

The official newsletter of the Civil Engineering Testing association of NZ

### In this issue...

- From the Chair
- Technical Group Update
- CETANZ Conference
- Christchurch- Following the Earthquakes
- Auckland Materials Testing Laboratory

"If your business is not reviewing its position in relation to H&S, I suggest you get on to it quick smart."

### Issue 21, July 2014

### From the Chair...

Welcome to the July issue of CETANewZ. Winter has arrived. For me personally here in Auckland, I can't really say that winter is looking to be quieter than the summer like I usually do. We are just as busy now as we were in the summer, if not busier.

Reading the national job vacancies, it's refreshing to see the number of Civil Laboratories around New Zealand advertising for new staff are on the increase. Hopefully this is more a sign of growth for our industry and not just a sign that our best and brightest are being pinched by the local consultant, contractor or roading authority.

Economic growth is on the cards for the next couple of years and with this change comes increased pressures to retain staff. How is your laboratory faring? How do your pay rates compare to other Labs? CETANZ is looking at putting together a salary survey so watch this space for more information in future communications.

In the last issue I touched on WorkSafe NZ and the new legislation that will come into effect in April 2015. In summary the following points are of most interest:

Duties on officers (Directors) to exercise due diligence. You can't delegate responsibility!

A new term PCBU (person conducting a business or undertaking) If you make decisions concerning safety, you will be accountable.

New term Worker replaces the term employee (also a broader term to cover casual and hired labour etc.) Not just employers who hold responsibility anymore.

Reasonably practicable in relation to the duties imposed (replaces all practicable steps) and uses current state of knowledge as a test.

Stronger penalties, enforcement tools and court powers.

New legislative framework modelled on Australian Model Law

Consultation – horizontal and vertical

Worker protections & engagement

Not just employers who hold responsibility anymore

If your business is not reviewing its position in relation to H&S, I suggest you get on to it quick smart. Your Directors and Officers are now personally responsible for H&S, they have to be proactive. P.S. In the Quarrying industry recently, several operations have been closed by WorkSafe, mostly for machine guarding. Ask yourself a simple question as you walk round the Lab looking at your various machines ..... could someone get their hand or finger in there ....if the answer is yes, then you might have a guarding issue.

### From the Chair Continued...

The CETANZ conference organising committee is beavering away behind the scenes. In short what you need to know is:

**Sponsorship** is going well and only a limited number of packages remain available. So get in quick to secure the last opportunities.

Registrations. If you haven't already get in NOW!

- Accommodation availability will dramatically reduce at the Novotel after the 21st of July.
- **Speakers**. The program is starting to fill up, but we could always fit in another one or two technical papers.



Entertainment. Matt Watson will be speaking at the conference dinner.

This is our industry's premier event and your only chance in the next two years to see what's new in the world of testing, catch up with old friends, learn about new equipment & services, find out how CETANZ are representing you and what we should be doing next. To register or check out the program, go to <u>http://www.cetanzconference.org.nz/</u> or email Kathryn Hunter <u>Kathryn@fp2.co.nz</u>

### REMINDER

The next AGM will be held at the August conference, and this is where we will also be asked as members to elect our new management committee. This is a great chance for those that want to get more involved in our industry, have their say and network with likeminded people. If you are interested in joining the CETANZ Management Committee please contact Brigitte Sargent <u>BSargent@geotechnics.co.nz</u>

If you would like to know more, or you want to get involved, feel free to get in touch anytime. Contact us here at <u>info@cetanz.org.nz</u> if you would like to learn more

I hope you enjoy this issue.

Jayden Ellis

Chair - CETANZ





## TECHNICIAN AGGREGATES & EARTHWORKS

Operating as part of the Stevenson Group, Stevenson Laboratory specialises in providing fast turnaround bulk testing of aggregates, concrete, masonry, paving, soils and earthworks. Located at Drury, our IANZ accredited Laboratory provides materials testing services for a wide range of both internal and external customers.

We are seeking an experienced Technician to carry out aggregate and earthworks testing. Ideally you will have previous experience in a civil engineering testing laboratory. Ideally you will:

Have an interest in or knowledge of aggregates or earthworks operations.

Have the ability to work in a team, and on your own.

Be physically fit & mobile.

