yet, please make sure to register before the early bird pricing is over which ends January 29. Another reason to get registered is because the room blocks at the Luxor are going very fast. In fact, Utah and Arizona have more registered than we do at this point. Let's go Nevada professionals! Jason Higgins is putting on a great Mock Trial! There's an NSPS Student competition in which Great Basin College will have a team competing! A King Arthur Tournament dinner at the Excalibur! Bowling tournament and some of the most exciting speakers and topics ever!

Ok professionals, it's time to talk about some things that are happening around our close-knit group. We've had our fair share of losses in the last year with losing Jerry Tippin, Bart Dalton, Barbara Littell, Chuck Cassano, Laurie Weatherston, Andy Daniels, Dale Kulm and now another very respected Land Surveyor, Harry Erickson. Also, take a quick look back at the natural disasters that have directly impacted our profession. I, for one, am sick of hearing about these losses. I get it, life and death happen but it seems like the natural disasters are more prevalent and seem to pile on each other and there are more and more professionals passing on and more who are sick. We have a couple friends who are loved and respected surveyors fighting for their life as we speak! Although there isn't a lot we can do about either thing we can continue to help with donations especially to the NSPS Foundation and the Atwell Foundation. We take care of our own just like any other profession so I implore you to help.

I mentioned "things" we don't want to deal with but what the heck are we going to do about getting young minds interested enough in our amazing profession that we would fill seats at

colleges and universities. Yes, I said it, FILL! As you may know I have been involved in a great program called Trig-Star for years. I love it and as an awareness tool it works well. You may have noticed I didn't say great. Yes, we are reaching some high school kids and teachers but it just ain't cuttin' the mustard. I've come to believe we need to reach the younger kids. Middle school and even elementary. We're in some bad way fellow professionals. What can we do differently? What other ways can we reach kids? How can we get butts in the seats? How can we help the full-time field and office technicians get licensed? I feel this is the most important thing land surveyors face today.

Now for something else we'll face this year. For the first time a sunset committee has sent a letter to the BPELS! That's never good. But know that your NALS board is on it and we're going to jump in with both feet to make sure you're protected. This is a very new and real issue that has been talked about nationwide but now here it is in our own backyard! I will make sure to communicate to you what the plan is and will keep the communication open so we can get past this idiotic concept of not having or consolidating a licensing board.

As I read back it sure seems depressing but it really isn't. It's time for us to be pro-active instead of re-active, it's time for change! I know this "change" concept is tough for us surveyors but if we don't figure things out real quick we're going to be in a bad way. ☒

## About the Cover...



Truckee River below Floriston, California



Senator Dean Heller and others look on while Interior Secretary Ryan Zinke signs order directing the first modern nationwide geological and topographical survey of the U.S.



# For Better or Worse: A Brief History of Water Conflicts in Early Nevada, Part II

By: Paul S. Pace, PLS

*Part I described how the mines of the Comstock Lode grew unprofitable due to enormous overheads, primarily from pumping out the great quantity of hot water encountered in the deep mines. Commercial hydroelectric power seemed a viable means to revive mining on the Lode by reducing fuel costs. In 1900 the completion of the first in a series of hydroelectric plants on the Truckee River provided the needed energy to resume mining on the Comstock.*

## The Struggle for the Truckee River

With less than 10 inches of annual precipitation Nevada gets the least rain of any state in the U.S. The winter of 2016-17 was notably well above average, but as recently as the winter of 2014-15, the snowpack in the Lake Tahoe Basin was a tiny fraction of the region's average precipitation. It was in fact the lowest amount of snow since regular record keeping began, sometime after 1910. The 2014 annual newsletter to Nevada's water rights surveyors offered more grim numbers that winter: Lake Meade in southern Nevada was at an all-time low; Fallon's farmers would get only 15-20% of their normal quota of water; farmers on the Lower Humboldt River were cut off altogether; 16 of Nevada's 17 counties were declared Primary Natural Disaster Areas by the U.S. Department of Agriculture. It is not difficult to anticipate future struggles over the region's scant water resources, at a time when the demand on them is already great and will surely increase.

But the struggle over water in Nevada is nothing new. Historic and ongoing legal battles have plagued many of Nevada's water basins, including the Carson and Walker River basins, and more recently led to skirmishes between White Pine County and the Southern Nevada Water Authority. Legal battles also plagued the Truckee River, that most litigated of streams.

Serious efforts to exploit Lake Tahoe and the Truckee River system began in the 1860's. Commercial fishermen hauled thousands of pounds of abundant trout from Lake Tahoe to sell in Virginia City and San Francisco. Washoe Indians living at the lake netted more fish for those same markets. But in 1870, San Francisco engineer A. W. von Schmidt built a rough crib dam downstream from the river's outlet at Lake Tahoe. His plan was to store water in Lake Tahoe for his proposed "Grand Aqueduct", which would supply San Francisco with fresh water. He constructed a second dam about 4 miles downstream to divert water out of the river, into a canal in Squaw Valley, then into a 5-mile tunnel through Sierra. The tunnel would carry water from the Truckee River basin into the American River watershed near Soda Springs. From there, it would run in open canals as far as Auburn, California. The remaining distance to the Bay Area would be in pipelines.

Ultimately, Von Schmidt could neither convince the city officials in San Francisco to issue \$10 million in bonds, nor obtain the rights of way from the U.S. Congress across public lands or the Central Pacific Railroad's checkerboard land grant. Furthermore, he met with tremendous local resistance from the residents of Truckee and western Nevada who viewed the scheme as outright theft of their water. The dam itself immediately became an issue, as rising waters behind the dam inundated the lakeshore property of moneyed and politically connected landowners.

Von Schmidt could see the handwriting on the wall and gave up his planned aqueduct. But another enterprise, the Donner Lumber & Boom Company (DL&BCo) had something else in mind for the river. Mark Hopkins and Leland Stanford, one half of the brain trust that built the Central Pacific Railroad, headed the company. They were two of the most powerful people on the west coast. Consequently the California legislature had no trouble giving the lumber company a twenty-five year charter to build a new dam, a short distance upstream from von Schmidt's effort. For a fee of \$25,000 per year, DL&BCo was allowed to "improve" the river channel as far as the state line, at its own expense, and use the stored water behind the dam to push saw logs and cordwood down river. The dam had 5 gates and raised the lake level a maximum of about six feet above the natural rim of the lake, just upstream of the dam. It was used for this purpose at least until 1897. From 1900 on, the dam was used to regulate flows in the river to service the Truckee River General Electric Company's hydro plant at Floriston, as well as the Fleishhackers' pulp mill.

At first glance a 6-foot high dam might appear as a relatively minor issue. In fact, because Lake Tahoe is a large body of water, with a watershed of over 500 square miles, the storage potential is enormous. By raising the lake's level by 6 feet, stored water behind the dam represented hundreds of thousands of acre-feet.

In March of 1889, the Nevada Legislature passed the *Water Act* that was designed to regulate water use, particularly for irrigation. It required a water commissioner for each basin and required that water rights be filed with each county. Any unappropriated water was reserved for the State of Nevada. More broadly, organizations such as the National Irrigation Congress lobbied state legislatures concerning water management and conservation with the aim of improving irrigation in the western states.

In 1902 the U.S. Reclamation Service arrived on the scene with plans to irrigate and reclaim the high desert lands in western Nevada. One way to achieve that was to store water in Lake Tahoe and release it during the growing season. This would mean controlling the dam at Lake Tahoe's only outlet, the Truckee River. The agency moved forward with engineering a massive irrigation project in Nevada's Lahontan Valley, seventy airline miles to the east. As they planned to use the Carson River as well, the effort was named the Truckee-Carson Irrigation Project.

Earlier reclamation efforts in the West had stalled in Washington, D.C. But all that changed with the assassination of U.S. President William McKinley in September of 1901. Vice President Theodore Roosevelt came into the White House as an enthusiastic supporter of a national reclamation program. With his help, Congress passed National Reclamation Act of 1902. At the same time, the Act also created the U.S. Reclamation Service that soon had a long list of **CONTINUED ON NEXT PAGE ►**

reclamation projects planned. The agency's first effort was to be the Truckee-Carson Irrigation Project. Authorized in March of 1903, the project intending to irrigate over 400,000 acres of land with the combined waters of the Truckee and Carson Rivers. In 1919, it was renamed the Newlands Project for Nevada Senator Francis Newlands, who sponsored the 1902 Reclamation Act in the U.S. Senate.

Newlands was the son-in-law of William Sharon, former agent of the Comstock's once all-powerful Bank of California. Sharon too had been elected to the U.S. Senate from Nevada, and Newlands became Sharon's executor following the Senator's death. Newlands owned considerable tracts of land in and around the Lahontan Valley, as well as at Lake Tahoe, and took a strong interest in reclamation. Prior to his election to the Senate, Newlands used his own money to study the possibilities of developing large-scale water storage and irrigation projects in western Nevada. In 1889 he retained the services of H. H. Bence, a local surveyor and civil engineer, to survey and design reservoir sites for storing water from the Carson River. From these reservoirs a network of canals and ditches could carry water to new homesteads. Later Newlands retained T. K. Stewart to survey reservoir sites in the Truckee River Basin near Independence Lake in California, and nearby valleys in western Nevada.

Meanwhile, the Reclamation Service moved on its plan to gain control of the dam at Lake Tahoe's outlet, so obviously critical to the success of the Truckee-Carson project. In 1902 they started discussions with the Donner Lumber & Boom Company. But just as the Reclamation Service had cast its gaze on the dam at Tahoe, the Donner Lumber and Boom Company had had enough of operating and maintaining the dam at Lake Tahoe at their own expense. The company notified the Floriston Pulp and Paper Company and the hydroelectric operators downstream at Farad, that fees would henceforth be charged for the use and maintenance of the dam. The plants' owners strenuously ignored the lumber company. Shortly thereafter DL&BCo indicated they were prepared to open the dam's gates and dump all the stored water behind the dam. At that point the Fleishhackers made a proposal to purchase the dam and all the surrounding land, 54 acres in total.

The Fleishhackers were willing to pay the lumber company \$45,000 for the rights to the dam and the use of the water it stored, together with the adjacent acreage. The DL&BCo agreed to the offer. Shortly thereafter, the USRS was notified to its dismay that the lumber company had sold the dam to the Truckee River General Electric Company, even as negotiations were about to begin with the agency. The USRS quickly entered into talks with the power company about purchasing the dam. Eventually, TRGECo offered to sell the dam to the Reclamation Service for \$100,000, while retaining rights to the water for their "run of the river" hydro plant. The USRS engineers on the ground accepted the offer, but their managers in Washington, D.C. rejected it out of hand.

### The Truckee-Carson Irrigation Project

The Reclamation Service was undeterred by the setback at Lake Tahoe, because the agency was in a hurry. It had several dozen reclamation projects in the works and was anxious for success on this first effort. Since much of the area within the project were Public Lands, the Reclamation Service felt that once the dam at Lake Tahoe was resolved, things would move quickly. They let a

contract to build a diversion dam on the lower Truckee River, 20 miles downstream from Reno and well away from the industrial users upstream.

Water thus diverted from the Truckee River would be carried by canal to the Carson River and into the Lahontan Valley. 500 men were put to work on the dam project. The earthen and concrete Derby Diversion Dam was completed in 1905. Simultaneously, another 1000 men were put to work building the Truckee Canal, a 31-mile open channel that brought the water diverted at Derby Dam to the Carson River. At that point the Carson River, which normally carried about half the volume of the Truckee River, took the combined waters to the lands within the reclamation project. Another smaller structure, the concrete Carson River Diversion Dam, was built in 1904-5 to divert water from the river into two main canals within the irrigation project.



Dedication ceremony at the Derby Diversion Dam on the Lower Truckee River in 1905  
Bureau of Reclamation photo

In 1903, construction began on the Churchill County Courthouse in the village of Fallon, Nevada. Fallon would come to life and grow together the irrigation project. That same year, the USRS officials in Washington finally tired of dealing with the power company. Notices were posted on the dam at Lake Tahoe, claiming the right to store and release 3,000 Cubic Feet per Second (CFS) from the lake. The Service acquired 64 acres just south of the existing dam property, with the idea of creating a second, artificial outlet from the lake, with their own control structure. Rumors circulated that the outlet would be lower than the natural rim of the lake, near which the existing dam was situated. There was word too that the new dam would be higher than the DL&BCo's. This of course raised more concerns with lakeshore property owners. In 1905 the USRS awarded a \$32,200 contract for the construction of this new outlet structure to a firm in San Francisco. The Fleishhackers immediately went to court seeking an injunction against the Reclamation Service and successfully brought the project to a halt. A stalemate ensued.

In May of 1907, the TRGECo completed the first electric power line to Yerington, Nevada. This was big news and the *San Francisco Call* reported that, "Many mines are now awaiting the coming of the power and its advent into the camp is looked

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forward to as the opening of a new era.” This, of course, only strengthened the power company’s position vis-à-vis the dam at Tahoe City and the water stored behind it.



The TRGECO dam at the outlet of Lake Tahoe.  
USGS photo from *Water-Supply and Irrigation Papers*, No. 68, 1902

The Reclamation Service forged ahead with their many other projects in the West. Under the banner headline “Winning Back the Dessert; Great Work of Government”, the *Sacramento Union* reported on October 25 of 1908, “The Surveying parties of the service have completed topographic surveys of 10,900 square miles, an area greater than the combined states of Massachusetts and Rhode Island. The transit lines had a length of 18,900 miles, while the level lines run amount to 24,218 miles, or nearly sufficient to girdle the globe.” USRS engineer E. T. Peterson was quoted in the same article, “To Jan. 1 1908, we have dug 1267 miles of canals, or a ditch nearly the distance from Washington to Kansas City. Some of the canals carry whole rivers, like the Truckee River in Nevada and the North Platte in Wyoming. We have excavated forty-seven tunnels... [built] ninety-four large structures...376 miles of wagon road in mountainous country and have erected and have in operation 727 miles of telephone lines.”

