Azimuth
The NSW Surveyors Monthly Magazine

- Industry innovation - Are you ready to be relevant?
- Changes at LPI
- Women in the workplace
- APAS 2017 – 2020 Vision

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NSW Excellence in Surveying & Spatial Information Awards 2017
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QUOTE CORNER

“If you are working on something that you really care about, you don’t have to be pushed. The vision pulls you.”

Steve Jobs

All material, opinions and reports published in this magazine are for the interest of members. No endorsement by the Institution of Surveyors, New South Wales, Incorporated, is given or implied by their publication.
Every now and then one is reminded that we only get one shot and the LPI campaign is an example of this. At the April meeting which was held on 31 March the Board voted to continue the campaign against the privatisation of LPI until a successful bidder was announced. We have a vague notion of the timing of the government’s announcement to be one or two weeks after the three by-elections on 8 April in Manly, North Shore and Gosford. The by-elections went as predicted in that the Liberal Party has held Manly and North Shore and the Labor Party has Gosford. We are putting together a strategy based on this time scale. Our colleagues in regional areas have been appearing in their local newspapers and the groups throughout the State are enthusiastic about the continuation of the campaign. The rally held in Martin Place on 28 March was successful in that 300 to 500 people attended; however, apart from the Sydney Morning Herald it received no other media coverage. Channel 7 recorded some footage leading up to the rally but the news of cyclone Debbie and the subsequent floods took priority. Wendy Harmer on Sydney ABC Radio 702 has interviewed Labor leader Luke Foley and Don Grant, the Premier, Gladys Berejiklian and the Deputy Premier, John Barilaro. Geraldine Doogue interviewed Esther Han from the Sydney Morning Herald on Radio National.

Ironically, as I started writing this report the Liberal candidate for the Manly seat came to our front door. He has left with ears burning. Bad timing for him – good timing for us.

Since the last President’s Report, the Registrar General, Jeremy Cox, together with Danusia Cameron has twice visited members of our profession proceeding towards registration. Of the Operator and control of legislation by the government. On the second occasion Jeremy addressed the ISNSW Board and responded to and discussed about 20 questions that were submitted prior to the meeting. It was confirmed that there will be no change in the payment of royalties to surveyors.

The APAS conference held at Shoal Bay on 21-22 March was chaired by Wayne Fenwick and attended by around 250 people. The presentations that I saw in my brief visit were of an excellent quality. Hopefully some of the speakers will consider entering their presented topics in the RISSSI Awards. Unfortunately there was a SPAL Meeting that required my early exit to drive back to Sydney.

The Cumberland Group held a meeting on 29 March which was also well attended. They have a meeting proposed for August which will focus on Stratum subdivisions.

There was a healthy attendance at the Easter Conference of the Country Surveyors Association held at the Novotel Sydney Central on 6 & 7 April. Following the first day of this event Mitch Hanlon, Peter Baxter and I attended the Industry Evening at the University of NSW organised by Craig Roberts. This function was attended by Surveying students as well as a sprinkling of Civil Engineering students who I gather were keen to hear about careers in surveying.

As mentioned in the last Azimuth the SPAL committee is putting together a process through which engineering surveyor members holding diplomas can be accredited by the Institution in specific engineering surveys. We now have three possible applicants and will be looking for suitably qualified people to interview and assess those who apply for accreditation. If you feel that you can contribute to the assessment process please contact the Institution office.

The Joint Administration Model (JAM) meeting was held at the LPI office on Friday 7 April. The meeting was followed by BOSSI CPD committee meeting and then the presentation of Certificates to the successful BOSSI Land and Mining Surveyors. It was great to see younger members of our profession proceeding towards registration.

An issue that is being discussed in many circles is mutual recognition of licensed/registered surveyors from other states. As we know, Registered Surveyors in NSW are examined in Engineering and Town Planning compared to and discussed about 20 questions that were submitted prior to the meeting. It was confirmed that there will be no change in the payment of royalties to surveyors.

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The Institution of Surveyors NSW Benevolent Association Ltd

The Institution of Surveyors NSW Benevolent Association Ltd (A Company Limited by Guarantee Formed for Charitable Purposes)

(i) to the family, surviving spouse and/or dependants of any member of the Institution of Surveyors, New South Wales who dies;
(ii) to the family, spouse and/or dependants of any member of the Institution of Surveyors, New South Wales, who is incapacitated and who, as a result, is incapable in the opinion of the Directors, or managing the affairs and welfare of himself or herself or his or her family, surviving spouse or dependants.

In order for the Benevolent Association to help members in need of assistance, the Benevolent Association would ask members to provide information on any member who has passed, is sick or in need of help. Please contact the ISNSW Benevolent Association Secretary on (02) 9264 2076 or isnsw@surveyors.org.au.

The Association is entirely dependent upon voluntary financial contributions to cover the cost of operating. These contributions have to date come primarily from the Institution, together with several small grants, donations and legacies from members and the estates of members. Any donation would be gratefully received.

The objects of the Association include:

- To counsel, help and advise any member of the Institution of Surveyors New South Wales Inc. in need or distress to overcome health and/or professional problems.
- To offer advice, guidance and, in circumstances considered by the Directors to be special, financial assistance by way of grants, loans or payments.

Dates to remember
Friday - 26 May, 11 August and 20 October
Maths in Surveying Days

Friday 25 August
Cumberland Group Meeting which will include Stratum Surveys

Saturday 16 September
RISSSI Awards night.

Michael Green BSurv MLngtng DplEd MIS
Mentioned Surveyor
President ISNSW
Membership Cards

Members are reminded that they will need to produce their membership card at events for CPD.

If you DO NOT have a card please contact the ISNSW Membership Officer, Maria Misquitta (02) 9264 2076 for a replacement.