Enjoy the challenge of meeting deadlines even if it means working additional hours.

Be legally entitled to work in New Zealand.

Have a NZ Drivers Licence.

Candidates that have completed a National Certificate in Infrastructure Civil Engineering (Laboratory Technician Level 4 minimum) or a Diploma in Engineering or Science will be given preference.

If this sounds like you, then please forward your CV to the Technical Manager using reference "Tec". Please note that a pre-employment medical examination including a test for illegal drugs will be required.

Contact: Stevenson Laboratory Ltd Private Bag 94000 Manukau City Auckland 2241, New Zealand Email jayden.ellis@stevenson.co.nz

### The Soils Technician

A poem shared by Bob Body-(Retired) Manager Technical Services at VicRoads

> The Technician knocked at the Pearly Gates, His face looked tired and old, He stood before the man of fate. For admission to the fold, What have you done? St Peter asked, To gain admission here, I've tested Soil sir, he said, For many and many a year, The Pearly Gates swung open wide, St Peter touched the bell, Come in, he said and choose your harp, You've had your share of hell.



## WHY USE AN ACCREDITED LAB FOR CONSTRUCTION MATERIALS TESTING ?

Ryan Milligan, Geotechnics Ltd, Tauranga, New Zealand

As a professional engineer it's possible that you've asked yourself this question when reviewing test results for your project. When you're carrying responsibility for a project, having confidence in the data you receive from third parties is an integral part of managing and minimising your professional and reputational risk.

Like less risk?

It's probably fair to assert that any reputable organisation or engineer is eager to minimise business risks wherever practical. Fortunately professionals in the engineering industry have an excellent avenue to minimise their exposure to risk from third parties. Using IANZ accredited testing organisations for engineering testing purposes helps engineers make decisions on the basis of accurate and reliable results from organisations with verified competence. What does IANZ mean? Who are they?

International Accreditation New Zealand or IANZ is an independent, third-party assessor of technical and scientific competence for professional organisations. They are a government entity whose primary purpose is to facilitate and maintain technical integrity of testing organisations for the "greater-good" of society rather than for commercial motives. Accreditation of a testing organisation by IANZ is assurance that the organisation has an internationally comparable level of technical integrity for their industry. IANZ itself gains further credibility by participating in regular evaluation of their processes by multilateral arrangement partners to ensure that they are assessing New Zealand testing organisations to the same standard as our international peers.

What do they actually do?

In relation to civil/geotechnical engineering you want be confident that your chosen testing organisation is performing your testing in accordance with some valid and internationally recognised business process. In New Zealand this means operating an organisation in accordance with NZS ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories. This guideline shares many similarities to the ubiquitous ISO9001 but geared towards laboratory based testing businesses.

To assess the technical integrity and business processes of an organisation IANZ performs annual auditing using specialist assessors and industry technical experts. Together these groups make an assessment of accredited organisations to verify that:

A. Personnel are appropriately qualified, trained and have experience commensurate to their position and duties. A technical expert may request to observe actual work tasks to evaluate individual staff expertise during an audit.

B. The organisation's accommodation and environment is appropriate for the type of testing that they perform.

C. The organisation is using test methods that are validated and known to produce reliable results.

D. The organisation is using testing and measuring equipment that is compliant with the test methods, is calibrated and well maintained. Traceability of calibration is also critical for certain test equipment.

E. The organisation's records and reports are satisfactorily organised, maintained and meet international criteria for reporting.F. The organisation meets quality management criteria set out in ISO17025 by producing

and complying with a satisfactory quality management system.

G. The organisation takes part in intra-industry proficiency testing. Proficiency testing consists of many laboratories receiving the exact same sample and each testing it using

the same test method. Test results are compared and shared between participants.

Result variability is scrutinised and may result in corrective actions for participants who deviate significantly from the consensus result. IANZ plays a key role in ensuring results are properly reviewed and corrective actions are effective. Proficiency testing is an essential part of ensuring validity of test methods and parity of results between testing organisations in New Zealand. Testing organisations without IANZ accreditation would miss out on this highly insightful comparative performance data.

How do I know if I'm getting accredited testing?