But more trouble continued to brew on the Reclamation Service’s irrigation project in Nevada. Flows in the Truckee River were highly variable, then as now, as a function of the annual Sierra snowpack. In 1907, the first full year of irrigation from the combined Truckee and Carson rivers, water volumes were inadequate, even for the 25,000 acres then under cultivation. Nevertheless, that same year, the USRS issued a reassuring circular stating, “...the water supply is assured and guaranteed by the United States...”. This, as things turned out, was tragically untrue. Nevertheless, the USRS continued to build secondary canals and ditches to carry water to the homesteads. The looming conflicts over the allocation of the bi-state waters of the Truckee River went unresolved.

In 1907, TRGECO offered control but not ownership of the dam at Lake Tahoe to the Reclamation Service for \$50,000, provided the USRS could guarantee flows of 400 CFS through the fall and winter months, and 500 CFS in the spring and summer months. These flows would be adequate to generate electricity year-round. The USRS declined the offer.

The USRS had other pressing matters to deal with. Much of the land the Reclamation Service had planned to include in the Project would not drain properly, if at all. Too, much of area was heavily alkaline, so irrigating it only exacerbated the problem, often rendering the land unfit for cultivation. Building drainage ditches to remove the excess water increased the farmer’s debt to the government, as they were assessed by the USRS for the construction of the project’s infrastructure. The Reclamation Service revised the project’s planned acreage downward over time, from over 400,000 acres to 232,800 in 1902, to 170,000 in 1910 and finally, to 73,301 acres in 1926.

Farmers carried the cost of clearing the land and the infrastructure they obtained from the government. At the same time they had to survive three or four years before they could produce a marketable harvest. These same homesteaders, who had held out so much hope for a bright future, now only saw devastated croplands and heavy debt ahead. By the summer of 1907, only 10 percent of the Project’s proposed acreages were under cultivation and much of that land had been farmed before 1905. Issues with the promised water supply became acute as severe droughts in 1908 and 1910 drastically reduced the water going to the Project. Government engineers could see now that the whole project was imperiled, more than anything else by the scarcity of water.

Determined to rectify the dearth of water and despite issues with limited funding, the Reclamation Service planned for a storage reservoir site on the Carson River. Engineers found the site for a future dam near where the Truckee Canal spilled its waters into the Carson River. Design of a new concrete structure got underway. It would be called the Lahontan Dam.

### The Power Syndicate

Just before the turn of the 20th century, the Stone & Webster Company, an electrical engineering firm and power syndicate based in Massachusetts, expanded into the west. By 1900 they owned and operated numerous electric companies, including large systems in Seattle and around the Puget Sound in Washington as well as in Oregon. In 1907 the firm secured an option to buy the TRGECO. It then turned to the Reclamation Service to negotiate an arrangement regarding the dam at Tahoe City and the stored waters of Lake Tahoe.

Stone & Webster officials offered the USRS 200,000 acre-feet of Lake Tahoe’s water during each growing season. Thus heartened, engineers at the USRS calculated that this supply of water would allow the irrigation of 80,000 acres in the Lahontan Valley. But there were other considerations, not the least of which was the Lake Tahoe Railway and Transportation Company. The little shortline railroad was owned and operated by the powerful timber and mining magnate William S. Bliss, son of pioneering lumberman Duane L. Bliss. The narrow gauge line closely paralleled the Truckee River, from the Central Pacific yards in Truckee thence a winding 16 miles up the river canyon to the line’s terminus at Tahoe City. Large surges of water released for irrigation, while simultaneously supplying the hydros, could require a change in the railroad’s grade, the construction of new bridges, etc. Bliss was not to be trifled with so more surveying and mapping would be required. Nevertheless, Stone & Webster went forward with the acquisition of the TRGECO.

In 1909, TRGECO began construction of a new concrete dam at Lake Tahoe’s outlet, replacing

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# A Governors' Compact In The Making

Recently the Nevada Traverse has come into possession of some correspondence related to a meeting of some governors of western states that took place at a Western Governor's Association Meeting last fall. While not confidential or classified information per se, this correspondence is probably not something that was intended for general distribution. The nature of the correspondence was as a summary of one particular topic of the conference and an agreement, a 'governor's compact' if you will, on the status of professional licensure in these governors' states. The Governors of South Dakota, Colorado, Montana, North Dakota and Wyoming all were in agreement that a licensure reciprocity compact made sense. This compact would cover all professional licenses. As outlined, licensing boards could only basically ask for name and address and be required to issue a temporary license with a term of 18 months if the applicant is in good standing in one of the states signing on to the compact. These governors have all since indicated that they plan to introduce legislation in their states during the upcoming legislative sessions to make this agreement a reality.

Now it is true that NCEES and the licensing boards of the five states in question are aware of this situation and are monitoring it closely. And NSPS has been brought up to speed on this as well. It is also true that our own board of licensure has made noises that regional comity is a concept being discussed at NCEES and something our board is looking at. No board meeting that I have attended or discussion I have heard touched on the idea of the temporary license, especially without testing.

In the event that the scope of the compact is widened to include Nevada - here's how Brett Lane, a NALS member (and former state president) who pays attention to such things, sees the situation:

*I read through everything and saw no questions, or further clarification about background confirmations in the draft Multi-State Compact document concerning the Surveying Degree Requirement that many States now have for prospective Professional Land Surveying licensees. And NCEES is in the loop watching, thankfully.*

*In addition, as a 30+ year Nevada Licensed Professional Land Surveyor, my concern is multi-layered. Being keen on the wisdom of State Law makers, regards to existing Nevada Statute language, I point out that we are licensed to "protect the health, safety and welfare of the public" and after a very long row we (engineering community) laboriously hoed for decades, Nevada now has very stringent requirements for first time professional land surveyor licensees. So much so, that the question of QUALIFIED "future" Nevada professional land surveyors is actually a growing concern.*

*The proposed Draft Site Licensure Compact Document does not address this point and doesn't protect the public from squat, as I see it; and what it really proposes, is to create a "Get-Out-Of-Jail-Free Card" to all those out of State who would seek to become a Temporary Nevada PLS (or any professionally licensed discipline) for 18 months to get work in Nevada (or any of the participating "Compact" States).*

*In short, we (Nevada PLS's) are charged with working ethically and legally within our areas of expertise, the list goes on. I can NOT see how any of the things Nevada and other States now require would be protected under such a compact. And the opportunity for abuse of the system (even though their draft says only one 18 month temporary License per individual) appears very ripe.*

*Secondly, what about the loss of work for all in-State licensed PE's, PLS's, Geotechs, Electrical, etc. ??? all disciplines, obviously; and how would this impact the aspiring young future licensees?*

*I personally think this is going toward (on track with) what is being tossed around nationally...eliminating Licensing Boards all together. As a last resort, if it (a multi-State compact) absolutely has to happen, then as compromise, at least the Western States (Rectangular Survey System Public Land States) should holdout for forming a "Regional Compact" at least for Land Surveying Licensing, so we have some sense of checks and balances?*

*How can our Engineers (rely on/accept professional liability) based on the work of a Temporary Land Surveyor who has no intimate, institutional, or practical applicable knowledge of the multitude of surveying problems in this State? A simple example: Can a Nevada Civil Engineer be required to totally rely upon a boundary survey performed cold, by a Temporary (18 month) Land Surveyor along Las Vegas Boulevard South in the H-1 district in town just for this job?? I don't think so.*

This thing, in broad strokes, is remarkably similar to the failed NSPS attempt in the 90's and noughties to get on board with a NAFTA agreement that would allow surveyors in all the Canadian provinces, all the Mexican states and all the US states and territories, to move their license around as the economy required. As chair of the NSPS NAFTA MRD Review Committee, I was buried up to my eyes in that process for about five years before it was mercifully killed. The Canadian and Mexican surveying entities had enough autonomy to sign such a compact, but if we were to complete it and get on board here in the US, 50 plus licensing boards would have had to sign on and that was simply not going to happen at the time. Circumstances have changed since then.

Dave Crook, another former president of NALS had this to say:

*This could open a whole lot of liability issues for the retracing surveyors having to follow the "temporary" licensee as well. It brings up all kinds of questions, some being local knowledge like Brett commented on, research standards and locations throughout each state as well as access issues.*

*Each State has so many unique issues, it would be difficult to determine the minimum standards for new licensees, not to mention how to determine existing license requirements. There needs to be something, whether it is a publication that has to be read and signed off on or something similar that the laws have at least been reviewed.*

The movement to restrict or eliminate licensing boards is a threat to all of us, but more importantly, the public. The very reason that individual state licensure is mandatory for our profession is to serve to protect the general public, especially in a profession that is substantially

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# Possible New Work For Surveyors In The U.S.



WASHINGTON, D.C. – U.S. Sen. Dean Heller, R-Nev., joined U.S. Secretary of the Interior Ryan Zinke as he signed a secretarial order Thursday directing the first nationwide geological and topographical survey of the United States in modern history in order to ultimately reduce America’s reliance on foreign countries for critical minerals.

The order follows a U.S. Geological Survey report that found the United States depends on China to source 20 out of 23 critical minerals from foreign nations.

Heller has authored legislation — the National Strategic and Critical Minerals Production Act — that would allow the United States to more efficiently develop hard rock minerals by streamlining the permitting process for mineral exploration and mine development projects and reducing regulatory red tape.

“I applaud Secretary Zinke for initiating a review of the outdated, job-crushing policies that inhibit our ability to utilize our own mineral resources,” said Heller. “Nevada is one of the most mineral rich locations on earth, and hard rock mining contributes to thousands of jobs in our state. In order to harness our nation’s true mineral potential and end our reliance on foreign production, we need to streamline and update these policies, and that’s why I authored legislation that would do just that. I thank Secretary Zinke for his leadership on this issue and his work to help allow Nevada and this country to enact a strategy to fully maximize our nation’s mineral potential.”

*-Excerpted from the Elko Daily Free Press*



# Andy Daniels Rest In Peace

Andrew Horne Daniels passed away on Wednesday, December 6, 2017, in Reno Nevada, his home of over 20 years. He was born on July 28, 1961 in Bellefonte, PA, the 5th child of Robert E. and Nancy (Lord) Daniels, then of Lemont, PA, both of whom predeceased him.

Andy was a 1979 graduate of the State College (PA) Area High School and was a proud member of the Alternative Program when he met his wife, Odette Barry. Andy also graduated from Penn State University with a degree in Geography, a subject which remained a life-long profession and passion.

Andy applied his love of maps to his life’s profession, first by working for various professional mapping companies in Maine, California and Oregon. In Nevada, he became President and eventually the owner of Spencer B. Gross, Inc., a photogrammetric mapping company located in Reno. Since 1997, the company has provided aerial photography services to local, state and federal government and corporations.

Andy truly enjoyed nature and the great outdoors. He was happy to live in an area where he could easily indulge his passion for hiking and camping and for exploring the natural and historical wonders of the Sierra Nevada and mid-coast of California.

Andy is survived by his wife of over 30 years, Odette Barry and their son Noah Daniels, as well as by his four older siblings: Douglas, James, Sarah and Elizabeth, as well as by his numerous nieces, nephews, great-nieces and great-nephews, to whom their Uncle Andy was a very special person. He is greatly missed by his entire family.

A memorial service will be held at a later date. In lieu of flowers, the family requests that contributions be made to The Nature Conservancy in Andy’s memory.

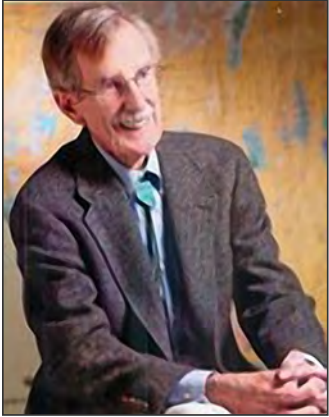
Andy was a longtime supporter and sustaining member of NALS and a familiar face in the vendor’s hall at our conferences over the last twenty years.

*Excerpted from the Reno Gazette-Journal on Dec. 22, 2017*



# Harry Ericson

## Rest In Peace



Harry Richard Ericson passed away on January 8, 2018. He was born in Monticello, New York on June 7, 1933, to Louise Lupton Ericson and Harry Ericson. The family moved to Sparks in 1949. Harry graduated from Sparks High School in 1952. He married Fritsi (Hancock) Ericson in 1961 and they enjoyed 56 years of joy and many adventures during their life together.

After enrolling at the University of Nevada in the fall of 1952, Harry was drafted during the Korean War and stationed at Camp Hale, Colorado, as a Winter Survival School Instructor where his cross-country ski skills, a sport he learned as a youngster in Monticello, served him well. He had a passion for skiing and actively participated until seriously injured in an airplane crash in 1972. After discharge from the Army in 1955, he returned to the University of Nevada as an Engineering student where he was a member and captain of the ski team. In 1958, Harry was a member of the U.S. Cross Country Training Team for the FIS World competition and in 1959 was selected as a member of the 1960 Olympic Training Team. Although he did not make the 16 member team, he was named the first alternate and acted as a forerunner in several cross-country events and continued to compete for a number of years against some of the best. After the Olympics, he became a member of the U.S. Ski Association Cross Country Committee and coached the Far West Ski Association Junior National Cross Country Team. After being sidelined by injuries, Harry assumed the title of Captain for several sailboats moored at Lake Tahoe and Brickyard Cove in San Francisco Bay. Outings with family and friends were filled with laughter, food and a nip or two!