Excellence in Surveying & Spatial Information Award (EISSI) 2017

Key Dates
- Expressions of Interest: 26 May 2017
- Final Entries: 10 July 2017
- Awards Night: 16 September 2017

The Information Kit can be found on the following websites www.surveyors.org.au or www.acsnsw.com.au

Please complete the "Expression of Interest" form and forward to: admin@acsnsw.com.au or submit the online form at http://acsnsw.com.au/eissi.aspx

The EISSI Award will be held this year at the Sofitel Sydney Wentworth, 61-101 Phillip Street, Sydney.

Event Coming Up!

The Institution will be holding a ½ day Seminar at the ISNSW Head Office in Surry Hills, on Thursday 25 May 1.00 pm – 4.00pm. Information will be distributed soon!

Free to a good home!

We occasionally get calls from members who are downsizing or having a cleanup and want to find a good home for some of their cherished surveying equipment. Generally before the family gets in first and hires a tip! One such surveyor Tony Naughton is loath to put his collection of Australian Surveyor magazines into the rubbish bin and would like to give them away to a caring home.

Australian Surveyor journals sparsely ranging from Vol 1 to 38 are available for free. If you would like to take advantage of this offer please call Tony Naughton on 0407 295 696

Terina Sawyer, Executive Officer, Institution of Surveyors NSW Inc.

Editors Report

Well it has been a busy couple of weeks for the profession. I attended the APAS Conference at Shool Bay which was once again a great success. Many interesting and varied papers were delivered to a full house. The assembly was addressed by the Surveyor General Narelle Underwood, John Minehan on behalf of the President of SSSI, Michael Green, President of ISNSW and Wayne Fenwick, President of APAS.

The Conference spanned two days and a detailed report on the conference is included in this edition.

I attended a very unique event on Tuesday 28 March – a protest by professionals involved in dealing with land against the privatisation of the Land Titles Office. The rally was very well attended with many Surveyors travelling from all parts of the state to voice their opinion. As we are all aware, Surveyors are notoriously difficult to get motivated to voice their opinions, and this rally showed how strongly Surveyors feel about this issue. Let’s hope our voices are heard by the powers that be and that the privatisation is re-considered.
Changes at Land and Property Information and the new role of the Office of the Registrar General

Jeremy Cox, NSW Registrar General

The NSW land system has now moved to a new regulator-operator model. On 1 July, Land and Property Information—LPI—was separated into four bodies. One of these is the title and registry business. A second one became a new regulator—the Office of the Registrar General (ORG).

The ORG, together with the other two components of LPI, spatial and valuation services, will remain in government.

The next step is to identify a suitable private operator to run the title and registry services under a 35-year concession. A ‘concession’ is when a private business pays the government to run a public asset for a specified time. The Government is in the final stages of negotiations with several potential operators. We expect a new operator will be announced shortly.

Regulating a new operator

A lot of people have asked what the regulator expects of a new private operator. It’s a good question. And I think the answer is pretty straightforward. We want the same as you’d expect now—a highly performing titles registry. And we expect the operator to invest in technology so LPI can keep pace with a rapidly changing digital world.

Property rights are a hallmark of our modern economy. Our homes are not only just for shelter, but also security for credit to start or expand a business. Buying a house is for most people the first step towards owning a home in Australia, with the operator being subject to the same Commonwealth and State privacy legislation as LPI is now.

Building on what LPI has achieved

The new regulator-operator model is building on a platform of strength. Indeed, LPI’s leadership and the professionalism of its staff has meant LPI exceeds its peers on many measures. For example, LPI has been increasingly moving to automatic registration processes for some dealings and plans, with the aim of a more efficient and accurate registration process.

From the ORG’s perspective, we will continue to focus on the customer: the individuals who use the system; anyone buying a house; the surveyor who is submitting a new development plan; or the conveyancer who has to interact directly with LPI.

In this regard, under the concession deed the new operator will be required to perform at least to the level of LPI currently. If core services—such as registering dealings or examining plans—are not delivered in time that is meeting performance standards, various penalties come into play (these are some of my regulatory controls). This financial incentive tied to performance does not exist in any other land titles office in Australia, nor in most overseas. It is designed with the customer in mind. And it is designed with the rapidly changing digital landscape in mind, as well as the need for constant system improvements.

Under a private operator, surveys will continue to be entitled to payment for sale of survey plans by government departments and agencies.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Examples of controls</th>
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<tbody>
<tr>
<td>Prices</td>
<td>Annual increases for core services (those LPI is currently doing) capped by CPI</td>
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<tr>
<td>Knowledge</td>
<td>Performance indicators with penalties attached to under-performance (services at least at today’s standards). Four year guarantee for LPI staff</td>
</tr>
<tr>
<td>Data integrity</td>
<td>Data must stay in Australia. Daily back-up. ORG copy. Operator is a standalone entity. Certified security (eg ISO)</td>
</tr>
<tr>
<td>Privacy</td>
<td>No change. Operator subject to Commonwealth and State privacy legislation. The regulator will also be public and searchable, as it is today</td>
</tr>
<tr>
<td>Visibility of data</td>
<td>ORG access to LPI data. Strong quality assurance regime (eg regular and ad hoc audits and extensive reporting requirements)</td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>Comply with Commonwealth legislation. Operator must be a stand-alone business, with resources separated from rest of its business</td>
</tr>
<tr>
<td>Torrens Assurance Fund</td>
<td>No change. State guaranteed of title continues</td>
</tr>
<tr>
<td>Surveyors copyright</td>
<td>No change. Surveyors continue to claim copyright</td>
</tr>
<tr>
<td>Fraud and errors</td>
<td>Operator liable if underinvesting in systems and staff training. Penalty regime and KPIs. Audits, reporting and ORG administrative reviews</td>
</tr>
<tr>
<td>Splitting ‘cadastre’ agencies apart</td>
<td>Service level agreements (as exist now) set standards for collaboration between operator, Spatial and Valuation services and other agencies</td>
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Examples of controls to manage some of the concerns stakeholders have raised

| One of the reasons LPI has succeeded in the past is because of the expertise of its staff. The need to retain this expertise will not go away under a private operator. To meet its performance levels the operator will need to continue to have the knowledge of the system—one that is undermined by property law—to ensure the staff who examine plans and interpret complex dealings continue to have the expertise to do this. |

We also have new powers to allow the ORG to review operator decisions you disagree with. This additional level of scrutiny also does not exist in most other jurisdictions.