IANZ accredited organisations are encouraged by IANZ to reference their accreditation in reports and results by including the IANZ logo and/or a combination of words within the report/results stating "IANZ", "IANZ Accredited", "Accredited Organisation" or similar statements. No "Cowboys" then?

Correct! If you're getting your testing performed by an IANZ accredited organisation you can be assured that your quality assurance testing will be performed by an organisation that is following good procedures and is comparable with industry peers. IANZ Accredited test results allow you to confidently say that you do trust your data.

Where can i find IANZ testing for my project?

All IANZ accredited organisations have their scope of accreditation publicly available on IANZ's website, www.ianz.govt.nz. Visit and search for your desired test to find providers across New Zealand.

### What's CETANZ's View?

The Civil Engineering Testing Association of New Zealand is largely comprised of IANZ accredited testing organisations that provide testing services to the civil/geotechnical engineering industry. Each year CETANZ members invest considerable time and financial resources into maintaining their IANZ accredited status'. This investment creates and maintains the high level of data integrity that the civil/geotechnical engineering industry relies upon.

In recent times the CETANZ membership has become aware of numerous projects that don't stipulate the need to use IANZ accredited testing. An example of this may be a project where a contractor without IANZ accreditation is asked to perform their own compaction testing on a project under their control. This may be the most time/cost efficient way to perform some degree of quality assurance on the project. Unfortunately scenarios like this are likely to significantly increase the risk of uncontrolled variables as the testing will be unlikely to realise the quality benefits of the aforementioned IANZ auditing process.

CETANZ believes that quality assurance testing should be carried out only by organisations that are audited against some type of quality standard and have a means to gauge their performance against their industry peers. CETANZ is of the opinion that without an independent third party regulating the quality process there is excessive temptation to take shortcuts and depart from accepted best practice. IANZ accreditation is the most suitable tool to create and maintain high quality testing in New Zealand and is wholly endorsed by CETANZ for this reason.



## Ground Penetrating Radar (GPR) GEOT





### **Applications**

- Locating underground services
- Locating burst pipes
- Measuring pavement thickness
- Measuring concrete slab thickness
- Identifying geological or manmade anomalies.

### **Advantages**

- Detects non-metallic services eg. fibre optic, water pipes, ceramic pipes, drainage pipes
- Non-destructive
- Rapid setup, locating and mark-out
- Compact and manoeuvrable
- Real time detection
- Post processing of data available.





**PRODUCTS • TESTING • HIRE • MEASUREMENT • CALIBRATION** 

### **GEOTECHNICS LTD**

Auckland, Hamilton, Tauranga, Wellington and Christchurch P. 0508 223 444 | www.geotechnics.co.nz

## **Technical Group Update**

### **Technical Group**

Last Technical Group meeting was on 6<sup>th</sup> March 2014.

### **Proficiency Program**

Schemes underway

Category	Test	Volunteer Laboratories	
Aggregate	Clay Index	Winstone & Stevenson - DONE	
Aggregate	ASTM Density and Absorp- tion	Fulton Hogan Nelson - DONE	
Soil	Standard Compaction & Tri- axial Perm Solid Density	Stevenson & OPUS - DONE	
Concrete	Compression & Density Tests	Holcim & Stevenson – 2014	
Field	NDM	Stevenson (North Island) - 2014	
Asphalt	Binder Content Grading & MTSG	FH Dunedin 2014	
Asphalt	Marshall Compaction	Downer – Frank Hu - 2014	

### **Proficiency Program Update**

•PSV proficiency report – report getting checked now. Waiting for release.

•Clay Index proficiency – final data distributed. Report to be done.

•Standard Compaction, Solid Density and Permability Proficiency – final data distributed. Report to be done. ASTM Density and Absorption. Data distributed. Report to be done.

Binder Content Grading and MTSG – Waiting for data from Fulton Hogan. Report to be done.

Group now looking at designing concrete strength proficiency for 2014.

Possible other schemes in 2014 - Cone Penetration PI for aggregate & NDM (North Island)

### **TNZ T/1 Review**

The technical group has handed over the updated draft to the National Pavements Technical Group (NPTG) and the National Pavement Steering Group (NPSG -NZTA). Likely this document will go live later this year.

