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CETANZ

Civil Engineering Testing Association of New Zealand

CETANewZ

The official newsletter of the Civil Engineering Testing association of NZ

Issue 017, February 2013

In this issue...

"Our industry will be challenged to become more efficient, use more of the latest technology, improve our methods, standards and specifications"

From the Chair...

Welcome to 2013! By the time this goes to print I expect that most , if not all would have returned to work and are out in the sunny weather busy with the normal summer testing workloads. Seems like just yesterday that we were all at the CETANZ conference, sheltering from the rain and wind in Auckland, talking about the tough year ahead.

Many of the labs I have spoken to recently have reported that they have been busy, but not too hectic over the December and January period.

The general mood seems positive, but most don't predict a quick economic recovery, particularly in our sector.

So what are the economists saying?

Gradual slow recovery expected for the next 2 to 3 years.

During this slow recovery, jobs and income growth will be modest, businesses will invest only cautiously and interest rates will stay low at least until 2014. Global growth is weak and volatile, as the world is still dealing with the GFC and sovereign debt crises.

NZ unemployment ~6.0% in March 2014 and 5.8% in March 2015.

NZ wage growth weak – will stay below 3.0% till 2015.

Weak net migration.

Some lift in borrowing but caution about debt remains.

Spare capacity and discounting will keep inflation below 2%pa over the next 12 to 18 months.

Non residential building looking patchy and government spending keeping underlying activity weak till end of 2013.

Some increase in residential construction in Auckland and Christchurch, but weak income growth will limit activity in other regions.

Local councils defer roading, sewage and water upgrades where possible.

Businesses are gradually repaying back debt which is reducing future risks for the economy.

From the Chair Continued...

Obviously in some regions we will see some extremes, but for the most part I expect lab life to improve.

Looking forward, our industry will be challenged to become more efficient, use more of the latest technology, improve our methods, standards and specifications. To this end the CETANewZ will endeavour to keep you up to date with all that is going on over the coming months.

If you would like to know more or you would like to get involved, CETANZ members are welcome to join us in any of our next management committee, technical group or careers and events group meetings.

Please check out the new CETANZ calendar on the website for dates and contact us here at info@cetanz.org.nz if you would like to come along or help out.

I look forward to working with you all on the various challenges and issues ahead.

Jayden Ellis

Chair - CETANZ

From the Editor...

The average monthly rainfall for Auckland in January is 90mm, but for the Jafa's the start of 2013 has been extremely dry, producing a measly 6mm. I know this issue resonates with much of the country and in fact on the radio this morning, I hear many farms, particularly in the Waikato, are becoming desperate. Whilst this weather is not great for farmers, it is for those of us who spend time on earthworks based projects and fieldwork.

Speaking of fieldwork, I see that more and more sites require almost complete coverage of the skin, which means full length shirts and trousers. With the current warm weather this means things will continue to heat up so it's important to keep drinking water and eating well if you spend time on these sites. From what I'm lead to believe, for most sites in Australia this is compulsory for all site visitors so it's only a matter of time before this becomes standard in New Zealand. In some ways it could be then end of the iconic kiwi contractor wearing a black singlet, stubbies and a pair of John Bulls.

Throughout the year, if you think you'd like to add something to this newsletter please get in touch with me. We are always on the search for new, fresh content and it's one of the hardest things to get hold of. Most people are too shy or modest to put something forward, but I strongly encourage it. It's a good way to get recognised by your peers and an easy way to contribute to CETANZ. Even if it's a piece on someone's 40th birthday lunch shout – we want to hear it!

Finally, further to what Jayden has said in his update from the chair, you are more than welcome to come along to one of the four committee meetings held each year. This is a good insight to see how we operate, what we plan and how we are going. What's more, if you're lucky there may be some subway floating around but only if you are quick enough to beat me to it! Just get in touch with Brigitte bsargent@geotechnics.co.nz and she will let you know when and where and how to get there.

All in all I wish you a prosperous 2013 and I hope to see you all in your place of work as I make my way throughout the country this year

Michael McGlynn

Editor - CETANZ

Caption Competition

Entries to MMcGlynn@geotechnics.co.nz for your chance to win movie passes

Civil Laboratory Technician – American Samoa

We are currently looking for a Lab Technician to be based in our American Samoa branch in Pago Pago. Reporting to the Project Manager, this role involves the operation of a civil materials (soils, aggregate, asphalt and concrete) testing laboratory and conducting concrete and/or asphalt mix designs.