Importantly, our role is to work with you, the user of the system. We will embrace a partnership with an operator who seeks to continuously improve the system it has inherited. If an operator is prepared to take what has already been built, bring its ideas and capital and work with LPI staff to make our system even better, the regulator will not get in the way. And we will fiercely defend our statutory independence to ensure customers of the NSW land title system are at the forefront of our decision-making.

The Office of Registrar General

ORG is a regulator, policy adviser and litigator, working to ensure the security of NSW’s land title system.

From surveying perspective, the ORG has cadastral integrity unit with around five surveyors, which is responsible for carrying out boundary determinations, examinations surveys and survey audits.

Jeremy Cox
Registrar General
Office of Registrar General
22 March 2017
Without question, Surveying is an industry which has historically been dominated by men. As the General Manager of LTS, I am delighted that we are leading the way forward in the Surveying industry and breaking down the barriers created with antiquated ideas of gender inequality. This is most certainly not because I have some overtly zealous feminist approach, in fact the reality is quite the contrary, but rather because I have an inherent belief in the efficiencies to be gained in the workplace from gender balancing. Pragmatically, we are all here to contribute to the growth and success of the business, for the betterment of all. The growth and success of the business will be founded on many key business principles, such as workplace culture, communication, staff morale, business reputation, staff turnover, broader strategic thinking and a wider talent pool. Gender balancing will ensure these principles are met with greater success than a model that supports gender inequality and ultimately an egocentric workplace culture.

It’s interesting to note that currently:-

- there are only 25 Female Registered Land Surveyors in NSW, being only 2.7% of the total number of Registered Land Surveyors.
- there are only 13 Female Candidate Land Surveyors in NSW, being only 6.8% of total number of Candidate Land Surveyors.

While the % of Female Candidate Land Surveyors in NSW at 6.8% does show some increase in the number of female surveyors pursuing registration, there is certainly still a long way to go.

By way of comparison, in our practice:-

- Of our current 14 field parties, 5 of them are led by women, being 36% of total
- We have one Female Registered Land Surveyor, which is significant given there are currently only 25 in total in NSW
- We have one Female Candidate Land Surveyor, which is significant given there are currently only 13 in NSW

Of our senior management positions, two of them are held by women. My own role of GM assumes overall responsibility for the day to day operation of the business and our CAD department is very ably managed by Hayley Lin, who manages a team of drafting staff and provides excellent mentorship to them all. I am particularly proud of our approach to women at LTS. Technical ability aside, they bring a level of professionalism & warmth, a heightened sense of social responsibility and a communication capability which provides valuable feedback in all facets of the business, allowing continued growth & development throughout.

Their approach to work is no-nonsense, modest & respectful, which is well liked by management both internally & externally and brings a refreshing change to what can often be a testosterone charged work site.

Agatha works predominantly in the construction space. The quality of her work, professional approach & work ethic has allowed her to build an outstanding rapport with both clients and subcontractors alike. She particularly likes being an integral part of a development, being involved from inception through to completion and taking great pride in seeing the finished product.

Aside from being an excellent Surveyor, Elaine is a fantastic proponent of the surveying industry. She consistently dedicates time ‘giving back to the industry’, representing our firm and the industry generally at trade fairs, talking to potential survey students at industry events etc. She also has a keen interest in survey photography, highlighting the endlessly changing ‘view from the office’. This being one of the key variables that attracted her to a career in surveying originally.

Libby, holds the inaugural title of the first female Registered Surveyor at LTS, which is not an insignificant achievement. She is leading the way on a number of our internal software development projects, with the implementation of new software solutions and taking a pivotal role in the trial for XML Strata Plans.

Georgia & Poppy, have been working at LTS as Graduate Surveyors since 2014, gaining valuable experience across all facets of land surveying. Georgia is currently enrolled as a Female Candidate Surveyor and we look forward to supporting her through the registration process.

Our experience with our female surveyors continues to be overwhelmingly positive. We will continue to champion their cause and celebrate their success in our industry as we proudly advocate women in the workplace.

Agatha
The Association of Public Authority Surveyors NSW (APAS) was formed in 1994 primarily to cater for the needs of surveying and spatial information professionals working within state and local government and the education sector. Nevertheless, private surveyors also benefit immensely from APAS events such as conferences and seminars, which form an important part of the annual professional development events calendar.

APAS prides itself on organising an annual conference that is highly informative, focussed on practical outcomes relevant to the surveying and spatial information community and provides ample opportunity for interaction with colleagues and exhibitors showcasing their newest technology. Traditionally, more than one third of delegates belong to private industry.

The APAS2017 conference was held in Shoal Bay on 20-22 March 2017. The conference theme was “2020 Vision”. It attracted 250 delegates from New South Wales and interstate, representing both government agencies (48%) and private industry (52%).

APAS2017 included 7 sessions with 24 presentations, most of which included a full paper. Continuing the tradition of being a practically oriented conference, a wide range of topics relevant to the surveying and spatial information profession was covered. This year’s big topics included GDA2020 and datum modernisation, update of the Surveying and Spatial Information Regulation, preservation of survey marks, laser scanning, and surveying with drones. There was also plenty of opportunity to network and exploring the newest developments at the technical exhibitors’ booths.