### Roading Testing Standards Steering Group (RTSSG)

•Jayden Ellis is to reconfirm the CETANZ commitment to the funding and the contribution to writing of new standards with other possible stakeholders. This will be to generate discussion now that Standards NZ restructure has started. (NZS 4407 - \$15K, NZS 3111 - \$5K, NZS 3112 - \$5K)

•Group has discussed possibility of initiating a CETANZ review and re-write of NZS 3111 and 3112 in 2014 regardless of Standards New Zealand stakeholder position and concurrent activities.

### IANZ /PPAC Report

Keith reported that 17025 is likely to be reviewed and re issued sometime in the next 3 years. Feedback regarding review seemed to suggest at this early stage that 17025 needed more clearly worded requirements i.e. plain english.





Operating as part of the Stevenson Group, Stevenson Laboratory specialises in providing fast turnaround bulk testing of aggregates, concrete, masonry, paving, soils and earthworks. Located at Drury, our IANZ accredited Laboratory provides materials testing services for a wide range of both internal and external customers.

We are seeking an experienced Technician to lead our concrete testing section. Ideally you will have previous experience in a civil engineering or concrete testing laboratory. Ideally you will:

Have an interest in or knowledge of concrete or ready-mix operations.

Have the ability to work in a team, and on your own.

Be physically fit & mobile.

Enjoy the challenge of meeting deadlines even if it means working additional hours.

Be legally entitled to work in New Zealand.

Have a NZ Drivers Licence.

Candidates that have completed a National Certificate in Infrastructure Civil Engineering (Laboratory Technician Level 4 minimum) or a Diploma in Engineering or Science will be given preference.

If this sounds like you, then please forward your CV to the Technical Manager using reference "Sen\_Tec". Please note that a pre-employment medical examination including a test for illegal drugs will be required.

Contact: Stevenson Laboratory Ltd Private Bag 94000 Manukau City Auckland 2241, New Zealand Email jayden.ellis@stevenson.co.nz

### Civil Engineering Testing Association of New Zealand (CETANZ) The Journey to Date

Incorporated in 2007, the CETANZ society was formed to represent the views and opinions of the civil engineering testing industry in New Zealand, with key objectives being:

Continuous improvement of the standards of testing in NZ through training and other means

Advance the status of testing to the construction industry

Communicate changes in standards of technology to the testing industry

Provide a code of ethics by which members operate

Represent the views of the New Zealand testing services to authorities like IANZ, IPENZ, NZTA etc.

Promote the benefits of high quality testing services

Assist members in development of suitable proficiency and inter-laboratory testing programs

Conduct activities such as meetings, conferences, technical & social events for the benefit of its members Promotion of civil engineering testing as a career

Support and promote the laboratory technician qualification for our industry

Since its inception the majority of these objectives have been met and continue to be improved and developed. The society currently has around 130 individual members, mainly consisting of Laboratory Technicians and Managers. Quarterly newsletter updates are published, keeping the members up to date with what's going on. The CETANZ web page and LinkedIN page are also available for all members and interested parties for sharing ideas and keeping up with industry

standards.

Key achievements of the CETANZ group to date have been:

#### **RAISING THE PROFILE**

The CETANZ brand/profile is growing through industry establishment and positive industry wide recognition. We are regularly being approached to represent on various committees and industry boards. Our professional opinion and advice has been sought after and we have been able to assist in technical issues relating to the civil engineering testing industry as it continues to grow.

### LABORATORY TECHNICIAN QUALIFICATION

The national certificate in infrastructure civil engineering for laboratory technicians and senior laboratory technicians has been developed and introduced in conjunction with InfraTrain. To date 80 people have enrolled for the 2 qualifications.

#### **TESTING STANDARDS REVIEW**

The technical group has lead a complete review of NZS 4407 New Zealand Standard for testing of Roading Aggregates. The review took several years of industry consultation and involved a number of experienced laboratory people. The group is now seeking funding to get the new draft published. CETANZ has committed to contributing \$15K towards the publishing. The technical group is also planning to carry out similar reviews with appropriate stakeholders for the following standards; NZS 3111, 3112 & 4402.