Your responsibilities will include:

- Performing lab and field testing of civil construction materials
- Recording lab and field test results
- Following all work instructions and test methods in accordance with IANZ, ASTM and AASHTO standards
- Compliance with US Army Corp of Engineers (USACE) requirements
- Sampling civil engineering construction materials
- Undertaking safe work practices at all times

About us:

We're a leading engineering and construction company operating across New Zealand and the Pacific Islands, and we've been responsible for constructing some of the largest and most challenging civil projects in these areas. Our expertise includes the construction of bridges, roads, tunnels, mining infrastructure and ocean outfalls.

Our creative approach is what makes us stand out from the crowd, we rate ourselves on our ability to innovate and our clients place a high value on it. It also means we work on more challenging projects that not only require a creative engineering approach, but also the need to be inventive.

We hire the best and brightest in our field. It's something we're proud of, we strive to be the industry leaders, and it shows in our work.

Here's what you'll need:

- Practical civil materials laboratory experience is essential
- Civil Engineering qualifications – any one of NZCE, NZDE, DipEng, BE
- Good knowledge of Quality Assurance testing procedures to NZ standards and including some or all of the following standards: AS, AASHTO and ASTM
- Full Driver's licence
- Clean Passport that will allow you to work in American territories
- Desire to increase personal technical knowledge.

If you are ready for excellent career opportunities, and a competitive remuneration package, please go to www.macdowcareers.com click on search and apply via the "Civil Laboratory Technician – American Samoa" or, if you wish to discuss this opportunity further please contact Stan Schwalger on +64 21 770 031.

Ground Penetrating Radar (GPR)

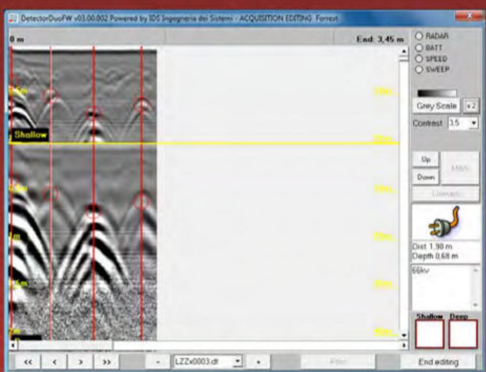
GEOTECHNICS

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



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Working group reports

Technical Group

Proficiency Program Update
The following table represents our current forward work plan. It should be noted that we will be adding more to the list as we identify volunteer labs. Please contact us if you can help.

Category	Test	Volunteer Laboratories
Aggregate	Clay Index	Winstone & Stevenson - **STARTED**
Aggregate	ASTM Density and Absorption	Fulton Hogan Nelson – **COMPLETED**
Concrete	Compression & Density Tests	Stevenson – JSE
Field	NDM	Stevenson (North Island) - Jayden
Asphalt	Binder Content Grading	City Care / Bitumen and P – Toni & Steve M
Asphalt	ServoPac	Downer – Frank - **STARTED**

- Weathering Quality Index Report is completed and will be placed on website.
- Sand Equivalent Proficiency Report is almost completed. David will send to group before next meeting.
- PSV proficiency report – JSE to get a hold of a copy and request permission to post it on the CETANZ website.

RTSSG – 1st Working Group Update
- NZS 4407 draft is completed
- SNZ have reviewed and provided a price to tidy up and publish. ~$60K
- RNZ are trying to negotiate this down, working group may have to do one or two more items of work to get cost down.
- Jayden asked to present to CCANZ technical meeting on the 13th of November regarding review model of NZS 4407 …what works what doesn't.
- CETANZ, AQA & CCANZ in talks regarding possible review of NZS3111, 3112, 3121

NPTG Update
- CETANZ provided completed copy of Benkelman Beam TNZ T/1 and Bowl Deflections guide.
- NPTG will be looking for feedback from CETANZ technical Group on TNZ M/4 & M/6, in the very near future.. JSE to update at next meeting

CCANZ Concrete Core Bulletin Review
Technical Group was asked to review Bulletin IB 72. TG has done this and has made only minor suggestions around clarifying role of laboratory and engineer with regard to correction.

IANZ /PPAC Report
Keith updated us on the last meeting and mentioned that the group will consider the Australian NATA signatory model for application in NZ. Basically each Lab would be able to appoint own signatories but will have to provide process and documentation at audit time.