In his professional life, Harry was the quintessential professional who worked in the survey and engineering industry for over 50 years. He was one of the founding owners of the Engineering and Survey firm SEA (now Stantec). His work included sites throughout the Western US on projects involving electric power, telecommunications and natural gas pipelines. His knowledge of high voltage power line routing was regarded as one of the “best in the west.” He most recently was the lead routing expert for the State of Nevada on the NEAC Transmission Routing to export renewable energy out of Nevada. His work involved locating more than 4,000 miles of high voltage electric transmission line in the western states of Nevada, Idaho, Oregon, and Washington. Of that mileage, 1,800 miles was located in Nevada alone. When one traveled with him, the history of sites always included power lines, to him, true works of art. In addition, he also brought his skills to photo reconstruction of aircraft and auto crash sites. Harry enjoyed his work, the opportunity to learn something new and the people he worked with. He said, “I find that every day brings a new challenge which expands my professional background.”

In addition to work and ski-related activities, he volunteered for a variety of non-profits including Camp Fire Boys and Girls, where he served on the local and national boards and was a member of the Ball of Fire, Lions Club. He received recognition from Camp Fire Boys and Girls, both locally and nationally, Lions Club, City of Reno, University of Nevada, and was the recipient of the 1988 Distinguished Service Award from the Northern Nevada Chapter of NSPE, (National Society of Professional Engineers).

Harry enjoyed a myriad of activities including University of Nevada football and basketball games, studying Nevada History and history of the West exploring Nevada and the Cowboy Gathering in Elko. A friend, Lynn Atcheson said of his Cowboy Poetry look, “He had the perfect mustache, hat, boots, scarf, and looked like the perfect classy working cowboy. Of course, he loved Willie Nelson and Jack Daniels, but when I think of him, he will be at the bar in the Star in Elko sipping a Picon.”

However most important to him was the time spent with his children and grandchildren Harry adored his family and all the special times they had together.

Harry’s parents, step-father, favorite Aunt Grace and brother Bob preceded him in death. He is survived by his wife, Fritsi; children: Heidi Ericson Herzog (Mike), Gretchen Ericson, Jon Ericson (Lisa) Brook Ericson; sister, Linda Bowman (Rick Moser); grandchildren, Grace, Cooper, Emma Lou; brother-in-law John Hancock (Susan) and niece, Jessica. A Celebration of Life was held at Hidden Valley Country Club on Sunday, January 21, 2018, 2-5 p.m. In lieu of flowers, donations may be made in his name to the Ericson Family Fund, Nevada Women’s Fund, 770 Smithridge Drive, Suite 300, Reno, NV 89502.

*Excerpted from the Reno Gazette-Journal from Jan. 17 to Jan. 20, 2018*



# Dale Kulm, PLS

## Rest In Peace

Dale Daniel Kulm passed peacefully in his home on December 27, 2017 with his devoted caregivers by his side. Dale enjoyed a long career as an engineer with NDOT and after retirement as a land surveyor.

He was preceded in death by his spouse Olive, sisters Katherine, Dorothy, Grace and Irma, brother, Herman and parents Matt and Elizabeth.

He is survived by brother, Robert Kulm, son David Kulm, daughter Karen, granddaughters Delia and Tauni and great grandchildren Emily and Jackson, as well as many nieces and nephews.

He was loved and respected by his family, friends and colleagues.

*-Excerpted from the Reno Gazette-Journal on Dec. 31, 2017*



# Monsen Annual Trimble Users Group Meeting

**Where:** Reno, NV, AGC Building 5400 Mill Street

**When:** January 23 8AM

**Presented by:** Marty Crook and Jeff Flamini from Monsen / Reno James Monsen, Mike McCarrick from Monsen / SLC Dan Butvidas and Joe Blecha from Trimble  
50± attendees.



## Guest Speaker No. 1:

Sean Fernandez from State of Utah Automated Geographic Reference Center (AGRC) . Mr. Fernandez came to talk about the Utah GPS network and the possibility that Utah might take over management of the Washoe County network. *[Editor's note: See Remote Sensibilities Article for more detail.]*

## Trimble Presentation No. 1

Dan Butvidas introduced the latest Trimble software and hardware including the T10 tablet, Trimble Connect and Charity softwares, and various Android apps that surveyors would find very helpful including one to start a static survey onboard with your receiver by using your phone.

## Guest Speaker No. 2:

Rob Pyzel, a planner with Lyon County Community Development gave a presentation on the current and pending development projects in his county, most of which bracket the US Corridor between Silver Springs and Dayton. Over 1900 lots are either already entitled or are somewhere in the entitlement process. The county is going to roll out Title 15 this year. Title 15 is the new land use and development code and this is the first major update to their code since 1987.

## Guest Speaker No. 3:

Trevor Lloyd, Planning Manager for Washoe County gave an overview of development in Washoe County, explaining the 13 different Planning Areas and 7 different Citizens Advisory Councils. Mr. Lloyd talked about recent commercial, industrial and residential developments throughout the county and fielded questions from the group on transportation, zoning and annexation issues, among others. He noted that the County is working on updating the Regional Plan in 2018.

## Guest Speaker No. 4:

Byron Calkins, Program Advisor and Primary Instructor at Great Basin College spoke about the state of the program, noting that there are now 100 students enrolled in Surveying classes, 30% of which are Nevada residents. The school will graduate 5 students with an Associate Degree and 5 students with a Baccalaureate Degree in surveying this spring. He talked about the challenges and frustrations of trying to implement the use of Drones in the Photogrammetry class. One of the goals in doing this was to give students hands-on experience in UAV operation and culminating in getting their 107 permit. Since the students are at distance the school would have to ship them a drone for use during the semester. Surprisingly, the issue preventing this from reaching fruition was not the cost of the drones, but NSHE policy and Insurance company issues. Right now there is a stalemate but Calkins still holds out hope that it could happen. He also noted that they explored a funding source for securing a second full-time professor from new money made available from the State of Nevada for Workforce Development, only to find that Surveying is not considered part of the "workforce" and so his program is not eligible for funding. If this makes you angry, write your state legislators and let them know about it.



## Monsen Scholarship Award

Sarah Walker, a Land Survey/Geomatics student at GBC was this year's recipient of the Monsen Scholarship in the amount of \$2000. If you see her at the conference, be sure to congratulate her and welcome her into the profession.

## Monsen Presentation No. 1

Jeff Flamini and Marty Crook led a discussion of various Trimble instruments including the Dini level, the TSC3 Controller, GPS receivers R8s and R10, the SX10 scanner and the numerous different configurations available for the S5-S7-S9 Total Stations.

## Trimble Presentation No. 2

Joe Blecha Trimble TBC Product Manager discussed all of the features available in the TBC 4.0 software. He noted that if a user so chooses, he can use TBC as a stand-alone package to compute data, upload and download data, adjust data and draft a map without exporting to a CAD package. Of course the software can be used for surface and earthwork volumetrics and can work with point cloud data. There is now full aerial photogrammetry functionality within TBC. It now has built-in 'cadastral' functions including a legal description writer.

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# BLM Accepted Surveys



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Santa Rosa, CA 95404

Dear Mr. C.de Baca,

Due to a shortage in staff, we have not provided the Nevada Traverse with a list of accepted surveys since January of 2015; please accept our apologies. We will now resume with our notification of the accepted surveys.

The following is a list of surveys that were accepted from January 01, 2015 through December 31, 2017. The records of these surveys are available in the Information Access Center at the Bureau of Land Management's Nevada State Office, located at 1340 Financial Blvd. in Reno, Nevada 89502.

Township and Range	Date Accepted	Type of Survey
T. 6 S., R. 70 E., M.D.M.	01/12/15	Dependent Resurvey
T. 46 N., R. 39 E., M.D.M.	03/02/15	Dependent Resurvey
T. 7 S., R. 61 E., M.D.M.	04/08/15	Dependent Resurvey and Subdivision
T. 6 S., R. 61 E., M.D.M.	04/08/15	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 21 S., R. 63 E., M.D.M.	04/09/15	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 4 S., R. 60 E., M.D.M.	04/16/15	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 14 S., R. 69 E., M.D.M.	05/12/15	Dependent Resurvey and Subdivision
T. 13 N., R. 27 E., M.D.M.	05/14/15	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 4 S., R. 60 E., M.D.M.	06/02/15	Dependent Resurvey and Subdivision
T. 3 S., R. 60 E., M.D.M.	06/02/15	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 19 S., R. 60 E., M.D.M.	06/03/15	Supplemental Plat of Section 17
T. 13 N., R. 26 E., M.D.M.	06/12/15	Dependent Resurvey and Metes-and-Bounds Survey
T. 12 N., R. 26 E., M.D.M.	06/22/15	Supplemental Plat of Sections 2, 3, 4, 9, 10, and 11
T. 34 N., R. 55 E., M.D.M.	06/29/15	Dependent Resurvey and Subdivision
T. 34 N., R. 54 1/2 E., M.D.M.	07/22/15	Dependent Resurvey and Metes-and-Bounds Survey
T. 34 N., R. 54 E., M.D.M.	07/22/15	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 5 S., R. 46 E., M.D. M.	07/29/15	Dependent Resurvey
T. 13 N., R. 26 E., M.D.M.	08/11/15	Supplemental Plat of the SE1/4 of Section 33
T. 22 S., R. 60 E., M.D.M.	08/25/15	Dependent Resurvey and Subdivision
T. 1 S., R. 39 E., M.D.M.	09/29/15	Dependent and Independent Resurveys
T. 1 S., R. 38 E., M.D.M.	09/29/15	Dependent and Independent Resurveys
T. 1 S., R. 39 E., M.D.M.	09/30/15	Dependent and Independent

T. 19 S., R. 60 E., M.D.M.	11/30/15	Resurveys Supplemental Plat of Section 17
T. 42 N., R. 24 E., M.D.M.	02/28/16	Dependent Resurvey and Subdivision
T. 22 N., R. 35 E., M.D.M.	03/07/16	Supplemental Plat
T. 16 N., R. 21 E., M.D.M.	04/29/16	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 20 S., R. 62 E., M.D.M.	08/24/16	Dependent Resurvey, Subdivision of Section 24 and Metes-and-Bounds Survey
T. 20 S., R. 59 E., M.D.M.	08/25/16	Dependent Resurvey
T. 19 S., R. 62 E., M.D.M.	09/01/16	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 43 N., R. 26 E., M.D.M.	09/28/16	Dependent Resurvey and Subdivision
T. 19 S., R. 62 E., M.D.M.	10/17/16	Amended Plat
T. 10 N., R. 21 E., M.D.M.	01/31/17	Dependent Resurvey and Subdivision
T. 11 N., R. 21 E., M.D.M.	02/02/17	Dependent Resurvey and Subdivision
T. 15 S., R. 66 E., M.D.M.	03/21/17	Dependent Resurvey, Corrective Dependent Resurvey, Subdivision And Metes-And-Bounds Survey
T. 45 N., R. 56 E., M.D.M.	03/29/17	Dependent Resurvey and Subdivision
T. 1 N., R. 67 E., M.D.M.	04/19/17	Dependent Resurvey, Subdivision and Metes-and-Bounds Survey
T. 15 S., R. 66 E., M.D.M.	04/20/17	Dependent Resurvey, Subdivision And Metes-And-Bounds Survey in Section 7
T. 47 N., R. 56 E., M.D.M.	05/26/17	Dependent Resurvey and Subdivision
T. 7 S., R. 41 1/2 E., M.D.M.	07/18/17	Supplemental Plat of the W1/2SW 1/4 Section 3
T. 19 S., R. 60 E., M.D.M.	09/21/17	Dependent Resurvey, Subdivision And Metes-And-Bounds Survey
T. 19 S., R. 61 E., M.D.M.	09/21/17	Dependent Resurvey, Subdivision And Metes-And-Bounds Survey
T. 18 S., R. 60 E., M.D.M.	09/21/17	Dependent Resurvey and Subdivision
T. 19 S., R. 61 E., M.D.M.	12/19/17	Dependent Resurvey, Subdivision and Metes-And-Bounds Survey in Section 24

Please feel free to circulate this letter among the membership of the Professional Land Surveyors of Nevada. The plat and field notes of the surveys listed above, along with all GLO/BLM survey plats and field notes for Nevada can be found at: [www.nv.blm.gov/LandRecords/](http://www.nv.blm.gov/LandRecords/)

If you have any questions, please contact Wayne Strickland, Supervisory Cadastral Surveyor, at (775) 861-6557.

Sincerely,

  
Digitally signed by MICHAEL HARMENING  
Date: 2018.01.10 13:03:00Z  
Michael O. Harmening  
Chief, Branch of Geographic Sciences

# NASA SAYS...

*I think I left my  
plumb bob out there.*

## SURVEYORS WANTED





# Some Thoughts On What The Legislative Committee Could Tackle

by Carl C. de Baca

As we enter the new legislative cycle in 2018 NALS needs to focus, marshal our resources and move directly toward our goal of getting some legislation together, finding a sponsor, and securing support. Out of the two-year Nevada cycle, we only really have about six months, plus whatever time is remaining between now and the end of the year.