### SPECIFICATIONS

The technical group, through its representation on the National Pavements Technical Group (NPTG) has contributed to the review or ongoing development of the following NZTA specifications; T/I, F/I, T/I9, M/4, T/I5, B/5, B/6, B/7, B/8, B/9 & M/I5

### INTERLABORATORY COMPARISON

A substantial number of proficiency schemes have been completed over the years, covering a wide range of testing and involving the majority of New Zealand's testing laboratories. This has been both beneficial to the labs preforming the testing and the engineers who use the data.

### UNCERTAINATY OF MEASUREMENT

The technical group worked with IANZ to develop a simple tool for laboratories to help them develop their own Uncertainty of Measurement for each test they perform. This data along with the proficiency scheme data is crucial for understanding the repeatability and or the reproducibility of a test.

#### **GOOD PRACTICE GUIDES**

The technical group is working to produce a number of guides for laboratory people. Several are already available from the CETANZ website and cover topics such as "Scala Penetrometer Calibration" and "Asbestos in Recycled Crushed Concrete". The group is current working on a guide for the use of Nuclear Densometers in New Zealand.

### CONFERENCES

2014 will see our next biennial conference this time being held in Hamilton, This event has grown in size over the years and offers a chance to catch up with all our colleagues in the industry to see what's going on, what's new and a chance to see some good presentations from leaders in our industry. The theme of this year's conference is "Raising the Standards"

### **CETANZ Conference 2014**

On behalf of the Civil Engineering Testing Association of New Zealand (CETANZ) and the organising committee, I would like to invite you to the 4<sup>th</sup> biennial CETANZ conference "Raising the Standards". This event is the first of its kind to be held outside of Auckland taking place in Hamilton between the 13<sup>th</sup> to the 15<sup>th</sup> of August 2014.

A key objective of this event is to raise the standards of our industry and promote progression towards a more professional and widely acknowledged, well respected sector. Since its inception in 2006, CETANZ has made a number of great achievements including updating of standards, proficiency testing and the industry wide qualification framework to name a few. Over these few years our organisation has developed greatly to meet the ever evolving needs of our membership and has quickly become the voice for the civil engineering testing industry in New Zealand. CETANZ and this conference are here to ensure the on-going professional development of our industry and the theme of 'raising the standards' will address this and the significant change to a more professional and widely acknowledged, well respected sector into the future.

The organising committee is already well underway in preparing this event and it's my genuine ambition that the 4<sup>th</sup> CETANZ conference will become an even bigger and better forum for sharing key observations and experiences, research and discoveries and learning between like-minded people. We are sure you will enjoy and benefit from this fantastic opportunity and are confident this event will be the best and most comprehensive yet.

I look forward to seeing you all in Hamilton in August.

*Michael McGlynn* Conference Convenor





CETANZ CONFERENCE 2014

NOVOTEL TAINUI, HAMILTON | 13-15 AUGUST 2014

## PARTNERSHIP AND EXHIBITION PROSPECTUS AVAILABLE NOW REGISTRATION NOW OPEN | www.cetanzconference.org.nz

Conference Management: ForumPoint2, PO Box 1008, Hamilton 3240, New Zealand Project Manager: Kathryn Hunter • T +64 7 838 1098 • E kathryn@fp2.co.nz

The Measurement &

**Calibration Centre** 

## **Calibration and repair**

We've got a new look, a new location and increased services. Now calibrating and servicing just about all your civil testing gear.



In addition to our existing suite of services, we have recently gained IANZ accreditation for:

- Compression machines
- Tension machines
- Balances
- Load cells



### **Civil Testing Equipment**

Nuclear Density Meters, Shear Vanes, Impact Testers, Concrete Airmeters, Schmidt Hammers, Measuring Wheels, Scala Penetrometers, Skid Resistance Testers and more...

### Metrology and Lab Testing Equipment

Dial Gauges, Calipers, Liquid Limit Devices, Length Bars, Micrometers, Rubber Hardness Testing (ShoreA, IRHD), Measuring Tapes, Steel Rules, Weight Gauges, Engineers Squares, Spirit Levels, Dumpy Levels, Bevel Protractors, Inclinometers (Bevel), Graticules, Paint Gauges, Gauge Blocks, Thread Gauges, Surface Texture, Surface Plate and more...