APAS2017 was a highlight on the CPD calendar, satisfying the year’s requirements in regards to both cadastral and surveying practice CPD points. As usual, the conference kicked off on Monday afternoon with the annual APAS team building event (golf tournament).

21st March – Morning

The first session started with Dr Volker Janssen (DFSI Spatial Services) providing some background on coordinate systems and datums before explaining the terms GDA2020 and AUSGeoid2020. He outlined why important the modernisation of Australia’s national datum is for users intending to benefit from the improved geodetic infrastructure and emphasised that geodetic control underpins all spatial data.

Following on, Nicholas Gowans (DFSI Spatial Services) presented an overview of GDA2020 while detailing NSW’s efforts and contribution to the national GDA2020 adjustment to date. Based on a couple of GDA94-GDA2020 case studies, he evaluated the performance of GDA2020 across NSW in terms of positional uncertainty and showed the significant improvement gained.

Lisa Powell (DFSI Spatial Services) described the various imagery and elevation products created by DFSI Spatial Services and the accuracy requirements for these products. She examined the survey requirements, processes and practices involved in providing survey control for these products with an emphasis on working in remote locations. This included a case study on the survey control capture for a large project that will provide a digital surface model for Western NSW.

The Official Opening took place at the beginning of the day’s second session. Following an entertaining Welcome to Country by Uncle John Ridgeway OAM, Elder of the Worimi People, keynote addresses were given by Narelle Underwood, Surveyor General of NSW, John Minehan on behalf of Gaby van Wyk, President of SISI, Michael Green, President of ISNSW, and Wayne Fenwick, President of APAS.

After the official opening, Thomas Gruner (DFSI Spatial Services) outlined the collaborative work performed by DFSI Spatial Services and the office of the Surveyor-General Victoria to investigate an 0.14 m anomaly in the Australian Height Datum (AHD) at the NSW-Victoria border. Using GNSS technology and conventional 2-way levelling, the anomaly was identified, interrogated, resolved and the remainder attributed to the accumulation and distribution of error in the original data used to propagate AHD across Australia.

Vittoria Sussana (DFSI Spatial Services) investigated the performance of AUSGeoid09 in mountainous regions of NSW, from a user’s perspective. Comparisons were undertaken in an absolute sense (i.e. single point) and relative sense (i.e. height difference between two points). AUSGeoid2020 generally provided AHD height differences at the ±0.05 m to ±0.09 m level (1 sigma) and substantially increased the percentage of GNSS-driven height differences meeting third-order differential levelling specifications. AUSGeoid2020 is expected to provide further improvements.

21st March – Afternoon

The first afternoon session began with Simon Hine and Les Gardiner (DFSI Spatial Services) outlining a number of key reforms introduced into the proposed Surveying and Spatial Information Regulation 2017. These include specifications for positioning outcomes, greater integration with the Map Grid of Australia (MGA) and AHD, and centralisation of information workflow to support digital government, digital business and ePlan automation.

Craig Barnes and Vanessa Field (lands Advisory Services) reminded surveyors and public authority land managers about the impact of native title on public land. Discussing two recent native title cases, they outlined that the Commonwealth, State and Territory Governments are generally liable to pay compensation for the extinguishment or impairment of native title. However, States and Territories can ‘pass on’ this liability to third parties in certain circumstances by either legislation or under contracts.

Anthony Oliver (AWD Johnson) described an extensive rural cadastral survey of Crown land for the purpose of Aboriginal land grant under the Aboriginal Land Rights Act. It consisted of 9 titles, encompassing about 750 ha of land, and made reference to existing surveys undertaken between 1936 and 2006. Challenges included Work Health and Safety considerations in steep and remote terrain, Aboriginal heritage sites and the varying survey standards and methods over the last 180 years.

The second session of the afternoon kicked off with Michael Dunn (RMS) describing the densification of DFSI Spatial Services’ Greater Sydney Subspace Network (GSSN) for RMS Western Sydney Infrastructure Plan projects. He outlined the extent of surveys undertaken by RMS and plans for the development of regional networks, demonstrating the benefits of this approach for large infrastructure projects and the preservation of survey infrastructure.
Grant Calvin (MidCoast Council) outlined the investigation and assessment process involved in developing an innovative technique for upgrading a small causeway in rural NSW. The final result, based on a house slab, has improved the level of service of the roadway, maintained the existing creek habitat, improved fish passage through the structure and installed a fit-for-purpose low maintenance structure that will service the community for years to come. For this contribution, Grant later received the Keith Haddon Memorial Prize for the best conference paper.

Rod Eckels (McMullen Nolan Group) presented a new method for validating Mobile Laser Scanning (MLS) corridor surveys. Using two project examples, he demonstrated the advantages of this new ‘multi-pass’ method over the traditional ‘multi-target’ approach. This included identifying issues with target control coordinates, validating MLS road corridor models and detecting small ground subsidence or change.

On behalf of Richard Lemon, Josh Cowley (Jacobs) demonstrated the power of 3D laser scanning technology by discussing the archival recording of a historically significant site in Windsor. Combining an existing site survey with terrestrial and MLS as well as multi-beam sonar bathymetry, a single unified, spatially accurate, full-colour point cloud was created to derive a wide range of deliverables.

The Annual Dinner concluded the day with dinner speaker Greg Goodman (LandTeam) speculating on the future of the surveying profession – will it be a road less travelled? Looking back at the changes over the last 40 years and in light of continuing change in technology, shortages in qualified staffing and ongoing restructuring in the public sector, it is clear that the future of our profession is uncertain. We need to adapt and market ourselves as the spatial data specialists.
It must be 12 or 15 years since surveys have attempted to get together, as surveyors, to talk about national points of interest. I cannot remember where the last one was, although I may well have been there.