This has been a committee of one for almost two years now. For a brief six-month period we had almost assembled a group to work into the 2016-2017 legislative cycle. Before that it has been generally a committee of one for at least the past five years before that. That is unacceptable. Do you all care so little for your profession? Land Surveying faces many threats from many directions and is rapidly approaching a time when we may lose whatever is left of our political clout. There are things that need to be addressed legislatively, from the new coordinate system to making sure that only a licensee is authorized by law to perform certain functions or prepare certain documents. One individual cannot be expected to create proposed legislation, convince the organization to back it and then work with political connections to try to push the needed legislation forward. Former committee chair Brett Lane has said all this before and still it is nigh impossible to get anyone to step up and be involved in the committee and the process. This year we have a new Legislative Chair, Jason Higgins and he seems positively infused with energy and commitment. Let's get behind him and help him push.

As the former (read; do-nothing) chair of the committee, I have some suggestions for NALS and for Jason. In the 2018-2019 cycle, NALS *should* tackle one or two very big issues and *could* tackle numerous smaller issues. These are not mutually exclusive and could be all packaged together and presented as an overall 'cleanup'.

Here are some that I have gathered:

## Address NRS 327 as follows:

- Accommodate the new datum that is just around the corner. No doubt about it, this is the primary issue.
- Relegate NAD27 once and for all to the past. It is fine for things that were created when it was the legal datum for Nevada but should not be used for anything going forward. And yes, I am talking to you NDOT and State Lands!
- Conclusively establish that the use of state plane coordinates for any mapping or legal description use must be done by a PLS.

## Address NRS 625 and 278 as follows:

- Clarify how photogrammetric measurement is dealt with in 625.040. All topographic mapping including conventional

photogrammetry and mapping done with UAV's or laser scanning must be done under the direct supervision of a licensee. Let's see the verbiage changed to state that clearly.

- Address machine guidance – modestly but firmly. Making DTMs should be the business of PLS's and PE's not technicians of unknown provenance. Establishing ground control for a site calibration intended to be used by a contractor, should require the direction of a licensee. No exceptions. Contractors must employ or contract with a PLS otherwise the work is not being done under supervision as law requires.
- The requirement in NRS278.372 (8) for a graphic border around the subject property is antiquated and not necessary and is nothing more than a nuisance in this day and age. Having said that, elimination of the requirement will no-doubt face opposition. I propose to add a simple line to the end of No 8 so that it reads: "The exterior boundary of the land included within the subdivision must be indicated by a graphic border...or by other means that make the boundary clear and unambiguous."
- Spread throughout 278 and 625 are several poorly written pieces of law. One example – hardwiring two decimal places on acreages. Step outside Nevada and the industry standard is three decimal places. We have been able to measure accurately enough to state our acreage calculations to three decimal places for about forty years now and unless map checkers somewhere are still computing areas by the double meridian distance method, I think we are all deriving area in the same way here in 2018. Rounding from three to two decimal places can be as much as .004 acres which equates to 173 square feet. I can measure closer than that. Can't you? A reasonable county surveyor would interpret the language as requiring a minimum of two decimal places but there are those who take a literal translation over common sense and prevent the surveyor from using his or her discretion.
- There are other, similar issues. My retired predecessor puts it this way: "AND there are many other sections of NRS that include hard numbers that are intended to be somewhat flexible, like minimum distances required in "aliquot" dimensions that do NOT exist on the ground. They should be "Nominal" distances, etc. subject to the distances around the section as determined by Survey. Another example is everywhere under the Zoning Laws that require fixed distances between bars and schools, or churches, etc., Here for example it is 1500.00 feet." Thanks Brett.

At least one county (Nye) is sending back or disposing of mylars after recordation. I believe this is a violation of state law. Can the law be strengthened and enforced, or should it simply be changed? What should NALS position be? I'm not fond of getting my mylar back, folded and creased, after recording a record of survey. If we change the law and recognize a digital world, why do we even need mylar? Grant deeds don't need to be recorded on mylar, so why do maps?

Now, there is the starting list for things that this committee could consider addressing in 2018. If you wish to add or to or delete from the list, or criticize the list generally, that is fine but there is no time for anonymous commentary or cheap shots. Roll up your sleeves, communicate your concerns and most of all, volunteer to join the committee.





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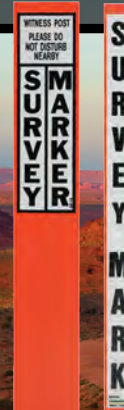


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# LSG PROGRAM HIGHLIGHTS



## Program Statement

The Land Surveying and Geomatics program is committed to addressing the diverse and constantly changing needs of students throughout Nevada and in other locales who are preparing for a geomatics career by improving teaching methods, techniques, and content for delivering high quality educational experiences and achieving student success.

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- **Competitive Wages: average graduate mean salary \$50,000 - \$75,000**
- **Affordable: average graduate student loan debt 0\$ - \$5,000**
- **Accessible: program offers 100% of the courses online and through mentoring programs.**
- **2015 LSG graduate survey ranked the quality of this program as “excellent”**



### Great Basin College

Land Surveying/Geomatics Program  
Great Basin College  
1500 College Parkway, HTC 130  
Elko, Nevada (USA) 89801  
Phone: (775) 753-2344  
[www.gbcnv.edu](http://www.gbcnv.edu)



## SUSTAINING MEMBERS

FOLLOWING IS A LISTING OF SUSTAINING MEMBERS OF THE NEVADA ASSOCIATION OF LAND SURVEYORS. PLEASE REMEMBER THAT THESE FIRMS AND BUSINESSES, THROUGH THEIR NALS MEMBERSHIP, ARE SUPPORTING THE AIMS AND OBJECTIVES OF OUR ASSOCIATION.

### **Aerial Mapping Consultants**

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amc.jb@cox.net

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leotorres@atmlv.com

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T. (702) 351-0847  
kevin@rmtlaser.com

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joe@rmtlaser.com

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# NALS Board of Directors Meeting

Friday, January 19<sup>th</sup>, 2018 • Manhard Consulting • 9850 Double R Blvd. • Reno, NV

## MINUTES

NALS Board of Directors meeting held January 19, 2018 at the offices of Manhard Consulting located at 9850 Double R Blvd., Reno, Nevada.

### CALL TO ORDER

President Alan Dill called the meeting to order.

### ROLL CALL

Jerry Juarez, President  
Jason Higgins, President-Elect  
Greg Phillips, Secretary  
Jason Fackrell, Treasurer  
Alan Dill, Immediate Past President  
Doug Larson, Director  
Jeff Miller, Director  
Justin Moore, Director  
Gene Sawyer, Director

### Absent

Chris Konakis, Director

### Guests

Carl CdeBaca, Past President, Committee Chair  
Crissy Willson

### PLEDGE OF ALLEGIANCE

President Alan Dill led the Board in the Pledge of Allegiance.

### INSTALLATION OF OFFICERS & DIRECTORS

The 2018 Officers & Directors were installed and took the oath of office. Immediate Past President Alan Dill thanked the Board for their support and provided encouragement for the coming year. The gavel was passed to incoming President Jerry Juarez.

### PRESIDENT'S REPORT

Report included in the agenda.

President Jerry Juarez reported that committee appointments have been confirmed as follows:

Advanced Education – Gene Sawyer  
Advanced Technology – Jason Fackrell  
Board of Registration Liaison – Greg Phillips  
Communications/Publications – Carl CdeBaca, Nevada Traverse Editor  
Constitution and Bylaws – Jason Higgins  
Continuing Education/Conference – Nancy Almanzan  
Legislation – Jason Higgins  
Membership – Justin Moore  
Nominating Committee – Alan Dill  
NSPS Director – Paul Burn/Carl CdeBaca  
Outreach – Jason Fackrell  
Professional Practices – Gene Sawyer  
WFPS Delegate – Nancy Almanzan/Matt Gingerich

**MOVED** by Jason Higgins and **SECONDED** to ratify the committee appointments. **MOTION CARRIED.**

### RESOLUTION TO APPOINT EXECUTIVE DIRECTOR

Resolution 2018-01 included in the agenda.

**MOVED** by Justin Moore and **SECONDED** to adopt resolution

2018-01 appointing Christina Willson as Executive Director. **MOTION CARRIED.**

### PRESIDENT-ELECT'S REPORT

President-Elect Jason Higgins reported attending the Board of Registration's PAL Committee meeting. The Board has indicated they will post NALS events on their website.

**Action Item:** Crissy Willson to email Patty Mamola NALS events for posting on the BPELS website.

Jason discussed the value that a strategic planning session could provide to NALS.

**Action Item:** Board to consider dates for a strategic planning session.

### SECRETARY

Duties of Secretary included in the agenda.

Secretary Greg Phillips reviewed the duties of Secretary and recommended delegation of some duties to the Executive Director.

**MOVED** by Greg Phillips and **SECONDED** to delegate duties B-E to the Executive Director. **MOTION CARRIED.**

### TREASURER

Duties of Treasurer included in the agenda.

Treasurer Jason Fackrell reviewed the duties of Treasurer and recommended delegation of some duties to the Executive Director.

**MOVED** by Jason Fackrell and **SECONDED** to delegate duties A-J to the Executive Director with the exceptions of signing checks made payable to Association Management Services. **MOTION CARRIED.**

Jason discussed the financial statements as included in the agenda.

**MOVED** by Jeff Miller and **SECONDED** to accept the financial statements as included in the agenda. **MOTION CARRIED.**

### RESOLUTION TO AUTHORIZE SIGNATURES ON BANK ACCOUNTS

Resolution included in the agenda.

**MOVED** by Gene Sawyer and **SECONDED** to adopt the Resolution 2018-02 authorizing Dorothy Calegari, Christina Willson, Jason Fackrell, and Jerry Juarez as signers on the NALS bank accounts. **MOTION CARRIED.**

### TELLER'S REPORT

Teller's report included in the agenda.

**MOVED** by Jason Fackrell and **SECONDED** to adopt the Teller's report. **MOTION CARRIED.**

### BOARD GUIDE – ORIENTATION

A draft Board Guide was distributed.

Crissy Willson provided an overview of the guide and answered questions regarding governance. Included in the guide were draft policies for anti-trust and conflict of interest. The guide and policies will be included on the next agenda for action.

CONTINUED ON NEXT PAGE ►

**Action Item:** Board to review the draft guide and draft policies.

**WFPS**

WFPS report included in the agenda. WFPS has developed a flyer customized for each of the western state associations. The flyer outlines the land surveying profession as a STEM career and can be used for school presentations, career fairs, etc.

**NSPS FOUNDATION**

NSPS Foundation report included in the agenda.

Carl CdeBaca serves as a Director on the NSPS Foundation where NALS has funds deposited. The account is currently earning approximately 7% interest.

WFPS indicated interest in setting up a fund through the NSPS Foundation and has submitted a draft Memorandum of Understanding (MOU) to the NSPS Foundation.

**MOVED** by Jason Higgins and **SECONDED** to donate \$2000 from the NSPS Equipment Fund to the WFPS Foundation account contingent upon review and approval of the WFPS/NSPS MOU. **MOTION CARRIED.**

**ADVANCED EDUCATION**

Advanced Education report included in the agenda.

Carl CdeBaca reported that the land surveying program at Great Basin College (GBC) continues to grow.

GBC will have a team compete in this year's NSPS Student Competition. The team is being sponsored by the NALS Foundation.

**LEGISTATION**

Jason Higgins discussed the potential legislation that NALS will be introducing during this legislative session. In order to be successful NALS will need the assistance of a lobbyist. The Board discussed the logistics of hiring a lobbyist. The current dues structure does not support retaining a lobbyist and the Board discussed the possibility of a special assessment or request for voluntary contribution to offset the fees.

**MOVED** by Gene Sawyer and **SECONDED** to authorize Jason Higgins to draft a letter to all registered professionals to request voluntary contributions to offset retaining a lobbyist. **MOTION CARRIED.**

**CONFERENCE**

The 2018 Conference will be held February 21-24<sup>th</sup> at the Luxor Hotel in Las Vegas, NV. The Conference is co-sponsored by the Arizona Professional Land Surveyors (APLS), the Utah Council of Land Surveyors (UCLS), and the Western Federation of Professional Surveyors (WFPS).

With current registration it is anticipated that attendance will be over 700. Chapters are encouraged to donate door prizes. The Southern Nevada Chapter will be responsible for hosting the VIP hospitality suite one night. Directors should work to promote the conference by encouraging members to register, solicit sponsorships, and auction donations.

Crissy Willson reported that dates have been secured at the Silver Legacy in Reno, Nevada for the 2019 and the 2021 Conferences.

**MOVED** by Gene Sawyer and **SECONDED** to authorize Crissy Willson to negotiate and sign a contract with the Silver Legacy for 2019 and 2021 Conference. **MOTION CARRIED**

The Board discussed inviting the California Land Surveyors Association (CLSA) to participate in the 2019 Conference.

**MOVED** by Gene Sawyer and **SECONDED** to authorize Nancy Almanzan to invite CLSA to participate in the 2019 conference. **MOTION CARRIED.**

**CITY OF RENO LETTER**

NALS sent a letter to the City of Reno regarding violations of NRS. To date, NALS has not received a response to the letter.

**MOVED** by Jason Higgins and **SECONDED** to resend the letter to the city of reno, return receipt requested, requesting a response within 60 days. **MOTION CARRIED.**

**Action Item:** Jerry Juarez to revise the City of Reno letter requesting a response within 60 days

**MEETING SCHEDULE**

- Conference - February 21<sup>st</sup> - 24<sup>th</sup>
- Board Meeting – April 13<sup>th</sup>
- Board Meeting – June 14<sup>th</sup>
- Board Meeting – October 19<sup>th</sup>

**ADJOURNMENT**

President Jerry Juarez adjourned the meeting at approximately 3:30 PM.



