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CETANZ

Civil Engineering Testing Association of New Zealand

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The official newsletter of the Civil Engineering Testing association of NZ

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From the Chair...

Hello, Happy New Year and welcome to this edition of CETANewZ.

After a couple of short breaks with family, I have spent a bit of time getting fit for a Fiordland expedition in late March. My training has involved filling my pack with stones and walking around hills in this summer heat! Our transport dept. has joked they should be putting me to work as distribution for the quarries! The things we do.

This year has started with a hiss and a roar with many of us finding ourselves unusually busy, even over the traditionally quieter January month. There are some pretty ambitious construction targets to be hit this year and the lab industry is, as always affected by this.

As mentioned on the CETANZ LinkedIn page, our Vice- chair Curwin Boltman has moved with his family overseas and has resigned the position he held on the committee. It is a shame to see Curwin go as he is an easy guy to get along with, is very approachable and has a real passion for CETANZ and the work we do. We wish him all the best in his new life on the West Island. The committee will need to vote a new vice-chair in at our next meeting.

We have recently recieved some bad news that our friend and member Greg Rolston who organised the South Island catch up last year has fallen ill. Greg is an incredibly likeable person who has great knowledge and experience in our industry and loves to share it with others. Greg's goal is to marry his partner of 12 years and create memories for them and their young son before it's too late. His friends have started a givealittle page to help Greg's dream become a reality for him. For anyone wanting to make a donation please email info@cetanz.org.nz and we will happily pass on the link for you. We wish Greg and his Family all the best in achieving their goal.

From the Chair cont…

The 'Careers and events' group has met once again with our minds on how to celebrate 10 years of CETANZ. It looks like we will be holding several smaller individual celebrations around the country so more members have the opportunity to celebrate together. These celebrations will involve kai and a commemorative gift to mark the occasion and will happen around August to align closer with the actual anniversary date. Be sure to look out for celebration event details near you in the next edition.

The 'Technical Group' met since the last edition and Martin Gribble from NZTA attended also. He provided valuable insight to where NZTA are headed with certain tests and also where they want to go with encapsulating the huge amounts of test data (among other things) on projects. It was great to have Martin along and we hope to work with NZTA more closely in the future.

Now the weather has finally improved, I expect there to be no respite in the construction push to get the most out of what was a slower start.

Stay Safe!

Regards
Danny

Safety Alert

With the earthworks season in full swing now is a timely reminder to ensure the safety of your equipment and yourselves on site. Ensure machine operators are aware of the area you are working in and don't leave gear unattended.

Make sure your Radiation Safety Plan is up to date and you have emergency procedures readily at hand for users in case of an accident .

In case of emergency advise can be sought from the following contacts:

Office of Radiation Safety: 021 393 632 (emergency duty number)

Geotechnics: 0508 223 444 (or 021 969 442 Brigitte)

Civiltrain: 021 434 202 (Stuart Moulding)

An accident report can then be lodged with the Office of Radiation Safety at a later date.

Since its inception the newsletter has always been referred to as the CETANewZ and we thought that its about time it got its own proper identity and that you get to have your say in what that identity is.

The challenge for you is to come up with some name suggestions.

All entries are to be emailed to info@cetanz.org.nz for consideration.

There is no limit on entries and the winner will be able to pick a $50 gift voucher of their choice from Farmers, Pak n Save, Hunting & Fishing or iTunes.

Please submit your entries by 30 April 2017. Judges decision is final

Good luck!!

The Beam Truck

We now have our own Benkelman Beam and Insitu CBR truck, it is an ex Taupo Civil Defence Fire Engine which I bought through Turners/Trade Me in Tauranga in June. I got it for a very good price and it is in mint condition considering its age. It's a 1979 Dodge RG15 with a 5.8 litre V8 Perkins diesel, and it came in our company colours!

I had been thinking for a few years that a fire engine would make a good test vehicle and have kept a close eye on Trade Me when bingo this one came up. Anyway when the auction was about to close I started bidding and so happened that some friends popped in at home. I had to excuse my rudeness by being on the computer but surprised them by saying Uhoh I just bought a fire engine, what have I done! That has caused a lot of laughs amongst friend and clients when I mention my purchase.

The clients are suitably impressed and say what a great idea/thinking outside the box etc. It now saves them having to take a truck out of circulation, get it weighed, do the beam test, dump the load, get back to the job etc. Now they just call me and bam we're there! and at half the price. Plus I get to drive a fire engine!

On a side note my grandkids think it's fantastic and I have trumped the opposing grandfathers with their small farm and another with a crane…

My mates, well first they think it will a great mountain bike trip vehicle… (still figuring out how to put bike racks on it) and then I have to explain Benkelman Beaming and Insitu CBR testing to them but lose their attention very quick so have to show them photos and videos, nothing… still lost em..