Consulting Surveyors National was formed about 5 years ago with the thought that there were some issues of interest to surveyors, as against spatial professionals which were not being represented or investigated at a national level. They have had some level of success by instigating the BIS Shrapnel research into the issue of the "surveyor shortage" and raising it with the VET taskforce to keep Surveying on the list of "threatened species" of skills. Recently they also commissioned PWC to report on the value and benefits of Registering Land Surveyors and showing their importance to the Australian Economy and the value of maintaining the integrity of the cadastre.

The latest step was to see if a National Conference would work.

Consulting Surveyors National is growing quickly with over three hundred and fifty member firms and membership in NSW, Victoria, Tasmania, Western Australia, South Australia and the ACT.

The Congress was held in the Yarra Valley over 3 days in conjunction with the Consulting Surveyors Victoria March Conference. I found the content very interesting, for myself, and I will tell you of a few interesting topics.

On Day One, after the opening, the Federal Minister for Small Business gave a very good 1-hour address on what the government is doing to assist those of us caught up in red-tape and complicated approval processes. I did not know we have a Small Business Ombudsman available to assist in these matters. Anthony Igra spoke on how to protect your business from losing money due to clients not paying, and also how to chase them to get paid. I have heard it before, but still the problem plagues every so often. We had a lawyer talk on the perils of social media in our workplace and its misuse in matters such as bullying. She recommended Social Media should be a vital inclusion in the Employee contract.

A proposal is being developed for the Limited Liability Scheme which we enjoy under the Pboa in NSW to be extended Australia Wide. In other professions it has been widely adopted. I cannot understand why surveyors do not recognise that most of the things they ordinarily do to safeguard their business operations can very easily be augmented and form the basis to protect their families and their assets from the liability of a Professional Indemnity Claim higher than the limit of their PI Policy. This proposal is well under way and will give all surveyors the opportunity to have that protection.

On Day Two, Tim Jarvis the Environmental Scientist, explorer and adventurer, gave a fabulous presentation on his recreation of the heroic 1914 Shackleton Expedition to Antarctica. He held us spell bound for an hour but not only with the authenticity of following exactly what they had done (same equipment as the original expedition, same food, same clothing, same hardships) but the same style of management of the individuals as Shackleton, which gave us an insight into ways we can transpose into handling staff in our own lives.

Our next talk was on the comparison of how Victorian and New South Welsh surveyors handle Stratum/Strata subdivisions. Because a couple of NSW firms have been bought out by a Victorian team, they have sat down with a Sydney development and looked at how it would have been done down south. It gave rise to a lot of regret for the N-S-Ws in the audience because the Victorian approach is a lot simpler and easier to understand from a lay point of view, and from an on-going management perspective.

We did have talks on Rural Surveys in Victoria and PI Claims, which were not as relevant to me or I had heard it before. That is not to say that they were not interesting to many of the others in the room. But the national perspective of e-Plan as it is being applied in NSW, Victoria and Queensland, presented by the Titles Office officials from each state, was very interesting. NSW is well ahead in the implementation but Victoria is WAY ahead in the rendering, it seems.

In Victoria they have a novel idea of each surveyor being able to nominate the local Councils with whom they deal for subdivision and planning matters to be a view, and from an on-going management perspective. They highlighted the difference in the registration processes in each state and around the rest of the country. Reciprocity was discussed and the problems it can cause due to the different examination topics and statutes for surveyors. It generated good discussion from the floor.
The evening was a grand dinner with Jessica Watson OAM, round the world sailor, telling us of her journey, with Jessica Watson OAM, round the world sailor, telling us of her journey, with.

On the last day we started with an in-depth presentation on the PWC study into the importance of surveyors, maintenance and integrity of the Cadastre, and the support we give the economic strength of the Nation in our work as licensed/registered surveyors. If society cannot rely on the accuracy of the cadastre, its quality and completeness, we would not enjoy the triple-A rating we enjoy.

The final session was on the Melbourne Metro Tunnel, another enormous infrastructure project a bit like the Sydney rail projects going on at the moment. It was engrossing to hear of the scale and planning that has gone into it so far and how it has been done with very little angst for the community and the affected by the proposed construction. It may only be $10.9 billion project but should ensure that Victorian surveyors are busy until the 2026 completion.

As an aside, I noted that the Victorian GPD program is much stricter in assessing the points for attendees. Our NSW points totalled 13.75, but the Victorian points only came to 11. We should not hear any whinges in NSW.

On the logistical side, it was very well run, kept to time, included a partner’s program, and meals and venue were top-class. I would give it 10/10; a great program, and meals and venue were top-class. I would give it 10/10; a great.

The proceedings began with a warm welcome from outgoing SSSI Bernie O’Sullivan followed by Greg Ledwidge the ACT SSSI chair. Narelle Underwood, recently appointed first female Surveyor General of NSW began by describing the role of the SG ranging from supervising 14 staff, the Geographical Names Board, baselines and BOSSI just to name a few. With the mission statement of ‘Special services for every person and every process’ Narelle and her team are off and running. One recent challenge was how to define the newly created, LGAs. You would think it would be easy but think again. Apparently not so long ago they were defined by metes and bounds, if you can believe. We should expect to see more indigenous place names in the future and maybe less anglo-saxon names. And those turkeys agitating for the name Drop Bear land, anything with somewhere can forget it.

Joe Dantas from Pitney Bowes, the conference platinum sponsor, gave us a revealing insight into how local government, Waverley LGA in this case, which uses the latest spatial devices, which had a mixture of roof materials, slate which was complicated by houses with some with solar panels as well. Joe Dantas from Pitney Bowes, the conference platinum sponsor, gave us a revealing insight into how local government, Waverley LGA in this case, which uses the latest spatial devices, which had a mixture of roof materials, slate which was complicated by houses with some with solar panels as well.