**Meet Your Officers!... continued from page 3**

**2018 Secretary Greg Phillips, PLS 17616**



Greg began his surveying career while in high school working as a chainman for his uncle's engineering and surveying business in rural Missouri. He worked his way through college moving up to a crew chief position while attending the University of Missouri to obtain his degree in Fisheries and Wildlife Management. In the spring of 2000, he and his soon to be wife relocated to the Carson Valley where they are raising their family. In his free time he enjoys being outside hiking, skiing, and trying to keep up with his kids. He has served on the Lahontan Chapter Board in multiple roles and as President in 2016. Greg is the Director of Surveying at Lumos and Associates, Inc.

**2018 Treasurer Jason Fackrell, PLS 17833**



Mr. Fackrell is a native Nevadan. He is a graduate of Bonanza High School and a member of the Boy Scouts where he earned the rank of Eagle Scout. He remains active in leadership roles in the community by serving as a Charter Representative for local scout troops. He has been active in the Land Surveying Profession for 23 years, beginning his career as a chainman for VTN Nevada in Las Vegas. He received his Nevada professional license in 2006 and is also a State Water Right Surveyor. Mr. Fackrell has been a member of the State and Southern Chapters of the Nevada Association of Land Surveyors for nearly 15 years, has served as President of the Southern Chapter and has been on the board since 2011. He is currently employed with Poggemeyer Design Group as Survey Manager.





the wooden structure built by the DL&BCo. The new dam was designed with 9 gates, but it was only partially completed. TRGECO then offered to allow the USRS the control of the dam for a price, but again not the ownership. The Reclamation Service refused this offer and in 1909 filed a condemnation suit against the TRGECO, primarily as a ploy to force new negotiations. Despite the legal action in *United States v. The Truckee River General Electric Company, et al*, the USBR and the power company mutually agreed to go forward with the completion of the dam regardless and without prejudice to the rights of either party to the condemnation suit.

While the government pressed its lawsuit, Stone & Webster's engineers considered an alternate plan. In the summer of 1908 the company's surveyors went to the field to survey a tunnel alignment from the eastern shore of Lake Tahoe, through the Carson Range and into the Carson Valley. They ended the survey at the Carson River. Water thus released from Lake Tahoe would flow into the Carson River for downstream irrigation in the Lahontan Valley. But an alternate plan was ultimately selected which ran the tunnel more to the north into Washoe Valley instead, daylighting at Franktown. A 15-foot high dam at the north end of the shallow Washoe Lake would impound 125,000 acre-feet of water. The stored water from Lake Tahoe could be released into the Truckee River when needed, via a canal system generally following the alignment of Steamboat Creek. The power company would bear the cost of building the proposed tunnel and dam.

In conjunction with the tunnel project, a hydroelectric plant site was selected about 4 miles north of Washoe Lake, at the north end of what is now Pleasant Valley. Critically, the power company would retain the ownership of the dam at Lake Tahoe in exchange for an easement for the Reclamation Service to operate the dam at Washoe Lake and a guarantee of 200,000 acre-feet of Tahoe's water through the tunnel annually. And the United States agreed to pay half the cost of the new dam at Tahoe's outlet, the government's use of which would cease after the tunnel was completed. Numerous other concessions were offered to the power company, while the government anticipated large cost savings for the irrigation project from the tunnel project. Apparently without considering the bi-state nature of the waters of Lake Tahoe, the impact to the lake's level, the esthetic or economic concerns of Tahoe's wealthy lakeshore property owners, and the vested interests of other influential downstream users, Secretary of the Interior James R. Garfield, son of the former president, approved the plan in principle.

The tunnel's alignment into Washoe Valley was, for the most part, through privately held lands but the tunnel would impact some U.S. Forest Service lands at Lake Tahoe and in the Carson Range. Stone & Webster hoped that the USRS, an agency in the Interior Department, could get around the anticipated resistance from the U.S. Forest Service. That agency, under the direction of the Secretary of Agriculture, managed large U.S. Forest Reserves in and around the Tahoe and Truckee River Basins and when it learned of it, vigorously opposed the project. Nevertheless, the contract between Stone & Webster and the USRS went quietly forward through several drafts, subject to final approval by the Secretary of the Interior. All this occurred in the face of outspoken opposition from such notables as Gifford Pinchot, the first Chief of the U.S. Forest Service.

To satisfy downstream users on the Truckee River, Stone & Webster also contemplated a series of small reservoirs on the river's tributaries for more upstream water storage. The

USGS and later the USRS had for some years considered the construction of reservoirs in western Nevada, as an alternative to fighting the power company over the dam at Lake Tahoe. The plan also addressed completing the still unfinished dam at Lake Tahoe. As for the anticipated storage reservoirs, the plan included the use of Public Lands not only for dams and reservoirs, but rights of way for roads and power lines from potential hydro plants on those same reservoirs. Gifford Pinchot urged that a new agreement more favorable to the government be hammered out. He warned the Secretary of Agriculture and President Roosevelt that, as written, the agreement created a power monopoly and subjected all the public lands in the Truckee River Basin to arbitrary use by the power company.

State officials in California opposed the plan outright. The U.S. Forest Service, assuming that the staff at the USRS had been either paid off or simply fooled, leaked the terms of the deal to the newspapers. On July 20<sup>th</sup> 1909, the San Francisco *Examiner* ran an article under the headline, "Secret Deal with United States Puts Tahoe in Syndicate's Clutch". It continued, "A secret Government deal, involving the absolute domination of the watershed of Lake Tahoe by a private syndicate and the control in perpetuity of water rights...came to light yesterday in this city." When the plan went public a storm of protest ensued and the contract was quietly shelved. An attempt to revive the contract was mounted early in 1911, when water shortages on the irrigation project loomed. By then a new administration had come to Washington, D.C. William H. Taft and his new Interior Secretary Richard Ballinger, both friends of business to be sure, liked the plan. When President Taft released the entire text of the plan to the newspapers the project's powerful opposition once again took up the fight. The plan was once again halted, leaving a legacy of mistrust between the landowners at Lake Tahoe and the USRS.

Yet despite the vast amounts of money and energy given to the Newlands irrigation project, all the legal actions involving the hydroelectric plants, farmers in the Truckee Meadows and the other users of Lake Tahoe's water, the actual ownership of any surplus water in the lake was, even at this late date, rather in doubt. Critics and conservationists in Nevada and California complained that the Reclamation Service had no legal standing to appropriate the surplus water ahead of actual use. The irrigation project envisioned vast amounts of acreage under cultivation, but only 35,000 acres were actually being farmed. How then, they asked, could the government claim all the surplus water in Lake Tahoe without an immediate need?

These same critics argued that the power company's alleged rights to the water were just as invalid, not to mention control of those waters in the lake. A number of lawsuits ensued. The Western Company brought suit against the Truckee River General Electric Company in 1912 to enjoin changing the level of Lake Tahoe. The State of California sued the TRGECO to determine ownership of the lands below the lake's high-water mark and to remove the outlet dam. In 1913, the USRS filed a "friendly lawsuit" in an attempt to adjudicate all the existing water rights on the Truckee River Basin. In *United States v. Orr Water Ditch Company, et al.*, the defendants were virtually every water right holder on the Truckee River, all its tributaries and all the ditches taking water from the river. The court would require decades to resolve the case.

In 1910, surveyors from Stone & Webster began extensive cadastral retracements along the Truckee River with an eye toward acquiring more

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properties with hydro potential in the river canyon. They reset many obliterated Public Land Survey System (PLSS) corners and monumented numerous aliquot parts of sections all through the river canyon with their unique triskelion embossed corner monuments. Subsequently, the TRGEC Co acquired large land holdings along the Truckee River.

Still, after all was said and done, the USRS needed control of the dam at Lake Tahoe. The agency knew the lawsuit it brought against the TRGEC Co in 1909 was a gamble, as government lawyers were unsure if private property in one state could be condemned for a public project in another state. Furthermore, reclamation in Nevada fell far behind the needs of mining, which relied on hydroelectric power from the TRGEC Co to operate. But in June of 1914, the U.S. District Court concluded *United States v. The Truckee River General Electric Company, et al.* The decision resulted in the *Truckee River General Electric Decree*, which awarded operation of the dam at Lake Tahoe to the Reclamation Service, but not title to it. And the court ordered the USRS to pay TTRGEC Co \$139,500 for the privilege. Further, given the power company's prior claims on the river, the USRS was to guarantee certain year-round flows to support the company's hydroelectric plants downstream. Volumes of 500 CFS in the spring and summer months and 400 CFS in the fall and winter months were to issue from the lake. Measured at the USGS gaging station near Floriston, these volumes were labeled the "Floriston Rates". Still in use though adjusted over time, these rates would be the basis for all future agreements regarding the waters of the Truckee River.

In addition to controlling the dam, the USRS acquired the use of 24 acres of land immediately surrounding the dam, as well as related structures and improvements. The *Decree* described the parcel, beginning at a point on the meander line of Lake Tahoe, as established by the GLO in November of 1866. The USBR was also ordered to pay half the cost of completing the new concrete dam at the outlet and provide the power company with weekly stream measurements on the Truckee River.

While the *Truckee River General Electric Decree* solved issues with the dam at Lake Tahoe, it didn't satisfy the USRS's expected water volumes from Lake Tahoe. It legitimized the power company's claim to Lake Tahoe's surplus water. Water thus guaranteed to the power company for hydroelectric use in the winter was lost to the farmers on the Newlands Project during the irrigation season.



Lahontan Dam spillways and powerhouse on the Carson River  
Author's photo, 1993

## The Great Western Power Company

While the Reclamation Service wrestled with the TRGEC Co and the pulp mill over the Truckee River, the Fleishhacker brothers were not idle. In 1905 they incorporated the City Electric Company, capturing a large share of the electric market in San Francisco. In 1906 they formed the Central California Traction Company, which provided electric interurban passenger rail service in the Stockton and Lodi areas in California. The company later extended their interurban service to Sacramento. In 1908 they brought the Great Western Power Company (GWPCo) to life, with plans to generate hydroelectric power from the Feather River. All the while Mortimer remained as president of the Fleishhacker Paper Box Company and the Floriston Paper Company. A new concern, the Floriston Land and Power Company, was created with Herbert Fleishhacker as president. In 1910, all the holdings of the Floriston Land and Power Company were transferred to the Floriston Pulp and Paper Company.

The GWPCo sought to capture the hydroelectric potential on the western slope of the Sierra and the northern Central Valley of California. To that end they planned to dam northern California's Feather River. The dam would inundate Big Meadows, now the site of Lake Almanor. The Fleishhackers' engineers planned a concrete, multiple-arch dam. When the plans were approved in 1910, construction began soon afterward. But preliminary geological reports regarding the depth of bedrock below the dam's base were inaccurate. The dam as designed could not be built in the proposed location. In 1912 Mortimer Fleishhacker ordered all construction on the dam to cease.

A new site for the Big Meadows dam was quickly found and an extremely controversial design for the new structure was approved. Instead of a concrete dam, a hydraulic-fill structure was built. Similar to a traditional earth-fill dam, this new design used water to place the material for the dam. The new dam was completed in 1914 and created a reservoir with a capacity of 220,000 acre-feet. In order for GWPCo to secure lands for the planned reservoir, it filed condemnation suits against Maidu Indians who had lived in Big Meadows for countless generations, together with pioneer families who had homesteaded the meadow since the mid 1800's. With the demand for more electricity, a new, larger dam was built in 1927, immediately downstream and connected to the first dam, and a hydroelectric plant was added. This structure was also a hydraulic-fill dam and increased the storage of Lake Almanor to 1,308,000 acre-feet. Just as with the inundation of the Hetch Hetchy Valley to provide water for San Francisco, and the desolation of the Owens Valley by the Los Angeles Aqueduct, the flooding of Big Meadows left for many a bitter legacy.

Meanwhile, in Nevada the TRGEC Co planned another dam on the Truckee River. The *San Francisco Call* reported, "The dam will back the water up the river more than 2500 feet and an immense lake will be formed...the company proposed to build an extensive plant to generate about 3000 horsepower." The article continued, "...it is asserted that the Southern Pacific Railroad will be in the market to secure a major portion in order to operate [electric] trains over the Sierra Nevada Mountains." That plan was never realized.

## The Science of Snow

The new dam at Lake Tahoe in no way eased the friction between the lakeshore property **CONTINUED ON NEXT PAGE ►**

*For Better or Worse, Part II... continued from previous page*

owners and the downstream users of the Truckee River. Coincidentally, around 1906 Dr. James Church, a humanities professor from the Nevada State University in Reno, began a systematic analysis of snow and frost. His first efforts were at a meteorological observatory near the summit of Mount Rose that he established with Sam Doten of the university's Agricultural Experiment Station. Church and Doten knew that snow produced the life-giving waters in the western U.S. and sought to better understand this vital resource.