Accreditation and Reporting of Derived Assumed and Subsequent Data.
Keith mentioned that there was some confusion over the reporting of results that were assumed or derived, for example Air Voids from assumed Soli Density. Est. CBR etc. Technical group decided to put together a guide or newsletter article that clearly outlines what is possible and what isn't.

Careers & Events

Conference was a success, at this stage it looks that is will make a small loss. Venue for 2014 conference to be decided one location is agreed on. Social event to be held in Tauranga in December

Slope controls on the formation of the weak rock Mangapapa Landslide Dam.

S. De Vilder[1,2] and M.A. Brideau[2]

[1]Tonkin & Taylor Ltd, Newmarket

[2]Geology Programme, School of Environment, University of Auckland, New Zealand

The Mangapapa landslide dam is a large rotational slide in the weak rock hill country to the west of the Rangitikei Valley, North Island, New Zealand. It has dammed a headwater of the Mangapapa River, during the February 2004 precipitation storms which affected the lower North Island. Investigation of the deposit in 2011 shows that the dam has been breached, with a deep erosive channel cut through the deposit. However, a lake of approximately the same size as when first formed in 2004 remains. The study was undertaken to analyse the triggers and mechanisms of failure which resulted in the Mangapapa landslide dam.

The methodology used an integrated approach of field investigations, laboratory strength testing, and modelling analysis. The field investigation involved traditional engineering geological mapping including the Geological Strength Index (GSI), combined with terrestrial photogrammetry. The discontinuity pattern of the site is complex, however kinematic analysis reveals that flexural toppling is a possible mechanism of failure for the hillslope. Computer modelling involving limit equilibrium method of slices technique was carried out to determine the contributing factors for the slope failure. The strength of the rock material was determined using the cone indenter, and combined with field observations to determine the equivalent rock mass strength parameters used in the limit equilibrium models. A full strength and residual strength model were created, with slope failure only occurring in the residual strength model at high water pore pressures. It is proposed that the mechanism of flexural toppling weakened the rock mass, with the 2004 storm event providing the final trigger for failure.

Introduction

The Mangapapa landslide dam is a weak rock landslide located in the hill country north west of Mangaweka, Rangitikei Valley, Manawatu-Wanganui (Figure 1). It formed during the intense February 2004 rainstorms which affected the lower North Island. The intensity and distribution of landsliding in this storm exceeded the amount caused by Cyclone Bola, with some places receiving four to six times their average February rainfall (Hancox and Wright, 2005; NIWA, 2004). The storm is one of the most severe and expensive storms in recent New Zealand history, with the resultant flooding and slope instability causing $300 million dollars of damage (Dymond et al., 2006; Hancox and Wright, 2005). The Mangapapa landslide is a large rotational sliding failure with an approximate volume of 200,000m^3, which has formed a small dam at the headwaters of the Mangapapa River. Field investigation has revealed an erosive channel has cut through the dam deposit. Aerial imagery reveals that the dam was breached before January 2005. However a small lake is still impounded and is roughly the same size as when first formed. There is ongoing slope instability with tension cracks observed at the top and sides of the headscarp. This study was undertaken to analyse the factors which lead to the initiation and likely mechanism of failure mode of the landslide.

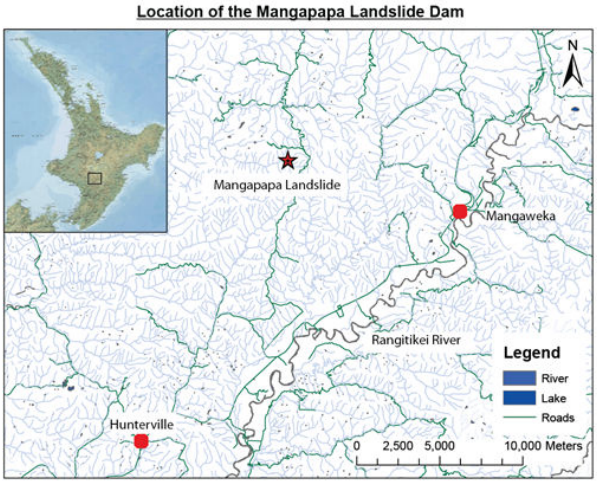

Figure 1: Location map of the Mangapapa landslide dam. The red star represents the location of the dam, with the red squares indicating the position of towns near the landslide.