The weight for the beaming and yes everyone including me thought the 1800l tank plus a few blocks of concrete would cut it… no it only weighed 4.25t on the back axle. Plan B.. my daughter's in laws own a concrete construction company and happened to have a large steel weight (estimated weight 5.6t) previously used for driving piles in but now obsolete. Would it fit? Yes! After a few measurements and removal of the baffles etc it was a goer.
I engaged an engineering company to make a cradle for it to sit on inside the tank without going through the aluminium base, this weighed about 200kgs, that done, the weight was placed inside and off to the weigh bridge. It came in at 8.240t and this was all based on pure guess work, what a relief!

With the Insitu CBR set up I got the same company "Action Engineering Co Nelson" who were very accommodating with suggestions and ideas while wondering what is this nutter on about and you want to do what?!?! They cut part of the back step out which made for easy access to jack the truck up and carry out testing. The rear area also makes for a good work bench and storage for all the equipment. Next step is to fit hydraulic legs to the back.

I have promoted this to everyone I know in the Nelson area and we are steadily getting work for it as the construction season ramps up.

Article written by Mick Zeewoldt, Civil Engineering Laboratory Services

GEOTECHNICS

Three tips to get the most out of your MCC calibration

1 Pre book your Airmeter, Shearvane, Impact tester or Schmidt hammer for calibation with The MCC

2 Request a hire unit while yours is being calibrated to keep your down time to a minimum

3 Use the hire equipment until you receive your re-calibrated unit

We understand how disruptive sending equipment away for calibration and/or repair can be. We want to minimise this down time by offering you this new option to use a hire unit at a discounted rate - up to 50% off.

THE MEASUREMENT & CALIBRATION CENTRE
Tara Lee-Shield
e. calibration@themcc.co.nz
p. 09 356 7893
www.themcc.co.nz

GEOTECHNICS HIRE
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Plastic Roads Could Replace Tarmac In The Future

Our current roads are made from tarmac of asphalt, this could change in the future and we could all be driving on plastic roads.

VolkerWessles have developed some new plastic roads that are designed to be easier to build than current roads and also last longer.

The plastic roads are constructed from recycled plastic and they are capable of surviving higher and lower temperatures that current roads, plus they are easier to repair.

Another advantage of these new roads is that they can be pre-assembled and then laid quickly, which could cut road construction times significantly.

PlasticRoad features numerous advantages compared to conventional roads, both in terms of construction and maintenance. Plastic is much more sustainable and opens the door for a number of new innovations such as power generation, quiet road surfaces, heated roads and modular construction. Additionally, the PlasticRoad design features a 'hollow' space that can be used for cables, pipes and rainwater.

At the moment these plastic roads are just a concept, but who knows, one day we could all be driving our cars on them.

Source VolkerWessels, Engadget

This article is thanks to Roland Hutchinson from Geeky Gadgets and can be found at http://www.geeky-gadgets.com/plastic-roads-could-replace-tarmac-in-the-future-20-07-2015/

From the working groups …..

Technical Group

The Technical group last met on Feb 23rd 2017. With Curwin Boltman departing, several Fulton Hogan representatives have stepped up to contribute to the group. We have co-opted Blair Trousselot & Steven Franc to the Technical Group and CETANZ welcome them aboard. We extend an invite to those of you would like to contribute to come along or phone in to the next meeting. Express your interest by emailing info@cetanz.org.nz

The technical group members are:
Jayden Ellis (Stevenson Construction Materials), Steven Anderson (Geotechnics),
Fran Hu (Road Science), with co-opted members Ewan Cameron (Road Science), David Hotham (OPUS), David Morgan (GBC Winstone), Keith Towl (IANZ), Blair Trousselot (Fulton Hogan) and Steven Franc (Fulton Hogan)

Two proficiencies are currently in the works at CETANZ. Density & Absorption NZS 3111 and Wet & Dry Strength Variation AS 1141.22. The Technical Group is working on a number of other schemes for 2017 (see plan below) and will keep you notified of developments as they happen.

Category	Test	Volunteer Laboratories
Aggregate	D&A NZS 3111	OPUS – **2017**
Aggregate	Wet/Dry AS	Fulton Hogan Auk - **2017**
Asphalt	**Binder Content & Grading**	**Fulton Hogan - 2017**
Aggregate	**Sampling / Grading (North Island)**	**Stevenson - 2017**
Field	**NDM (North Island)**	**Stevenson - 2017**
Concrete	**Compression & Density Tests**	**Stevenson – 2017**
Bitumen	**????**	**2017?**
Asphalt	**????**	**2017?**

There is funding available for those that want to volunteer their Laboratory as a potential organiser of proficiency rounds. Please contact CETANZ info@cetanz.org.nz for further information .