MCC - The Measurement and Calibration Centre For more information call us on: Ph: (09) 362-1720 or visit our website www.themcc.co.nz 19 Morgan Street, Newmarket, Auckland, New Zealand





## AUCKLAND MATERIALS TESTING LABORATORY

The Auckland Laboratory was set up in 1948 in a hut built by the American Army at the end of the Second World War on a block of land bordered by Fanshawe, Daldy, Gaunt and Halsey Streets that was owned by The Auckland Harbour Board and designated Government use only.

A purpose built three level Laboratory was constructed on the corner of Fanshawe and Daldy Streets In 1961.

At that time a drilling section with three large and two small drilling rigs, Dutch Cone Penetrometer truck and dedicated trailer pavement/asphalt coring machine was operating out of the old laboratory

hut and a National Roads Board owned building in Poore Street. Now a carpark on the corner of Westhaven Drive behind "The Westhaven".

At this time staff, including wage workers, numbered fifty six (56).

Through attrition, retirement's etc. numbers dropped to forty two (42) by 1981 and when in 1988 we became the Consultancy Services division of Works and Development Services Corporation NZ

Ltd (SOE) and staff were offered redundancy packages. Staff numbers dropped to twenty four (24) and further redundancies followed with the disbanding and selling off of the drilling section in 1992 leaving twenty (20). By 1994 ten (10) staff remained.

In 1991 Glyn East, Roger High and Murray Triggs were relocated to the main office. In March 1993 George McNamara, the Laboratory Manager since 1988, retired and was replaced by Clive Harrison.

In early 1996 the Laboratory relocated to Ride Way in Albany when the land on Fanshawe Street was returned to The Ports of Auckland as we were a SOE and no longer a Government Department and thus could no longer occupy the land.

In April 1997 we became Opus International Consultants Ltd.

In April 2003 Clive retired to a life of leisure on a lifestyle block at Matakana and was replaced by Chris Reid. Chris resigned in August 2004 and was replaced by John Evans who unfortunately passed away after a brief battle with cancer in 2010. On the passing of John, Daniel Grebenar became and still is the Laboratory Manager.



Laboratory Manager Daniel started with Opus in January 2002 after coming via Corbans Nurseries and the Fulton Hogan Auckland Laboratory. He has vast experience in bitumen related testing, is an International Accreditation New Zealand (IANZ) Signatory and Technical Expert in that field. He has been instrumental in the development and purchase of sophisticated testing equipment for the evaluation of the dynamic performance of bitumen bound pavement materials and computer controlled Triaxial testing machines for the Geomechanics section. He is also the laboratory PIN Chair

### Page 14

### CETANewZ

### Assistant Laboratory Manager/QA Manager, Dave Hotham started way back in January 1969 straight out of

Kelston Boys High School. He has seen vast changes in testing technology during the years with the development of Nuclear Density Meters, computers and mobile phones.

He is an IANZ Signatory and Technical Expert in the fields of Aggregates, Concrete, Soils, Cement Products and Other Specified Materials and has been since 1976.

He was also a Signatory for Steel and Timber testing until the amount of testing being carried out in those fields made it uneconomic although we still carry out that range of tests and have been instrumental in the development of the Reid Construction Systems Reidbar products. He is a Hazardous Substances Adviser and is also involved in Geotechnical Instrumentation

such as inclinometers, profilometers, electronic piezometers etc. for field monitoring before,

during and post construction and runs the Transitional Facility that allows the receipt and testing of MPI controlled samples from all over the world.



**Rowan Carlyle** has just completed ten years of employment with Opus and came to us from Gisborne in 2010 where he worked on projects such as Goldsmiths Hill emergency re alignment in the field with drilling rigs etc.

He has been involved in building assessments in Christchurch, worked with Main Roads Laboratory in Mackay. Oueensland associated with flood relief.

tory in Mackay, Queensland associated with flood relief. He is an IANZ Signatory in the fields of Aggregates and Concrete and has the role of Senior Field Technician.

**Senior Technician Thirushen Pillay** came to New Zealand from South Africa in 2004. He came to us from Reid Construction Systems in October 2007 and is an IANZ Signatory in the field of soils testing.

He currently runs the Geomechanics section looking after the more intricate tests with both computer and manually run specialised testing equipment.