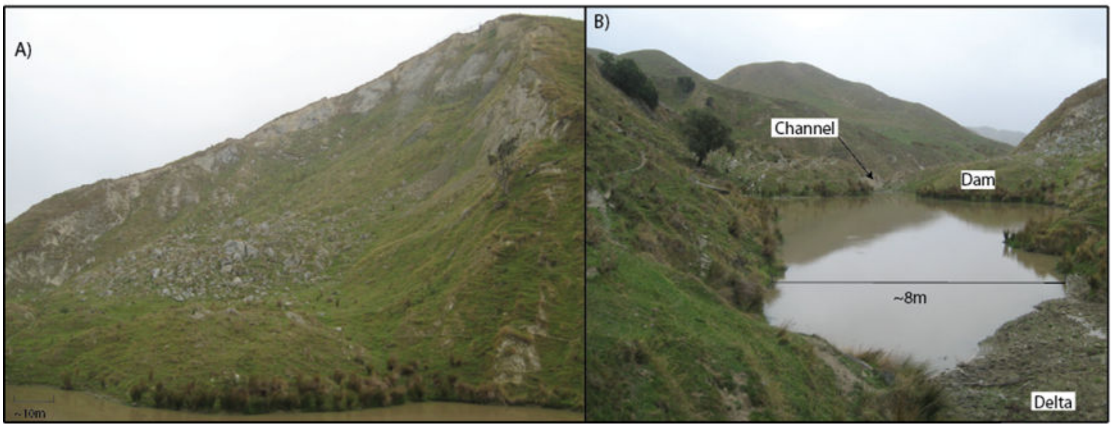

Figure 2: Photos of the landslide (A) and the resultant lake (B). Photo A displays both the headscarp and boulder field of the deposit. The top of the headscarp has an elevation of 595m, with the lake situated at an elevation of 501m. Photo B is taken looking down the valley and toward the landslide dam, with the headscarp just visible on the right hand side. Notice the small delta forming at the lake inlet, at the bottom right hand corner of the photo.

Geology

The Mangapapa landslide occurred in Mangaweka Mudstone – described by Thompson (1982) as a 500m thick blue-grey non-concretionary massive slightly sandy mudstone. It forms part of the newly named Paparangi group, described as a massive mudstone and concreting sandstone unit (Figure 3). This forms part of the Rangitikei super-group which was deposited during the middle Pliocene –Pleistocene period in the Wanganui Basin (Kamp et al., 2004). The eastern edge of the Wanganui Basin (where the landslide is situated) has experienced gentle uplift since the Pleistocene (Kamp et al., 2004; Pillans, 1990). Three active fault structures are recorded on the GNS active fault database (2011); Mataroa, Taihape, and Rangitikei faults. The area has experienced low to medium magnitude earthquakes since records began.

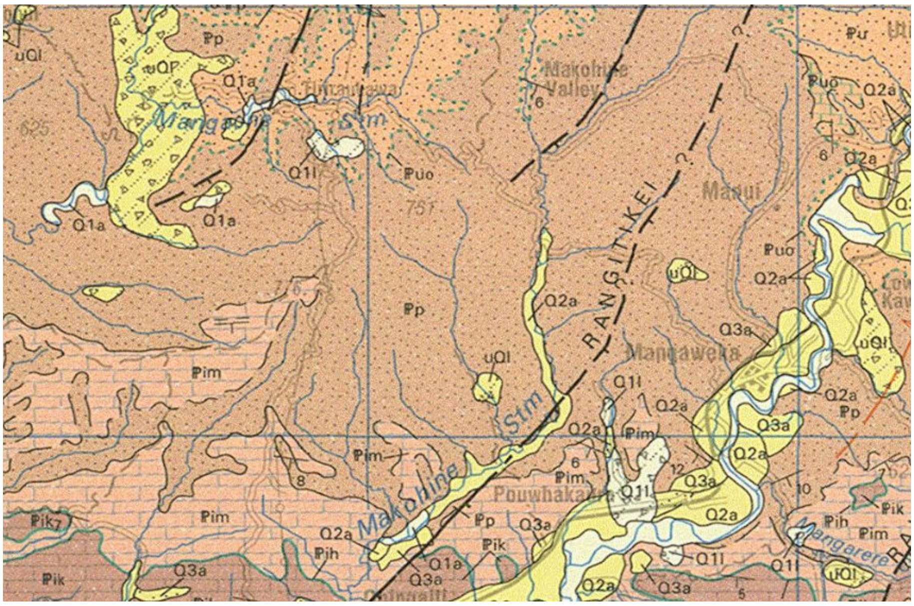

Figure 3: Geologic map of the hill country west of Mangaweka. The location of the landslide is indicated by the red arrow. The Rangitikei River can be seen in the bottom left hand corner (Lee et al., 2012).