In regards to the Vibrating Hammer and as mentioned in earlier additions, NZTA has decided to fund some initial research on exploring potential solutions / alternatives for the NZ Vibrating Hammer Compaction test and its use in NZTA B/2. CETANZ is currently providing input into the draft research document and will be taking part in future discussions regarding the paper.

A number of Technical Guides are in progress being: Uncertainty of Measurement, Proficiency Data Analysis, Significant numbers v decimal points in LIMS systems and Assumed and Derived accreditation guide.

Working Group Update Cont…..

Technical Group Cont…...

Over the past two years the NZTA's National Technical Advisor for Pavements Gerhard Van Blerk has been evaluating a modified ethylene glycol test to better quantify aggregate durability associated with smectite clay. NZTA has been using the draft method to evaluate aggregate resources from all over the country while perfecting the method. Along the way, our technical group has had several opportunities to comment on the tests development and issues with the procedure. The agency has advised the new testing method for detecting smectite clay in aggregates is nearly ready to be released as an NZTA Test method. Once established, CETANZ will look to run a national proficiency.

Another minor error has been identified with 4407: 2015. 4.2.7 & 4.2.8 – missing variable from list (w = water content). CETANZ TG4 will be updated and Standards New Zealand notified. Once all laboratories have switched over and run with the new 2015 version and all errors and queries are collected, CETANZ will review the possibility of an editorial review and amendment.

Following on from the last article, NZTA's Martin Gribble attended the November CETANZ Technical Group meeting. A range of topics were discussed from NZTA's Quality Right, Zero Defects Initiative to the review of the Rehab Guide and Austroads. Of note is NZTA's plans to make improvements to the way quality control will be carried out, recorded, specified and checked. Inspection Test Plans (ITP) will be standardised, centralised, automated, and test information will need to be transferred electronically and stored in a cloud-based database as it becomes available. Martin also talked about Random Verification Testing (RVT), better supervision of quality activities on large projects and a push for more testing and the right site specific (appropriate) testing to better cover risk.

Careers and Events

The main focus for the group is the 10 year celebrations which will see events held in a few regions to enable as many members as possible to attend.

Planning for the 2018 conference will start in a few months and some energy will soon be put into the qualification and promotion of this.

CPT Group

The guidelines for the third party audit are to be established by the members of the Working Group, based on the checklist developed by Tonkin and Taylor during the EQC investigation work in Christchurch.

That checklist was made available and we are looking for comments from CETANZ members prior to our next meeting which is due before the end of March 2017. For a copy of the checklist, please contact Marco Holtrigter, marco@g-i.co.nz.

Please also send any comments to you may have on the document to email info@cetanz.org.nz

Quick Guide to Applying Quality Levels for Service Clearance

Avoiding a service strike is a high priority for us all in the field. The delays, expensive repairs, personal injuries - let alone potential loss of life - are simply not worth the risk. Even on small projects, an accidental utility strike can end up being very costly.

Although we can usually locate a utility plan to help guide us on the locations for subsurface utilities, these are often out of date – or indicative rather than definite. Instead of relying on potentially outdated plans – and/or an educated guess - we recommend conducting a geophysical scan for any project where penetration and drilling could potentially hit a service. Geophysical scans are the only way to accurately locate unseen services and properly protect people and financial damage.

With different geotechnical applications requiring varying levels of geophysical scans, it can be hard to work out the type of clearance your site needs. Congested subsurface utilities and the degree of risk they pose to people, properties and service delivery, will determine the appropriate level of clearance.

We've outlined three common scenarios below to help illustrate when and where a geophysical scan is essential.

Residential investigations where vertical augering or in situ testing, such as a scala penetrometer is undertaken. Residential utilities are not normally found on service drawings so a scan is useful here. Whereas a few hand augers in the back yard of a residential property may only need a site reconnaissance to satisfy the risk requirements, if test locations are in the front of the house it's a different story. This is because utilities that serve a residential property are likely to connect to the house from the front. When test locations are needed out front, we recommend a scan.

Light commercial investigations where vertical machine drilling and testing is required. These investigations tend to be closer to arterial and distribution networks with larger diameter utilities, which makes them more dangerous and riskier to work around. This significant danger and risk means it's vital that physical verification of underground services is carried out before any works begin. When testing is needed on commercial sites, we recommend a scan.

Dense commercial or inner city projects where vertical drilling and testing is required in locations that are highly congested by people and buildings. These areas are also highly congested with utilities - many of which are critical networks. Subsurface penetration in these areas increases the risk of potentially expensive repairs and the threat to human health and safety. When testing is needed at congested commercial and inner city locations, physical verification of underground services is essential. We recommend a scan!

Continued from page 9

To satisfy requirements, there are tiered levels of service clearance that you should take:

Utility records search: Information is acquired from the utility owners through the "Before You Dig" website or by requesting a property file from the council.