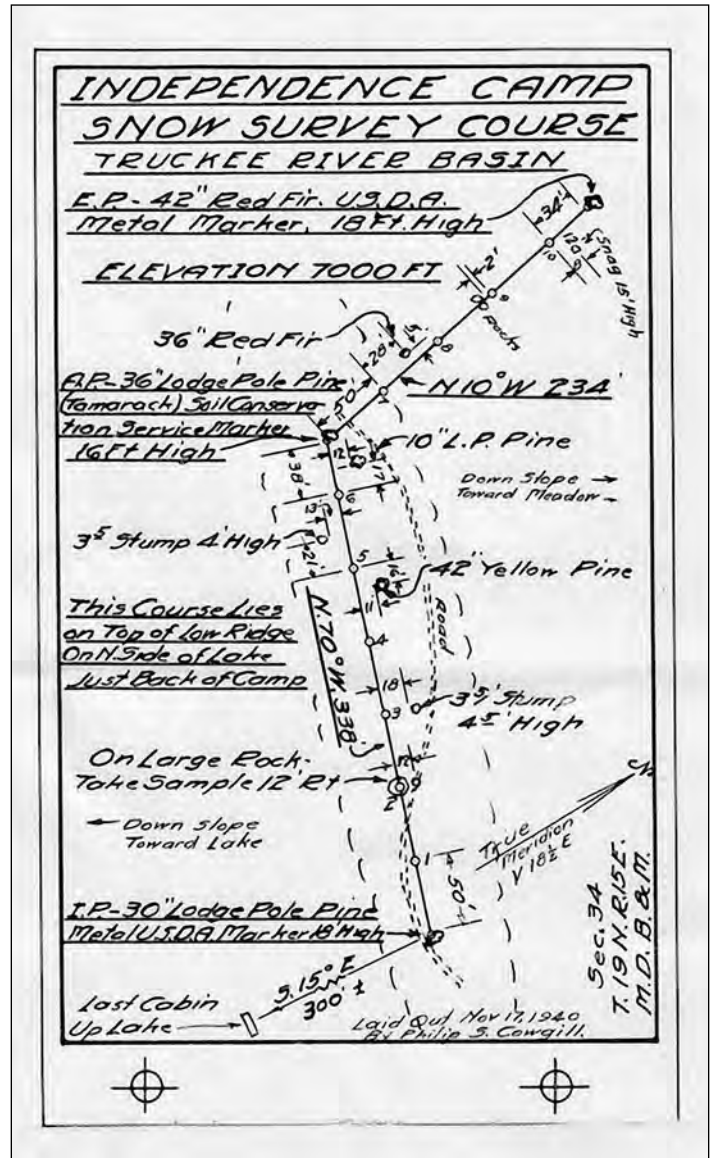
At his observatory on Mount Rose Dr. Church studied the annual snowpack's impact on forests and the practicality of forecasting frost for the region's farmers. Sometime around 1909, H. H. Barter, an engineer from Stone & Webster in Reno, approached Church about his work. Barter wondered if Church could predict the amount of runoff from the winter's snowfall and thus determine how much water would be coming into Lake Tahoe during the following spring. Church was not immediately able to answer the question, but reasoned it could be done. Regulating the water level behind the dam at Lake Tahoe, based on predicted snowmelt and run-off, would be a boon to all concerned. It was the dawn of snow science.

Dr. Church sought to understand better the relationship between snow's water content, against its depth and weight. He developed a prototype snow sampler, a galvanized sheet iron tube of a specific diameter that could pull a core sample of snow. He constructed the unit in the machine shop at the Engineering Department at the university. But the sheet iron proved too thin. He switched to stainless steel tubing and improved the design. He named his device the Mount Rose Sampler.

The sampler was used to measure the depth of the snow by inserting it through the snow until it reached the ground. The tube was then removed and weighed with a specially calibrated spring balance. The inside diameter of the cutting teeth on the first section of tube was made so that the equivalent of one inch of snow water in the sample equaled a particular weight in ounces. The diameter of the sampler was eventually reduced so that calculations were simplified and a normal spring balance could be used. He developed a nomograph that surveyors could use in the field to determine the water content of the snow from the depth captured in the core tube, against the weight of the core. He began taking snow samples on a regular basis. By the spring of 1910 Church had enough data to produce his first prediction of spring runoffs in the Lake Tahoe Basin.

In 1919, Church formed the Nevada Cooperative Snow Survey. He set up permanent snow measuring courses in the Lake Tahoe Basin, and in the Truckee, Carson and Walker River basins, on both sides of the Nevada-California state line. In the 1920's Church formed the Nevada Forecast Committee, together George Devore, a water resources engineer from Sierra Pacific Power Company, Leigh Sanford of the Reno Evening Gazette and H. P. Boardman, a civil engineering professor at the University of Nevada.

The method was so successful, that Dr. Church ultimately went to South America, Russia, Canada, China and Greenland to help set up snow survey systems. In 1931, Church was named Chairman of the Permanent Committee of the Hydrology of Snow, of the American Geophysical Union. In 1935, the U.S. Congress appropriated money for the Federal-State Cooperative Snow Surveys and snow courses were established across the mountainous states in the western U.S., including the Truckee River Basin.



Typical snow course sketch for Sierra Pacific Power Company surveyor's data collection notebook. Cores were taken every 50 feet along the course, which was cleared of trees, stumps, etc. Author's collection.

### Electrifying Nevada

In 1909 a new electrical firm, Sierra Pacific Electric Company, was incorporated. It acquired all the stock of both RPL&WCo and TTRGECo, as well as the Carson City Coal Gas Company, the Carson Electric Light Company, the Hunter Creek Water Company and the Sparks Water Company. More consolidations in the regional electric providers continued.

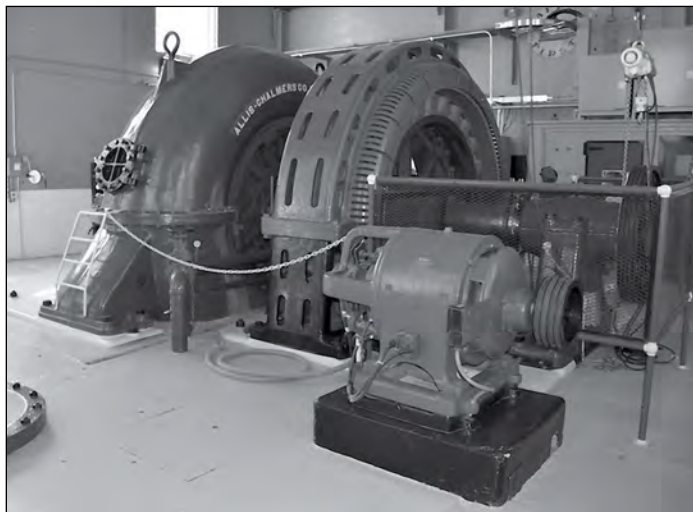
Near the end of 1910 Truckee River General Electric commenced construction of another hydroelectric plant just east of the lumber and mill town of Verdi, Nevada. The *Sacramento Union* newspaper optimistically reported on December 19 of that year that with the addition of this latest hydro plant, TRGECo could deliver 500,000 horsepower to its patrons in California and Nevada. This was music to the ears of the Comstock Pumping Association.

The newspaper reported in September of 1911 that nearly 800 men were at work digging a **CONTINUED ON NEXT PAGE ►**



*For Better or Worse, Part II... continued from previous page*

power canal from the Truckee River and installing equipment in the powerhouse. The new canal would carry river water about 2 miles, from a diversion dam to a raised wooden box flume, then to the powerhouse's forebay structure. From the forebay the water traveled down a wooden stave and riveted iron penstock to the single turbine.



The 1911 turbine and generator at the Verdi Powerhouse  
Author's photo, 2015

During the completion of the Verdi Powerhouse, a 66kV transmission line was surveyed and constructed from the hydro plant to the Thompson Smelting Works at Wabuska, Nevada. From there the line was extended to the Bluestone Mine, farther south in Mason Valley. The transmission line came via Six Mile Canyon near Virginia City, a distance of nearly 60 miles, and required 6 months to build. It was a significant feat of engineering and construction in 1911, all made possible by the power of water.

In 1912 the Fleishhackers and their associates decided to concentrate their hydroelectric endeavors to the western slope of the Sierra and divested themselves of the Truckee River General Electric Company. The company was reorganized and renamed "The Truckee River General Electric Company" (TTRGEC), incorporated and managed by Stone & Webster Corporation. In the process the new company also acquired the Union Light & Water Company, Reno Power, Light & Water Company, Washoe Power & Development Co., the Hunter Creek Water Co., all in Reno, the Sparks Water Co., and the California-Nevada Power Company, a pioneering hydroelectric operation near Bishop, California that transmitted power to the mines at Tonopah and Goldfield, Nevada. That same year, Fred Crosby, a commercial fisherman based at Sutcliffe, located on Pyramid Lake's western shore, shipped an estimated 15 tons of cutthroat trout to those same mining camps.

By 1923, the TTRGEC had acquired all the electric purveyors in the area. It changed its name to the Truckee River Power Company (TRPC). That same year the company built its first intertie with Pacific Gas & Electric Company (PG&E) for the purpose of purchasing surplus power from California for mines in Nevada. A wooden transmission line was constructed as far as Donner Summit where it met the line from PG&E. In 1928, TRPC's name was changed again to Sierra Pacific Power Company. The new company not only had the intertie with PG&E, it also had the five hydro plants on the river between

Reno and Farad.



Power company survey crew near Donner Summit in 1922.  
Author's collection

#### The Truckee-Carson Irrigation District

1912 brought another severe drought. As a result, the TTRGEC and the USRS sent work parties to Lake Tahoe to dredge the river channel at Tahoe City and cut the lake's natural rim in order to release more water. Property owners at the lake sought and obtained a court ordered injunction to stop the work.

After reaching an agreement with the Reclamation Service to complete work on the unfinished Lake Tahoe dam, TTRGEC resumed construction in August of 1913. The dam itself is made of reinforced concrete, enlarged to 17 sluice gates with a wooden superstructure. Work on the dam was completed by October of 1913. In the process they carried the USRS elevation datum to the top of a hexagonal brass bolt on the south abutment wall of the dam. USRS had used this datum for all surveying and mapping work in the area since 1903. The bolt head's elevation was called at 6230.0 feet.

Many years later, in 1960 the U.S. Geological Survey determined that the bolt's actual elevation was 6228.86 feet above sea level on the National Geodetic Vertical Datum (NGVD) of 1929. Nevertheless, the original USRS datum was held for all subsequent discussions, including complicated boundary locations between the state-owned bed of the lake and upland owners, as well as all decrees and statutes. Today it is known as the "Lake Tahoe Datum" or the "U.S. Bureau of Reclamation Datum".

Construction on the USBS's Lahontan Dam on the Carson River was completed in June of 1915, at a cost of \$1,500,000. A small hydro plant was installed with a capacity of 1,000KW. The USBR ran a 30kV power line 16 miles from the dam to Fallon. The dam was designed to store approximately 294,000 acre-feet, and 317,000 acre-feet with flash boards added. Here too there was an issue with the vertical datum used at the dam and surrounding infrastructure. The USRS's datum at the Lahontan Dam was subsequently found to be 3.73 feet higher than the elevation on the NGVD

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## NSPS Report

by Paul Burn, PLS, Nevada NSPS Director

Greetings Surveyors! I trust all have had some time off and a bit of relaxation with the holiday season coming and going. Since many of us are busy with end-of-year surveys for calendar year closings, early January works just as well for a day or two respite. Now we enter the promising year of 2018, which already has potential of being full of activities, and increasing work. First, we want to thank our outgoing NALS President, Alan Dill, for his fine leadership for the past year, and then we want to welcome Jerry Juarez to the helm for this year. Jerry not only brings NALS experience to our organization and our board, but he has been a co-chair of the national Trig-Star committee of NSPS, for many years. This should be of great benefit to the entire NALS organization.

The NSPS Spring meetings are coming right up, being held in conjunction with the Western Regional Survey Conference at the Luxor during the third week of February. Among many issues slated for these meetings is the discussion regarding a small dues increase for NSPS membership. There have been many rumors floating around, but this subject is yet to be determined. The discussion (discussion only) has so far included a \$5 to \$10 increase in annual dues. This is less than I spent for lunch yesterday. For this, and all NSPS matters, I will be reporting what occurs after the meetings, as I have in the past.

And, speaking of that, in case it's not been announced for your ears when this column is received, I am leaving my appointment as your Director in April, immediately following the Lobby Day on the 11<sup>th</sup>. I have served in this position since 2004, when then-President Tim Wolf first appointed me as Governor. Since that time, I have always seen it as an honor to serve you, the NALS members, and I hope that you have felt that my service has been of benefit. To the many NALS boards that I have served, a hearty thank you for the support, understanding, and cooperation that you've extended my way.

From a national surveying perspective, we have had many accomplishments along the way. The assumption/merger of ACSM, both in responsibilities and ALTA Standards; the 100% membership initiative; the streamlining of NSPS to eliminate the Board of Governors and solidify the Board of Directors for each state are representative of positive changes that come to mind. However, I believe the focused effort of NSPS to be among the leaders in the fight against LightSquared, and their

potential threat to our use of GPS as we know it, is the single most important occurrence in my time in this position. I was extremely proud to be among such a group in our efforts, from huge national agencies and businesses all the way to grass-roots surveyors from all over the nation. A further enjoyment for me was my interaction with Nevada Senator Dean Heller, during the year of the LightSquared bout. Not only was he supportive, he was clearly involved and at the forefront of the Senate's objections, and calmly assured us that the threat would be "gone" by December of that year (we were meeting in September). Sure enough, December brought the announcement of the demise of that hedge-fund supported group. During our Lobby Day appointments, it is much rarer to have the actual Congressman or Senator in the meetings, as we usually meet with a senior staffer who is familiar with our talking points. But at that meeting I just mentioned, Sen. Heller himself sat with us and discussed our issues, even beyond the essential GPS subject, and without a clock ticking. I remain impressed.