Rock mass

The rock mass properties of the outcrop were described using the geological strength index (GSI) and the New Zealand Geotechnical Society Guidelines (2005). The GSI chart is an easy and effective visual assessment of the rock mass properties, which was developed in 1994 to provide a system of rock mass characterization for jointed rock masses (Marinos et al., 2005). The surface conditions and structure of the rock mass are appraised and then a range of GSI values are given for an outcrop. The rock mass of the Mangapapa landslide and surrounding vicinity is moderately weathered, very weak with small to large polyhedral blocks resulting from exfoliation fracturing. Outcrops are commonly characterised by slabbing and slaking, and concretions are found throughout the rock mass. The Mangaweka Mudstone can be described as having good to fair surface conditions and blocky to very blocky rock structure. This gives a GSI range of 50-65, shown in Figure 4. The unconfined compressive strength of the Mangaweka Mudstone was estimated using the cone indenter. This instrument measures the resistance to indentation by a hardened tungsten carbide core (NCB, 1977), by recording the amount of indentation that occurs before the sample fractures, and resulting deflection caused by fracturing. This method gave an average estimate of 2.7Mpa unconfined compressive strength for the Mangaweka Mudstone, consistent with field estimates.

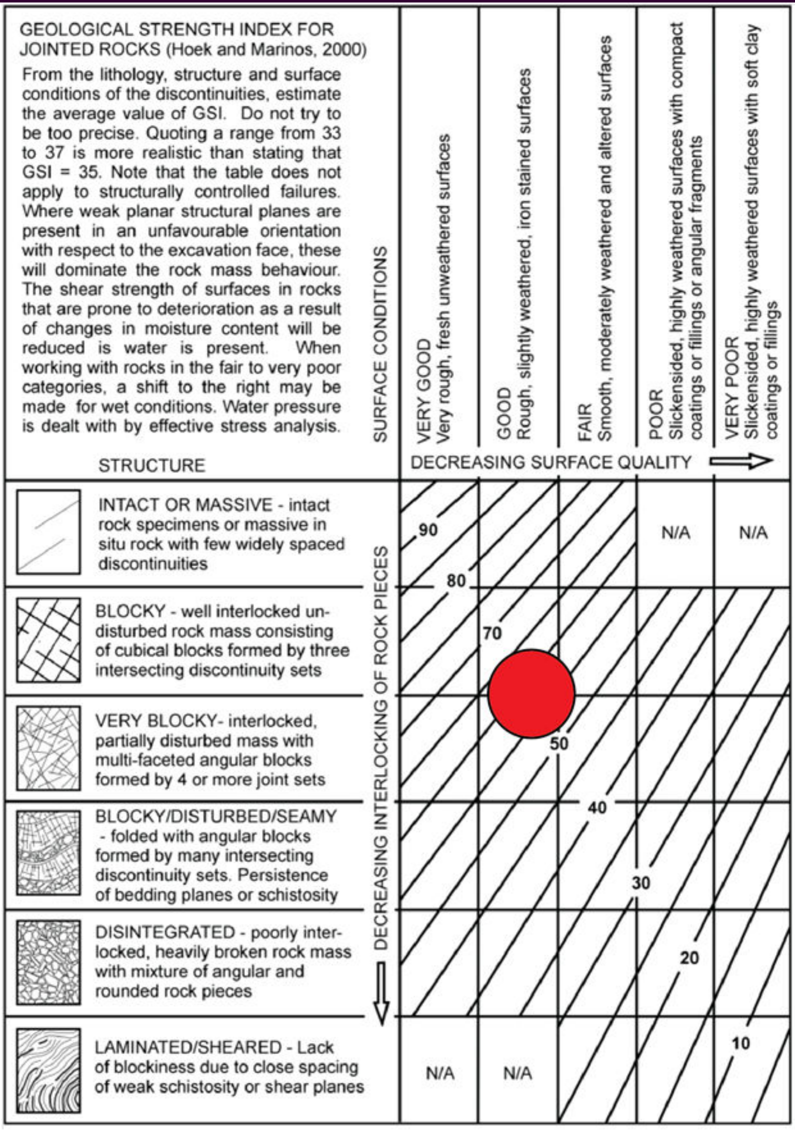

Figure 4: GSI Chart displaying the range of values from 50-65 as found at the outcrops of the Mangapapa landslide dam and surrounding rock mass (modified from Marinos et al., 2005).