Peter Kinne from Digital Globe asked us to think the unthinkable and do the undoable. With satellites reaching down to 30 cms anything is possible. One recent challenge was to map house roofs and determine if they were metal, tile or slate which was complicated by houses which had a mixture of roof materials some with solar panels as well. Peter Kinne from Digital Globe asked us to think the unthinkable and do the undoable. With satellites reaching down to 30 cms anything is possible.

I guess it will need another State to put their hand up and volunteer to run it.

“The if you always do what you always do, you will always get what you always get”.

The insurance industry, emergency services and telecommunications are just 3 areas that can benefit from a new approach.

Australia is 7.7 million square kilometres so it’s a huge challenge. Building footprints, land cover, building and tree heights, digital terrain models, roof areas, solar panels, impervious areas and water are just some of the new mapping targets. Peter Kinne from Digital Globe asked us to think the unthinkable and do the undoable. With satellites reaching down to 30 cms anything is possible.

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NSW-ACT Regional SSSI Conference 2016

The recent SSSI Regional Conference was held in the stately confines of the Mercure Hotel Canberra, just a stone’s throw from the world’s best War Memorial.

Years ago I was a young bloke growing up in Canberra, on the south side of the lake and in those days the venue was known as the Anstis Hotel and they would not let us ‘boys from the south’ in.

Besides, we drank at the Hotel Kingston, opposite the Russian Embassy or the Wellington Hotel, sadly now gone.

The proceedings began with a warm welcome from outgoing SSSI Bernie O’Sullivan followed by Greg Ledwidge the ACT SSSI chair. Narelle Underwood, recently appointed first female Surveyor General of NSW began by describing the role of the SG ranging from supervising 14 staff, the Geographical Names Board, baselines and BOSSI just to name a few. With the mission statement of ‘Special services for every person and every process’ Narelle and her team are off and running. One recent challenge was how to define the newly created, LGAs. You would think it would be easy but think again. Apparently not so long ago they were defined by metes and bounds, if you can believe. We should expect to see more indigenous place names in the future and maybe less anglo-saxon names. And those turkeys agitating for the name Drop Bear land, anything with somewhere can forget it.

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A qualified drone pilot she may be, but this day she spoke about how Councils can share flood mapping with the wider community. Flood behaviour, mitigation, hazards and avoided consequences were all part of the process.

Dipak Paudyal from Esri Australia gave a talk about detecting water leaks in pipelines and channels by satellite imagery. 160 million litres of water is lost in Victoria each day so there is room for improvement indeed. Radar technology can detect water leaking from above ground pipelines, helping to detect leaks earlier and target repairs more efficiently.

John Neit from Open Spatial being a South African began by giving us a cricket update. Fortunately we at least won the 3rd test. The old paper based documentation systems have gone and replaced by digital/GIS systems but the problem is now one of communication. Consider a complicated paper plan with lots of information and disclaimers. How can it all be easily understood and digested?

Gaby van Wyk, SSSI President elected the issue of Work as Executed raised the issue of whether we have met the enemy and he [or she] is us." The typical surveying company/organisation has the mindset of encroaching on our practice. If we do not change our thinking it will be an expert at embracing new technology and profiting from it, as we once did.

However, it seems the mindset of Apathy is a powerful foe. Many sit at the pre-dinner drinks that's a topic for another day. The GIS team quickly set up a fly through model. An excellent example of surveying education in the modern era. The course had no expectations based on self-assessment although Craig admitted he needed to ‘weed’ some of the marks. No surprise there.

Alex Pescud GIS officer at Wollondilly Shire Council described how the LGA managed when an infamous East Coast Low hit the area in June and how his GIS came to the rescue. Not only did the storm take out a critical bridge that forced commuters to take long detours (still not repaired) but within hours residents started streaming into Council to request help and assistance while others came in to offer help and assistance. The GIS team quickly set up a laptop on the counter with a map based on the DCDDB – one colour for request and another colour for offers, all spatially enabled of course, so Council could hook up offers of help to those who need it. They had to be sure that they did not send a little old lady who wants to make tea and sandwiches to a family that needs help ripping up flooded carpets.

On the Thursday evening we gathered for a lively dinner hosted by the incoming SSSI National President Gaby van Wyk and the new chair of NSW SSSI Zaffar Sadqi Mohamed-Ghousie. I was having such a good time at the pre-dinner drinks that I forgot to change for dinner. That’s life in the fast lane I guess!

This is my third SSSI Regional conference, the previous ones being in Bathurst and the Hunter. It was well attended, right to the end, with a popular trade display and a good mix of surveyors and spatial practitioners. Not only was I able to catch up with old friends and colleagues I was able to make new contacts particularly in the spatial community. This is why I am a member of SSSI. Well done to NSW SSSI, Kelly Rischmiller, in particular.

Tony Proust
Surveyor and Planner
Newcastle

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Point Clouds

Three-dimensional scanning and mapping technologies have evolved rapidly since the 1960's. Although autonomous cars and drones may be the most high-profile applications of these tools, they provide solutions in a variety of other industries as well. All of these technologies use a process known as photogrammetry. The problem is, point clouds are massive and therefore difficult to manage. 3D modelling is the bridge between point clouds and geospatial intelligence. The small profile of 3D objects is preferred in a world soon to be awash in augmented reality and virtual reality. 3D geospatial awareness will no longer be a high-minded goal, but rather the most basic entry level.

When you have this technology, many new possibilities open up. There are non-surveyors who absolutely have these skills. Frequently it is the non-surveyor who teaches the surveyor to use this technology. Are we relevant?

AERIAL DRONES & PERSISTENT PHOTOGRAMMETRY

Drones for low-altitude mapping. Drones for orthophotogrammetry. Drones for LiDAR. Drones for geo-tagged analysis (fancy way of saying, monitoring geographic changes over time). Drones for Big Data.

Big Data? Again? At the New Jersey UAS Conference in October 2016, I spoke with a Big Data manager. One goal using Big Data is a constantly updated topographic map created with persistent photogrammetry collection. Repurposing the data is a driving force.