Site reconnaissance: This involves completing an on-site check to validate the utility records gathered in the first tier.

Detection: Used in conjunction with the two methods above, suspected utilities are detected by one or more geophysical scanning methods. These include Ground Penetrating Radar (GPR) and radio detection equipment such as Cable Avoidance Tools (CAT).

Physical verification: The most common methods to physically verify are hand digging and hydro excavation, which are done in conjunction with all of the previous tiers. The hydro excavation method that Geotechnics uses is the Ditch Witch (pictured), which not only physically clears the top 1.5m where unexpected services are likely to be located, but it does so without any damage to pipes. The main advantage of this over the use of a sucker truck, is that it allows us to log that first 1.5m, providing the important information needed for shallow foundations.

It is strongly recommended to use the tiered approach above. We do it on all Geotechnics projects to reduce the risk of striking an underground service, and we perform the same clearance process for other laboratories, consultants and contractors. Because this comes second nature to us, Geotechnics can take all of the hassle out of determining what needs to be done to comprehensively locate utilities on your site. More information about Services Location is available on our website **www.geotechnics.co.nz**. For a demonstration of how this could be applied to your next project, contact **Ian Waite on 09 356 3524**.

Article written by James Davidson, Geotechnics Ltd

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SPECIAL GUEST SPEAKERS

Leaders in the fields of **pavements, driver behaviour, safety** and **innovation** will be speaking at next year's conference. Speakers include **Carey Griffiths**, road safety expert and national president of the Institute of Advanced Motorists, NZ and **Sir Ray Avery**, scientist, inventor and social entrepreneur.

We look forward to seeing you there!

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Changes to the Radiation Safety Act

On 7th March 2017 the new Radiation Safety Act 2016 will come into force. New regulations (Radiation Safety Regulations 2016) have been made under the Act and these also come into force on the same day. Together these bring a few changes that affect owners and users of Nuclear Density Meters.

The following is a brief summary of the changes that I see and is to be taken as a guideline only. Individual circumstances may result in different outcomes for some owners and users so must be investigated on a case by case basis.

Under the new Act, there will be two types of license, the source license which is obtained by the organisation and is a new license and the user license which is a continuation of current requirements. Section 17(2) of the Act allows the source license to authorise use without need for user license providing the use is "passive and limited". The ORS has determined that the use of NDM's does fall within the "passive or limited" definition. Therefore providing an organisation has the necessary infrastructure, knowledge and experience and there are no outstanding non-compliances from previous audit, then the issue of a new source license should be straight forward. This would however be determined on a case by case basis.

The source license is renewable at a maximum period of every 3 years per location at a cost of $522 plus GST for each year of the licence term. User licenses will cost $95 plus GST per year (unless authorised for use by the source license). Audits will continue to be carried out by ESR on behalf of the Office of Radiation Safety (ORS) on a 3 yearly basis.

The Office of Radiation Safety will contact owners when it is time for them to obtain a source licence which is likely to be about June 2017. They will also issue a new code of practice for the management, control and use of NDMs. This will be released for public comment at about the same time (June 2017) and all affected parties will have the opportunity to make submissions. The code will set out any new requirements for radiation safety plans.

So in summary, you will be notified when you need to go from your current license to a Source license and providing you have nothing outstanding from previous audits and you can demonstrate good knowledge and effective systems around your NDM's it should all be plain sailing.

If you have any queries or concerns you can either contact the ORS direct or myself by email bsargent@geotechnics.co.nz or phone 09 356 3516 as I will collate all queries and seek clarification from ORS and update you individually as well as in the next newsletter and on LinkedIn.

The Act can be viewed at
http://www.legislation.govt.nz/act/public/2016/0006/latest/DLM6339517.html?search=ts_act%40bill%40regulation%40deemedreg_radiation+safety_resel_25_a&p=1#DLM6339522

and the full Regulations can be viewed at:
http://www.legislation.govt.nz/regulation/public/2016/0303/latest/DLM7049344.html?search=ts_act%40bill%40regulation%40deemedreg_radiation+safety+Regulations_resel_25_a&p=1

Brigitte Sargent

A Word From The Editor …..

With the holiday season now something of the past I find it once again time to get together another issue of the CETANewZ.

We aim to publish four newsletters each year to keep you up to date with what is happening both within the CETANZ community and the wider industry.

This issue see's a great story of innovation from Mick Zeewoldt with his beam truck and some sound advise from James Davidson around service clearance. Thanks to you both for contributing to this newsletter. Thanks also to Roland Hutchinson from Geeky Gadgets for letting us re-publish his article on plastic roads which gives us all something new to think about.

Remember we are always on the look out for material for the CETANewZ. Please email your stories or suggestions to info@cetanz.org.nz

Happy reading

Brigitte Sargent