**Lesley Ashcroft** joined the laboratory in 1981 as an assistant to the Laboratory draughts person.

<u>From 1988 she took over Road Roughness measurements throughout the North Island</u> for Local Bodies Contractors and Transit New Zealand.

She has also carried out RAMM condition rating for Transit New Zealand and Local Authorities <u>and looks after the Laboratory administration, accounts</u> and the maintenance of Laboratory filing and reporting systems.

**Laboratory Technician Glen Sandford** started in 2007 and has been involved in field testing such as Benkelman Beams, NDM's and pavement test pits in both old and new construction areas.

He has assisted Geotechnical Instrumentation monitoring for inclinometers, profilometers,

electronic piezometers etc. during and post construction on various projects. He is currently involved in the testing of bitumen related products and the testing to evaluate Foam Bitumen Stabilised Pavement designs.







**Ben Richardson** started out as a cadet in November 2004 and covered or observed most aspects of the testing carried out in the Laboratory. In March 2007 he rotated to the Westhaven office to increase his knowledge in other aspects of the company such as CAD & Civil3D

In 2010 he returned to the Laboratory to increase his abilities in the Geomechanics section and field soils testing.

He has been involved in hand auger testing in Christchurch, worked with Main Roads Laboratory in Mackay, Queensland associated with flood relief and recently been involved in Foamed Bitumen Stabilisation in Suva, Fiji.

**Evashen Govander** started out as a cadet in 2006 at Westhaven, rotated to Manukau and then to the laboratory in 2009 and covered or observed most aspects of the testing carried out.

He has been involved in field testing such as NDM's, Quality Control, RVT testing and pavement test pits.

He is involved in the testing to evaluate Foam Bitumen Stabilised Pavement designs and, at the time of writing is involved in Foamed Bitumen Stabilisation on site QA testing in both Nadi and Suva, Fiji.



**Steve McCone** has recently returned to us after running his own Laboratory for nearly ten years and has the role of Senior Pavements Technician. He has vast experience in design of asphaltic mix design and has worked on airport runways in places such as New Guinea, Fiji etc. He came to us from the Fulton Hogan Auckland Laboratory originally in 2000

Other staff include:

David Parker EQR	-	Senior technician	Currently on secondment to Fletcher Hub, Christchurch
Zane Davidson	-	Senior Technician	Currently with Auckland Motorway Alliance as Networks Engineer.
Adam O'Doherty		- Assistant Tec	hnician
David Boodle	-	Cadet due to rotate to another area of the business	
Bronson Harfield		- New Assistant Technician	
Troy Manuela	-	Technician	

What do we do ?

We have the capability to test almost any item used in the construction industry, or if we can't we will source someone who can, either from in the first instance other Opus Laboratories, locally or from overseas. We are a Transitional Facility that allows the receipt and testing of MPI controlled samples from all over the world

### Page 16

### Our core testing is in the following spheres

### Geomechanics

Plasticity index, particle size distribution including hydrometer method, dry density/water content relationship (MDD), Triaxial and unconfined compressive tests, CBR in lab & field

### Bituminous materials

Mix design, bitumen penetration, softening point, pavement coring for determining compacted properties, resilient modulus

### Aggregates

Particle size distribution, sand equivalent, crushing and weathering resistance, sealing chip properties, cleanness value, basecourse/subbase permeability

### Concrete

On site testing for slump etc. compressive strength, splitting tensile strength, density on cast cylinders and drilled cores

### Field sampling and testing

Soils, bitumen, concrete, aggregates pavement materials, Benkelman beam deflection measurements

### **Pavement Investigations**

Test pits for pavement evaluation for refurbishment including on-site testing

On-site testing including Construction QA

NDM's both surface and direct transmission modes, scala penetrometer, clegg impact, shear vane

### Electronic & Geotechnical Instrumentation

Installation and reading of profilometers, inclinometers, vibrating wire piezometers

### Geotechnical Investigations

Hand augers, logging, scala penetrometer, shear vane

### Road Roughness

Specialised vehicle for measuring the pavement surface ride

### Steel testing

Tensile up to a capacity of 100 tonnes, bend tests

The above is only a snapshot of the range of testing we carry out. We are only too happy to assist with the setting up or give advice on relevance of specific tests on a project big or small.