Big Data companies are placing serious investments into drone adoption. Part of the vision is that the delivery drone will be simultaneously collecting environmental data (air and imagery) to detect changes. These changes can then be reported to the affected utility stakeholder, the local zoning department, or the local DPR. These reports will be made for micro-fees. Spread across an entire nation, these micro-fees will turn into serious payoffs for Big Data.

At the same conference, government officials stated that autonomous parcel delivery will slowly emerge within five years and should be permissible nationwide within 10 years. Put that all together, and how important will traditional topography be in 10 years? The clock is already ticking. Are you actively pursuing your Part 107 certification? Do you even know what that refers to? We can either market ourselves as geospatial experts who provide authoritative validation of the data being collected or we can idly watch another facet of our careers evaporate. Are we relevant?

BOUNDARY DETERMINATION

This is our wheelhouse. This is our last garrison. The one area where the land surveyor is uniquely qualified is in boundary determination.

Now consider this. If the world is going to depend on the continuous real-time mapping of our physical environment, how long will vague property ownership be acceptable? It will not be long. Extra-territorial deed records are firmly tied to the same geodetic system as all other captured elements. Boundary lines will have a pedigree and an estimate of reliability. The goal will be to eventually resolve all boundary issues so that all boundaries have the same high quality. This will require expertise in boundary law, surveying, and geospatial databases.

This effort will take time. If the land surveyor does not lead the charge on this issue, another entity will. Could any other partner involved be the land surveyor in GIS? How involved is the land surveyor in machine control? How involved is the land surveyor in photogrammetry? How involved is the land surveyor in subdivision planning? How involved is the land surveyor in road design? We can cling to high-minded ideas of what we are legislatively permitted to practice or we can look at history. History tells us our area of practice is steadily shrinking.

Are we hiring people who we trust will learn to make educated decisions concerning boundary location? Are we emphasizing the importance of an thorough understanding of boundary theory? Are we emphasizing a consistent approach to boundary determination? All I need to do is point to pin-cushion boundary corners as evidence of our failing. Are we relevant?

A CALL TO ACTION

Apathy has already done considerable harm. Our area of practice and expertise is dwindling. Apathy would happily see the end of the land surveying profession. Progress must be embraced. Progress cannot be rallied behind, with fierce pride and resilience. The future must be a key topic in every corporate boardroom and every society board meeting. Apathy cannot be allowed to win.

If the land surveyor does not lead the charge on this issue, another entity will.

We surveyors have a tremendous advantage, but only if we use it. We already are, or should be, geodetic experts. The world of highly accurate geographical location has been our domain.
Obituary

Ralph Moses (1947 – 2017)

The information below was received from Ralph and his wife Cheryl by email on 1st March 2017 for entry into ‘The Pathfinders’ project. I had met Ralph and Cheryl on John Read’s organised trek (2012) into Queensland, in the footsteps of Sir Thomas Mitchell - friendships made on such a trip will always be cherished. In submitting his entry to ‘The Pathfinders’, Ralph had informed me that he was terminally ill. Tragically Ralph passed away on 21st March 2017 - as a result of mesothelioma, apparently contracted when working as a teenager at James Hardie.

BEGINNINGS
1964 – Leaving Certificate from James Cook High School, Kogarah
1965 – Win Cadetship with Metropolitan Water Sewage and Drainage Board (Water Board)
1965-1968 - UNSW Surveying degree, 2nd Class Honours Division 1, 1969

For my country experience, I worked for the Lands Department in Inverell from February to December 1969, articled to Staff Surveyor John Eggleston. It was a wonderful year in a really nice country town enhanced by the fact that I met my future wife there.

Back to the ‘Big Smoke’ to work and complete my registration in 1970.

EARLY WORK PROJECTS FOR THE WATER BOARD
• Real Property Group working out of 414 Pitt Street, Sydney. Moved to Blacktown late 60’s.
• Detail Surveys for preparation of house service diagrams
• Vertical stability control at Warragamba Dam (night observations)
• Shoalhaven Scheme – completing sub divisions of the farms
• Sewer Minor Extension group Head Office.

I owned a block of land in Albion Park Rail and built a house on it for when I married, so in 1973 transferred to the South Coast Office in Wollongong. My 2 years to work off the Cadetship requirements had been satisfied but it was more than happy at the Board and it was an easy decision to stay. The work at Wollongong was varied and interesting.

• Subdivision of Sewage Pumping Station sites (of which there were many)
• Creation of easements for large carriers, rising mains etc.
• Contour surveys and control surveys for construction of all types of infrastructure
• Tunnel alignment surveys
• Location of mining activity near our dams
• Hydrographic surveys for location of outfalls (contours and current movement)
• Control survey to monitor movement of Talus slope at the foot of the escarpment where a critical water main crossed (in conjunction with Trig Branch, Blacktown)
• Control survey of PMs and SSMs Kiama to Gerroa and connect to property corners to enable the production of Real Estate Maps
• Finding ‘lost’ manholes and other structures for Maintenance gangs
• Sewer Area designs

I am sure there are other projects missed as I sit here putting pen to paper, but the list shows the huge variety of work I was involved in.

MOST INTERESTING PROJECTS
I would like to expand on a couple of jobs.

The first is the Contour Plan for the Kiama Sewerage Treatment Plant in the old Bombo Quarry.

Land contours were not a problem, just very extensive. That took us down to MIHWA.

The Public Works were engaged to complete the ocean contours. The boat could only get so close to the rocks, so there was a gap to fill. A team of 3 completed this task. Two surveyors were on good vantage points on the rocks, a known distance apart, and I was in the water with a 30 metre cloth tape with a large steel weight on the end. As I picked the spot to be surveyed, dropped the weight and read the depth, the 2 surveyors recorded the horizontal angles to me and I called out the depth. This continued all day in swell free conditions until the infill area was covered. Once the contour plan was finalised, several potential outfall locations were identified. These were narrowed to 3 then scuba tanks were used by myself and the engineer in charge, in a dive to make the final decision. I provided survey control for the tunnel from the treatment works to the selected outfall location.