I would be remiss if I did not also point out the great volume of help and guidance I have received from Carl CdeBaca over the years. In my early days of serving, he became Director of the region in which Nevada was placed. I learned so much of what was expected of me, of just "how to effectively pay attention and make a difference". NSPS is a bit like the Senate, in that a representative from each state functions with no more or less say on any issue than any other representative. Over time, one learns the various attributes of the others, and can make judgments based on experience. Carl, with his prior experience, helped me with that learning curve from the day we began working together, and my effectiveness accelerated quickly from there. I developed alliances that have been beneficial and long-lasting, and learned how to effectively avoid traps and "holes in the ground"! Through the years, we counseled each other often on the issues, and I could always count on him for an opinion that was well thought out, even if I didn't agree. But there weren't many times I didn't agree. I understand that our NALS President Jerry Juarez has wisely appointed Carl to assume the Directorship after April, and I'm sincerely happy for NALS and NSPS that he has accepted. We all will benefit with Carl functioning in this position, as our western survey voice will continue to be heard and considered with skillful tact.

I would encourage all Nevada surveyors to log on to the NSPS website from time to time, and read your email edition of "News and Views" on Wednesdays. Should you have any questions or desire further information, please email me at [pburn@gcengineering.com](mailto:pburn@gcengineering.com) and I will do my best to get an answer for you.

Thank you.

### **Next Meetings:**

To Be Held During the Western Regional Conference in Las Vegas, NV – February, 2018



CONTINUED ON NEXT PAGE ►

# Lahontan Chapter Report

by Justin Moore, PLS, President - Lahontan Chapter

The final quarter of 2017 the Lahontan Chapter held elections for the 2018 board members. After all votes have been tallied the 2018 Lahontan Chapter Board is:

Doug Larson – President  
Todd Enke – President Elect  
Ken Mandryk – Secretary  
John Gomez – Treasurer.

I have great respect for all these board members and am optimistic for the future of the Lahontan Chapter.

In December the Lahontan Chapter did not have a General Membership meeting, however we did host a 2-hour Open Bar with Appetizer's at the Brasserie Saint James in Mid-Town Reno. We had approximately 20 in attendance with a special guest, Dan Harrison from San Diego, CA. Dan and his girlfriend (Joan) traveled to Reno specifically for this gathering. We thank him for his support and longtime dedication to NALS.

Our next scheduled General Membership meeting will be held on Thursday, January 18th at 6:00 pm @ the Twisted Fork in South Reno.

At our meeting we will be hearing from the 2018 NALS State Board President, Jerry Juarez. Jerry will be giving his State of the State address to our chapter as well as swearing in our new officers. It should be a good meeting to hear what is in store for NALS in 2018.

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## Lahontan Chapter End-of-Year Celebration

Happy New Year everyone! Another amazing year here in the High Sierra's. Looking back on 2017 we have much to be thankful for and there is no better way to reflect on the passing year than with great colleagues and FREE food and drinks. That is why this year in lieu of our traditional Christmas Party the Lahontan Chapter held a flash invite, open bar at the Brasserie Saint James in Mid-Town Reno. From 4 pm to 6 pm on December 22 the Lahontan Chapter opened the check book and flipped the cost for Lahontan Members and their significant others to enjoy beverages and appetizers over friendly conversation. We had approximately 20 members in attendance with two very special guests from San Diego, CA., Mr. Dan Harrison and his girlfriend Ms. Joan Schoenfeld Canonigo. Dan and Joan traveled to Reno specifically for our party to reconnect with some old friends. Low and behold, Dan bumps into an old friend from the BLM... Mr. Steve Parrish (30 years since their last meeting).



It was wonderful to see so many of us rejoicing together and enjoying each other's company. It was the perfect sendoff of 2017 and welcoming of 2018. So I raise my glass to all of you, "Thank you all for your graciousness throughout 2017, you're continued support in 2018, and for your friendship beyond".



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# Southern Nevada Chapter Report

by Jeff Mililer, PLS, President

As the 2018 President of SNALS, I would like to say that I am truly honored and have spent many years in the surveying profession with the hopes that one day I would be able to give back in some way to this great community that has provided me with opportunities that I could only dream of. I would also like to thank everyone on the 2018 Board as I feel very lucky to be surrounded by such great people. I have been surveying since the age of 18 and in the past 27 years have learned that the predecessors before me have left their mark and it will be extremely difficult to live up to the standards that they have set. I am ready to try and reach those standards but will need not only the support of the members but also the questions and concerns that the members may have. I believe that as an Association we can achieve great things in 2018 but we need to know your thoughts so that they can be analyzed and worked on.

The Southern Chapter had their annual Golf Tournament in Mesquite at the Casablanca and had a great turnout with over 100 golfers. The event was back in Mesquite at the request of the members and it was a great time!!

The November Membership Meeting was at Arizona Charlie's and was our Past President's dinner. I'd like to personally thank all of our Past President's for making the Association what it is today.

In December we held our Christmas party at the Suncoast Hotel. There were 2 entertainment acts and the 2018 SNALS Board members were sworn in. The food was great and everyone in attendance had a great time as there were many raffle winners and everyone was also given door prizes.

Thank you and here's to a great 2018!



## SNALS Christmas Party

The Southern Chapter ended 2017 with a great Christmas Party at the Suncoast Hotel, which was attended by over 50 people. The 2018 Officers and Directors were sworn in and there was a magician and an entertainment act followed by raffle prizes. I am honored and humbled to be the 2018 President for our Chapter and will reach out to Past Presidents to get much needed input as I try to bring back traditions that were started by my predecessors and need to be rekindled. The outlook for 2018 is tremendous as the turnout for the first membership meeting at Sierra Gold Tavern was way more than I could have been anticipated with over 40 members in attendance showing support for the Association!!



on the fringes of common knowledge and awareness of said public. Unless you either know a surveyor, have used one before, or work in a common industry, the average layperson has very little idea what surveying entails. The ability for a surveyor from another state to step into a different state other than the one that they are duly licensed in and be able to hit the ground running without the knowledge of the intricacies of the area's boundary laws, agency requirements, local nomenclature, etc. is just not plausible. It's dangerous, in fact. In the last Traverse (and before) I opined on the threats to licensure and I have on more than one occasion suggested that NALS needs to become more active in self-policing (PPC, anyone...?). These are not isolated concepts and I confess to being baffled that most of us cannot connect the dots and therefore instinctively oppose the PPC idea with the misguided assumption that the Board will always be there to protect us. Never mind the fact that the board exists to protect the consumer 'from' us. If ignorance is bliss, we surveyors may be some of the happiest people on Earth. But I digress.

Former Lahontan Chapter President Jason Caster offered these thoughts on the topic:

*For me personally, having our licenses lumped in with others such as massage therapists, hairdressers, and manicurists is absolutely absurd. I mean, a haircut is a haircut....like, globally. But while I wouldn't be uncomfortable going to work at a barber shop anywhere if I cut hair, I would be loath to go to another state to survey land and think that I could be as proficient as I am in my own area, for a myriad of reasons.*

*If I want to go survey in Washington, for example, I'm prepared to sit for my Washington license, period. But even when I do get that WA stamp, I know for a fact that it would be months before I was familiar with the area's surveying regulations, standards of practice, lingo, etc. This would be a problem not only for my employer, but also my clients. This just reeks of carpetbagging, and a way to circumvent laws that are very important and historical, all to make a quick buck, and at the expense of the home teams. Something's rotten in Denmark (which, by the way, would also be extremely difficult to survey in, without first passing the Danish-specific surveying exam).*

If this initial attempt at a Governors' Compact is successful, some form of it will no doubt be thrust upon us in Nevada in the near future. Whether it takes the form of the one we are discussing, or whether it is an NCEES brokered agreement between the boards of neighboring states as members of our own board have suggested, it will in fact take place because society is mandating it. Combating the worst of it, i.e. temporary licensure, is probably the only effective strategy we can employ. And, a regional compact can be morphed into a national compact or a multinational compact (return of the NAFTA MRD perhaps...) as time goes on. That would certainly be 'free enterprise' at its most distilled and refined state, but would this be in the best interests of the consumer or the local professional?

*With contributions by:  
Carl C.de Baca PLS  
Brett Lane PLS  
Dave Crook PLS  
Jason Caster PLS*



of 1929. Elevations at the dam and nearby gages are today still referenced to the original “Reclamation Service Datum” or the “Lahontan Dam Datum”.

Despite promises to the contrary and all the work done by the USRS, water shortages plagued the homesteaders on the Newlands project from the beginning. When there was adequate water, matters were further complicated by an inadequate drainage system. The USRS fought on to acquire more water, and promised more drainage canals, but the costs of both would be assessed to the frustrated farmers. Naturally, local dissatisfaction grew.

The project’s farmers became convinced that the USRS was disinterested in their problems. They went to the Nevada Congressional delegation and the governor with their complaints and sought to challenge the USRS for control of the project. They organized an informal water user’s group, which the USRS naturally opposed. But by 1926, even with the addition of the Lahontan Reservoir, the Newlands project was still burdened with continued water shortages. Under increasing pressure, the Service yielded to the creation of the Truckee-Carson Irrigation District (TCID), which assumed local control of the project.

Hoping to avoid the problems experienced in earlier drought years, the USRS again considered upstream water storage in the Truckee River Basin. Before the turn of the century, Senator Newlands’s surveyors had identified numerous sites for storage reservoirs, including Lemmon Valley north of Reno and Spanish Springs Valley, north of Sparks. In 1920, the USRS selected Spanish Springs Valley as the site for a large storage reservoir. There they could store upwards of 300,000 acre-feet of water. They would pay for the earthen dam and powerhouse by charging all the farmers on the Project an additional assessment of \$20 per acre. The TCID and farmers immediately raised objections, saying it was the government’s responsibility to provide sufficient water for the Project. Congress, they argued, should fund the Spanish Springs Project, not the farmers downstream.

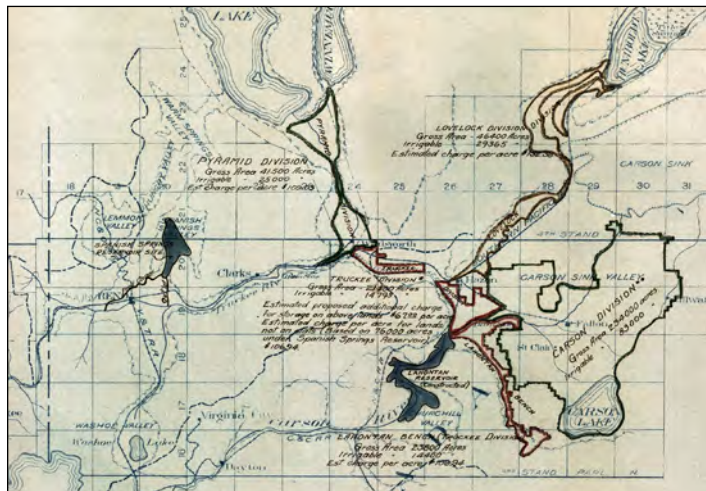
Nevertheless, surveying and mapping of Spanish Springs Valley went forward, together with test borings at the proposed dam site. Discussions in Washington, D.C. then centered on the canal from the Truckee River to the reservoir site, which would parallel the existing Orr Ditch. They also discussed the operation of the small hydroelectric plant planned for the dam. In March of 1921, consulting engineer D. C. Henry arrived in Reno to design, together with USRS engineers, the power facilities at the reservoir’s dam.

That same year the TCID Board met and passed a resolution endorsing the construction of the Spanish Springs Reservoir. The project gained momentum when a joint session of the Nevada Legislature voted to endorse the project and direct the Secretary of the Interior to renew the existing 10-year lease with the Canyon Power Company, operators of the hydro at the Lahontan Dam. Canyon Power was the only bidder for the operation of the Lahontan hydro in 1914. The firm had also “... claimed power rights on the Truckee River below the proposed intake to the new reservoir.” This was a potential setback for the planned dam at Spanish Springs. Renewal of Canyon Power’s contract at Lahontan removed that obstacle.

Permanent project offices for the Spanish Springs project were established in Reno in April of 1922. Surveyors went to the field to locate the dam, intake and outlet canals for the reservoir, and retrace older cadastral surveys in the valley. Appraisals for

the lands within the reservoir were completed and negotiations began with landowners for rights of way and land purchases for the project. But continued opposition to the assessments dogged the reservoir project.

While the work in Spanish Springs Valley was underway, the plan for a tunnel from Lake Tahoe was dusted off and given new life. The USRS and Stone & Webster sought help from Congress. An appropriation bill was written for the project. This was immediately met with resistance from landowners at Lake Tahoe.



Map showing 76,000 acres of irrigable land to be served by the Spanish Springs Reservoir in the Pyramid, Truckee and Lovelock Divisions of the Newlands Project. From the Special Collections Department/University Archives, University of Nevada, Reno Libraries. Used with permission.

In March of 1920, William Bliss wrote a scalding though overstated letter to the Editor of the *Argonaut* newspaper in San Francisco. Bliss wrote, “The Menace to Lake Tahoe: To the Editor—Sir: The preliminary steps have apparently been taken by the Reclamation Service to drain Lake Tahoe 100 feet in depth, as is evidenced by the appropriation bill introduced in Congress for the purpose of carrying on the following work for the Newlands Project...The Reclamation Service has refused to give any information as to the location and use of the proposed tunnel provided for in the appropriation bill; the only answer that seems possible to those who are familiar with the situation is that it is the commencement of the four-mile drainage tunnel to the Lake. The construction of this tunnel has been contemplated for a number of years as shown by the several agreements entered into with Stone and Webster...”

The Bliss letter outlined the many benefits of the tunnel for the USRS and the TTRGCo, but in his view, at an unacceptable cost to Lake Tahoe. It set the tone for the growing opposition to the project. Unwilling to tolerate continued and growing public criticism of the tunnel project, the USRS shelved the plans once more.