We are a Transitional Facility that allows the receipt and testing of MPI controlled samples from all over the world that may assist in the gaining of overseas commissions.

Here is a little bit of information about the Auckland laboratory testing that is happening in Fiji at the moment for the Fulton Hogan Hiways Joint Venture.

Evashen Govender was seconded to Fiji for I week in late June to undertake test pits on the roads which were scheduled for rehabilitation in the second half of 2013.

The test pits were logged and samples were retrieved and sent back to the Auckland laboratory (Which is approved by MPI to import samples from around the world) for Foam Bitumen mix designs as well as checking general aggregate properties. Sieve analysis's and plasticity index's are especially important to the client to make sure the material is suitable for foam bitumen stabilisation.

At the start of August, Evashen Govender was seconded to Fiji again – This time to set up the site lab and begin Quality Assurance testing as the stabilising crew worked their way along Nadi Back Road. Nadi Back Road is a bypass from Nadi City Centre to the Lautoka Airport. The section that was getting Foam Bitumen Stabilisation was approximately 6km long and took just under a month to complete.

At the start of September, the stabilisation crew moved all the gear including our site laboratory to the Fulton Hogan Hiways Joint Venture office/yard in Suva where there are approximately 7 Roads of about 500m length within the Inner City that are scheduled for Foam Bitumen Stabilisation.

Ben Richardson arrived in Suva at the start of September to give Evashen a much deserved break back in Auckland for 2 weeks.

All though the spec for testing is the same as Nadi, there have proven to be many difficulties for Fulton Hogan Hiways JV for many reasons. Suva is much more densely populated than Nadi and with the rehab roads being pretty central to the city most of the work has had to be carried out at night. There has also been problems with the underground services being too close to the surface, therefore being damaged by the stabilisation gear which of course needs to be fixed in a timely manner. The weather in Suva has also slowed things down a little bit as there's not much the stabilisation crew can do during the rain- which apparently is much more frequent than in Nadi.

With some of the Benkelman beam and clegg test results coming up low while Ben was there, it was determined that there have been subgrade issues on some of the sections. These areas needed more subgrade evaluation in the form of scalas to determine how deep and which areas to undercut and fill with appropriate material.

Evashen Arrived back in Suva after 2 weeks and while keeping up the QA has also just finished a whole lot more test pits with Scalas on the roads that are yet to be foamed to see exactly if/what areas will need to be undercut. Hopefully this will save the client time and money as they will better know what to expect with the extra in-situ pavement information.

This contract is scheduled to finish on the 15<sup>th</sup> of November 2013, as Hiway Stabilizers will need their gear back in NZ for their summer contracts. If everything goes well, and it seems to have so far, they may be back there next year with another opportunity for us at the laboratory!

With Fulton Hogan Hiways contributing to the local communities (Sponsoring Suva rugby, among other things) there was definitely much praise from the locals and there seemed to be excitement from them in regards to being able to drive down the road without dodging potholes!

The testing specification for foam bitumen stabilisation for the whole job is as follows: - I plateau density with water content correction and I sample with 4 ITS blocks compacted per 3000m<sup>2</sup>.

-Nuclear Densities and Clegg Impact Values to be taken at 20m intervals with offsets varying across the width of the road.

-Benkelman beam testing every 40m in each lane.

-Curvature values to be taken every 100m in each lane.

## **Environmental Rentals**

Geotechnics offers a range of environmental rental equipment for **Gas Detection, Water Sampling** and **Water Quality.** Our stringent maintenance programme ensures our equipment is clean, calibrated and reliable.



### GEOTECHNICS





### **Gas Detection**

Hand held meters for VOCs, oxygen, hydrogen sulphide, carbon monoxide, LEL and other toxic gases.

### Water Quality

User friendly meters with dedicated flow cells for pH, conductivity, temperature, barometric pressure, oxidation reduction potential, dissolved oxygen and salinity.

### Water Sampling

Peristaltic and low flow bladder pumps including a full range of consumables for the pumps and well construction.

### **Water Level**

Water dipmeters, interface probes and water level dataloggers for continuous monitoring.

For more information call us on: Ph: (09) 356 3510 or visit our website www.geotechnics.co.nz 23 Morgan Street, Newmarket, Auckland, New Zealand