The second, is the 3km long Oak Flats Submain tunnel. Construction commenced from both ends after I had surveyed the route above ground. I gave the engineers and construction crews the starting alignment but the day to day progressive alignment was established by an experienced engineering technician. I was called in as the tunnel progressed. They were a significant way in on my first visit. I transferred the alignment from the outside in as if it was a new job. My observations showed the tunnel from the west end about 0.5m too far north and from the east end 0.5m too far south. The engineer in charge had a dilemma. Accept the fix from a 40 year experienced technician with mining background or a relatively young surveyor with no tunnelling experience. Luckily they went with me. I didn’t get much sleep the night before breakthrough, but needn’t have worried - 20mm horizontal misclose and 10mm vertical. The submain does have a couple of nice curves in it though.

REDUNDANCY
About 1987 redundancies started. Most of the Survey Field Hands took it. A few didn’t and this allowed for some survey work to continue. They put us into cost centres and we had to pay our way. I contracted for sewer area surveys at Picton and Tahmoor using the total station Geodimeter 400 and Landmark software. Another great paying job was the hydrographic contour survey of the mouth of Lake Hawarar. We actually did quite well and I believe surprised the bosses, but in the end it amounted to zero.

In the early 90’s there was a reorganisation and no surveying positions were advertised. I approached my non-supervisor supervisor and asked about buying my survey gear as part of the deal. He couldn’t decide, even though no-one left in the organisation now known as Sydney Water could use a total station. So I ignored what was happening around me and finished the Water Treatment Site Subdivision I had started and some easement backlog surveys.

The resignation of an Engineer in the planning area left a gap to be filled and I
was approached to do a three month trial in Systems Planning. My surveying experience and background in sewer design helped enormously and in a later round of job applications won a position as a planning engineer. A capacity I worked in until February 2000 when I finally took redundancy 35 years and a nice watch later.

I started my private surveying practice ‘Ralph Moses Surveys’ and also worked with ‘Ilawarra Water and Sewer Design’ as a surveyor, designer, project manager etc. I started winding down after 60 (helped by a mild heart attack and 3 stents 2008 and another 3 stents 2009) and by 65 (2012) became fully retired, applied for and was awarded Meritorious Survey status.

**FAMILY**

As I stated earlier, in Inverell I met my wife to be Cheryl-Anne Gaukroger on stage in an amateur performance of ‘The Vagabond King’. We married in Inverell on 10 March 1973. We have 4 amazing children, Bryan, Deborah, Karen and Scott. We now have 6 grandchildren, 5 girls and 1 boy with another boy on the way. We built our first house at Allihn Park Kail 1973, then moved to Kiana Downs (in an established house) 1981 where we still reside today with a great view out to sea slowly disappearing behind two storey extensions and trees.

**COMMUNITY**

Outside of work I have been:

- President of a local community based preschool at Albion Park Rail.
- Charter Member of Allihn Park Apex Club – holding all major positions.
- Member Kiana Apex Club.
- Life Member of Kiana Apex Club.
- Secretary of Southern Group of Surveyors for several years.
- Fundraising Chairman for Minnamurra Scout Hall until it was constructed.
- Charter Member Minnamurra Lions Club – holding all positions
- Volunteer driver for Blue Haven Care (Kiama Council)

**PRESENT**

Currently fighting Biphasic Mesotheiloma I acquired while working at the James Hardie factory one Christmas holiday when about 15. No treatment is working as yet unfortunately. The Ode To The Surveyor

**Ode To The Surveyor**

Hi Ho, Hi Ho
It’s off to work we go
With my tools in hand
I’ll survey the land
Then draw up plans so boundaries show
I’ll need to use geometry
A chunk of trigonometry
Engineering plus
Maths and Physics thrust
With powerful technology
Starting from a known location
With pre-recorded elevation
I can embark,
From this benchmark,
My journey of triangulation,
I think I may I think I might
Dust off the old Theodolite
No Home or Dam
Or patch of Land
Can keep its contours from my sight.

What other job in fact or fable,
I ask you, would I be able
To roam outdoors
Then in to draw
My plans upon a ping pong table!

By Bryan Moses
## Calendar of Events 2017

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Event Details</th>
</tr>
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<tbody>
<tr>
<td>April</td>
<td>26 APR</td>
<td>IS16.23 Hunter Manning Group Cadastral Seminar 2017 South Leagues Club, Llewellyn St, Merewether</td>
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<tr>
<td>May</td>
<td>5 MAY</td>
<td>The Institution of Surveyors NSW Board Meeting L4, 162 Goulburn St Surry Hills</td>
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<tr>
<td></td>
<td>5 MAY</td>
<td>Murray Group Seminar and General Meeting Winton Wetlands 642 Lake Mokoan Rd, Winton North TBA TBA TBA TBA</td>
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<tr>
<td>June</td>
<td>2 JUN</td>
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<td>September</td>
<td>1 SEP</td>
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</tbody>
</table>

### CPD POINTS

- Mining: 0
- CAD: 3.5
- SUR: 0.5
- Total: 4
Mitchell Eckford, Beresfield, NSW
Currently studying a Bachelor of Engineering in Surveying at UNSW. Looking for full or part time work as an Assistant Surveyor. 0427 626 996
mitchelleckford@gmail.com
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nicholas.c.house@gmail.com
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Assistant Surveyor.
Dealing with the Demand for 3D

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- Traditional Survey now available in 3D with the Leica MS60 - the worlds most advanced Total Station/Scanner solution
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