The winter of 1919-20 was another poor snow year. It was more than just a disappointment to the USRS, it was devastating to the farms on the Newlands Project. In April the agency proposed to cut the natural rim of the lake to allow more water into the river. But that plan again met with stiff opposition. In July, with crops withering in the Lahontan Valley, TCID appealed to the Interior Department for permission to lower the rim to relieve the farms. Further complicating

CONTINUED ON NEXT PAGE ►

matters, the operators of the powerhouse at the Lahontan Dam indicated that they had only enough water to provide electricity to the Fallon and the project for only a matter of days. A meeting was arranged in Reno between Tahoe residents, resort owners, TCID officials and the USRS to attempt a resolution. But predictably, it produced only more acrimony. Nevertheless, the Interior Secretary relented and ordered the clearing of the river channel in an effort to improve the meager flow. However, he refused to allow the natural rim to be cut.

In August a record setting rainfall ended the drought, but caused massive damage in the Newlands Project. The only benefit came to the powerhouse at the Lahontan Dam, which once again had enough water to provide stable electricity to Fallon and the surrounding farms.



Cover Photo Part III, Truckee River below Floriston, California.

The Truckee River flows from Lake Tahoe in California, to Pyramid Lake in Nevada. The bi-state nature of the 105-mile long river has often complicated its control and use. For water scarce Nevada, the Truckee River is a vital resource that provides domestic and irrigation water for the Truckee Meadows, hydroelectric power to the region, a large amount of the water for the Truckee-Carson Irrigation District and water to maintain the fishery at Pyramid Lake. It is also one of the most litigated rivers in the West. The Farad flume can be seen in the center background. Photo by author, 2017.

**Endnotes**

<sup>1</sup> The 1870 effort was Von Schmidt's fourth attempt at forming a water company using Lake Tahoe water. One of his previous attempts to exploit Lake Tahoe involved pumping water from the lake, over Spooner Summit, then on to Virginia City. There is some confusion as to whether von Schmidt actually built the first dam at the lake's outlet, or whether it was the Donner Lumber and Boom Company. The bulk of the writings suggest von Schmidt did in fact build the dam on the Truckee River at Tahoe City, as well as a diversion dam farther downstream near Squaw Valley, site of the 1960 Winter Olympic Games. Von Schmidt later won the contract to re-survey the entire California-Nevada state line in 1872-3.

<sup>2</sup> *Humboldt River Chronology*, Department of Conservation and Natural Resources, Nevada Division of Water Planning, April 2000, online.

<sup>3</sup> The USRS was renamed the U.S. Bureau of Reclamation in 1923  
<sup>4</sup> *Truckee-Carson-Lake Tahoe Project*, O.C. Marshall, House Documents, 62d Congress, Second Session, Government Printing Office, 1912

<sup>5</sup> *Conflict over Conservation: The Reclamation Service and the Tahoe Contract*, Donald J. Pisani, *Western Historical Quarterly*, 1979

<sup>6</sup> By 1985, the Bureau of Reclamation estimated that 63,100 acres were actually being irrigated, of which 57,518 had legal water rights. See the *Truckee River Chronology*, Nevada Division of Environmental Protection, Bureau of Water Quality Planning, April 1997 online.

<sup>7</sup> op. cit.

<sup>8</sup> op. cit.

<sup>9</sup> *Conflict over Conservation: The Reclamation Service and the Tahoe Contract*, Donald J. Pisani, *Western Historical Quarterly*, 1979

<sup>10</sup> op. cit.

<sup>11</sup> op. cit.

<sup>12</sup> *Snow Survey Centennial Celebration*, Natural Resources Conservation Service Bulletin, May 1, 2006

<sup>13</sup> *California Legislature, Senate Bills, 1969 Regular Session, Numbers 76-156*, California State Printing Office, 1969

<sup>14</sup> *Reclamation Record, Volume XIII*, 1920

<sup>15</sup> *Hot Summer in the Sierra: An Early Contest for Resource Rights at Lake Tahoe*, Mary Ellen Glass, *California Historical Quarterly*, Vol. 51, No. 4, 1972



**Monsen Trimble Users Group... continued from page 12**

Monsen Presentation No. 2

Mike McCarrick of Monsen gave a detailed presentation of Trimble's Locate to Protect L2P software, created to track assets such as controllers, receivers and total stations. A user can generate a 'geo-fence' around a jobsite and get automatic notification if an enabled instrument leaves that perimeter. Big Brother is watching you...but in a good way.

**Thanks to the Marty Crook, Jeff Flamini and James Monsen for hosting this event!**

*Contributed by Carl C.de Baca*





**News Release**

**ELKO DISTRICT OFFICE NO. 2017-015**  
**FOR RELEASE: For immediate release.**  
**CONTACT: Alex Rose at 775/738-1849, or**  
**CATrailcenter@gmail.com**

**The California Trail Interpretive Center Announces Temporary Exhibit: "Whose Land is This?"**

ELKO, Nev. – The California Trail Interpretive Center is presenting a temporary exhibit titled, "Whose Land is This?" The exhibit, on display from Jan. 1 through March 31, presents the history of public lands, beginning with the Ordinance of 1787.

Other topics include the history of the General Land Office and the U.S. Grazing Service. In 1946, the General Land Office merged with the Grazing Service to create the Bureau of Land Management. "Whose Land is This?" includes reproductions of historic maps and images of the United States, Nevada and Elko County.

"From the Ordinance of 1787 to the creation of the Bureau of Land Management in 1946, the history of the public domain leads us to a deeper understanding and appreciation of our public lands," said Supervisory Park Ranger Alex Rose.

The exhibit is on loan from the National Historic Trails Interpretive Center (NHTIC) in Casper, Wyoming. "Whose Land is This?" was created by NHTIC Visitor Information Specialist Reid Miller.

"Much of our public domain is wild and unfit for cultivation, mysterious, remote, and difficult to access," Miller said. "It is, at the same moment, profoundly beautiful country, pulling at the soul of our nation, connecting us to our roots, offering up incomparable inspiration."

For more information about the California Trail Interpretive Center call (775) 738-1849. Visit the Trail Center online at [www.californiatrailcenter.org](http://www.californiatrailcenter.org) or on Facebook.



An 1816 map of the United States, along with nearby British and Spanish possessions.

The California Trail Interpretive Center is located eight miles west of Elko on I-80, Hunter exit 292. The Center is open Wednesday through Sunday, 9:00 a.m. to 4:30 p.m. Admission is free.

For more information about the California Trail Interpretive Center, call (775) 738-1849. Visit the Trail Center online at [www.californiatrailcenter.org](http://www.californiatrailcenter.org) or <https://www.facebook.com/californiatrailinterpretivecenter/>.

The BLM manages more than 245 million acres of public land, the most of any Federal agency. This land, known as the National System of Public Lands, is primarily located in 12 Western states, including Alaska. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. The BLM's mission is to manage and conserve the public lands for the use and enjoyment of present and future generations under our mandate of multiple-use and sustained yield. In Fiscal Year 2015, the BLM generated \$4.1 billion in receipts from activities occurring on public lands. -BLM-



## News From The National Society Of Professional Surveyors



Congratulations to Mark Sargent (NH) who was elected as NSPS Vice President. In accordance with current Bylaws, Mark begins a four-year commitment serving successively as VP, President-Elect, President, and Past President. His most recent position in NSPS was as the NSPS Director representing the New Hampshire Land Surveyors Association.



### NALS Historic Committee Search

The Historic Committee is searching for pictures and narratives on past presidents and prominent contributive members. The presidents are known, but a list of contributive members needs to be developed. This year we hope to collect an overview of recollections, contributions and photos for both categories for future use. Respondents need not worry that two or more reply; information and photos received will be compiled by the committee.

Please respond to:  
**NalsHistory@GMail.com**

**Thank you!**



# Remote Sensibilities

by Jason E. Caster, PLS



## Make Surveying Great Again!

A couple of years ago, I was having another phone conversation with my former boss and long-time mentor, Chris Albers. Chris is one of the top five smartest humans I've ever known, and has a wide-ranging knowledge base. He's a living, breathing 'Shell Answer Man' kind of guy, and I've always admired him for the ability to know a little about a lot of stuff. I have a facility

for trivia too, so Chris and I can filibuster on many topics, and often do during any given phone call. I worked for Chris at The Keith Companies (now defunct) in Las Vegas for the better part of 13 years before moving to Reno in 2004 (he told me at my going away party that "You're the only guy I've ever met who wants to move *closer* to his Mother in Law!!") Good one. A couple of years after I moved, Chris opened his own surveying business, and he's been "Busy as I want to be" ever since. While we were talking on this particular day, Chris said something that kind of surprised me. "I have the greatest job in the *world*."

Knowing my friend and mentor as I do, I was a little taken aback a by this rosy assessment. This is not a guy who routinely walks around spewing nuggets of sunshine like a motivational meme incarnate, oh no.... this was out of his normal lane I thought. My mind was spinning. What had gotten into my historically irascible colleague? After hurling a couple of manhood insults at him, I started to absorb what he meant by that. Having a gig that combines the ability to work in the great outdoors, with a large office nerd component is the basic tenet of his ardor for our shared profession. Couple those with constant exposure to matters regarding history, forensics, science & tech, botany, physics, and on and on and on... well, it's not hard to see that we surveyors can certainly fill our days with interesting stuff. And I guess that's his real meaning, that since we must spend the bulk of our waking existence working, it might as well be something that provides a constant challenge. Now I'm sure that there are many other professions that do this, but this one is ours, and if you can get past the stresses of it (difficult clients, developers, crappy weather, staff and staffing issues, and pretty much *all* things admin) this gig can have some seriously blissful moments. Thanks for providing that perspective check Chris. Some days we need it more than others.

Now to the goings-on up here in the mild mild north. We've had a remarkably boring winter thus far. I've been referring to it as a 'Vegas winter' due to the absurd number of sixty-degree days, and lack of stuff falling out of clouds. Don't get me wrong... I ain't complaining! I thought once I moved to Reno from Las Vegas in 2004, my January golfing days were history. Not this year baby! Oh yeah, it also makes for much easier (not to mention frequent) scheduling for my field guys, so that's good too. Last week, I attended the annual Monsen-sponsored Trimble Users Group Conference at the AGC Building here in Reno. There was a lot of ground covered by multiple speakers, but one that really caught my interest was the talk by Sean Fernandez from State

of Utah Automated Geographic Reference Center (AGRC). Sean came to talk about the Utah GPS network and the possibility that Utah might take over management of the Washoe County network. Sean is an LS in Utah but works for Utah's GIS Division. The AGRC handles all GIS responsibilities for Utah and also maintains the GPS network (James Monsen noted that the Utah GPS network is probably in the top two networks in the US).

Sean and a staff of two are responsible for operating and maintaining the GPS network across Utah. The network was conceived in 2002 and was officially deployed in 2005 after a \$500K grant from the Utah legislature and a couple of years of planning and implementing. By 2009 the network extended into Idaho and Colorado. Currently the network covers all of Utah, and extends into parts of four other states, with 96 base stations on known locations. The network now extends entirely across southern Idaho and is now going to include the Boise area. The network also extends into southern Nevada including Clark County, so Utah already manages one of the two metropolitan networks in Nevada. Utahans uses the network for surveying and machine control applications, navigation, asset (utility) maintenance and monitoring of seismic activity and groundwater depletion subsidence. It is being negotiated for Sean's department to take over the Washoe County network, though an MOU has not been completed yet. When asked how long that might take, SEAN indicated 2-3 months. He thinks the cost to the subscribed will not change from the current cost of \$1,200 per year. In addition to this, they plan to upgrade the receivers so that all units are GLONASS enabled. They also plan to (eventually) extend the Washoe network easterly along the I-80 and US50 corridors to connect with their own network.

Considering what a boon that would be to us up here, I started thinking bigger. Back when I was about to take over the Lahontan Chapter Presidency in 2013, I asked some people what they wanted NALS to *be*. I got some interesting responses, but the common question I got back was, "Well, what does NALS *do*?" I would always respond by touting the fellowship, networking, educational opportunities, and easy PDH's that NALS supplies, amongst the many 'unseen' things. One of my favorite comments was from my mentor Chris who suggested that NALS assist with creating a statewide VRS Network. Coincidentally, Sean Fernandez also mentioned that there is a sizeable list of Benchmarks that need to be tied and integrated in their system to tighten up the vertical component of the corrections, both for current and proposed baselines. Boy, talk about an excellent road trip opportunity for National Surveyor's Week (March 17<sup>th</sup>-24<sup>th</sup>) huh? And I think that NALS should provide any assistance that they can to proliferate a Statewide VRS Network... you know... LIKE UTAH HAS! So, I'll go first. I am offering my time to help wrangle people to attack this effort, in the hopes that maybe this could be a good first step towards that end. My hope is that everywhere there's a cell signal in Nevada, you could also get a VRS signal! What better, high-profile way to assist both current and potential members of our organization than to provide assistance in money and bodies to get a statewide VRS Network up and running in our great State? I'm down, let's do this for us, the "Greatest Profession."

*Note:*

*If you would like to provide assistance in the benchmark survey, please contact Jason Caster at [jcaster@farrwestengineering.com](mailto:jcaster@farrwestengineering.com) before 3/9/2018. Cheers!*



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The Nevada Association of Land Surveyors

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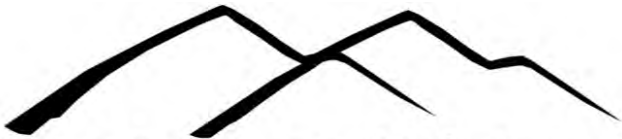
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