Discontinuities

Terrestrial photogrammetry is a technique which creates 3D photographic models of rock outcrops, and allows discontinuity measurements to be recorded from these models (Sturzenegger and Stead, 2009). It involves taking two digital photos from different angles of a target on the rock slope. These camera positions and the target on the rock slope are surveyed using high precision RTK GPS to allow the models to be georeferenced, and therefore discontinuity measurements made from them. It is useful for surveying discontinuities at a larger scale than possible with compass measurements, and at hazardous and inaccessible outcrops (Sturzenegger and Stead, 2009). At the Mangapapa landslide four 3D models of the inaccessible headscarp were created (a model is shown in Figure 5), and combined with compass measurement from rock outcrops in the vicinity of the landslide dam. The resultant discontinuity pattern was complex with many shallow angle discontinuities being a result of surface stress unloading and weathering due to removal of material at the surface. Four sets were defined – all high angle joints at 86°/354°; 83°/316°; 78°/091°; and 86°/063° set orientations. Kinematic analysis was undertaken at the Mangapapa landslide to determine if there were structural controls on failure. Wedge failure is not possible at Mangapapa, and there is negligible chance of planar sliding occurring. However a substantial concentration of poles fall within the toppling region (Figure 6). It is probable that this toppling occurred as flexural toppling.

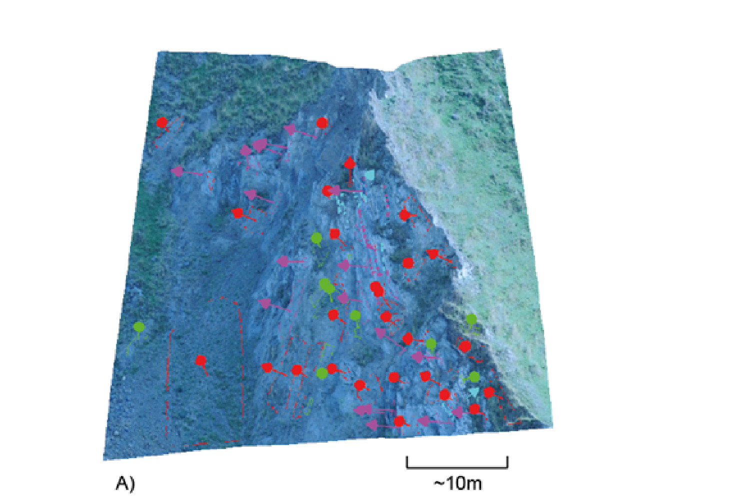

Figure 5: Two dimensional images of a 3D photo model of the headscarp of the landslide, created from two 50mm lens photographs.

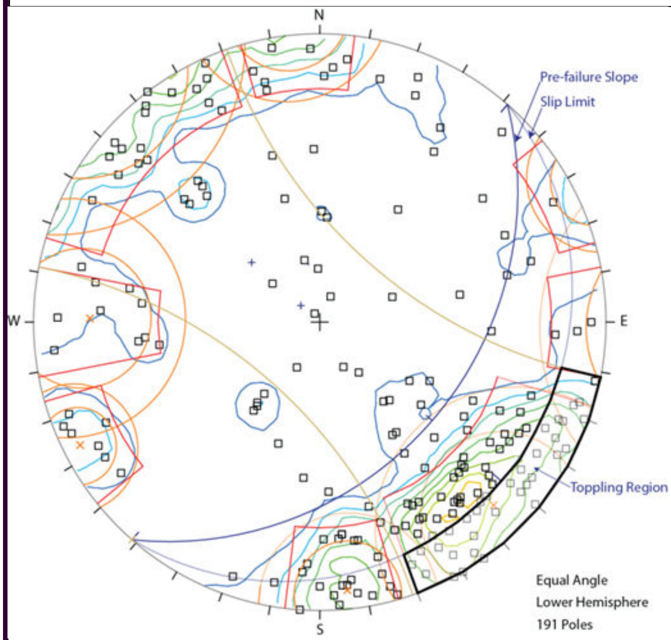

Figure 6: Stereonet displaying kinematic analysis for toppling failure. The black box defines the toppling region, with the red boxes defining the discontinuity sets.

Flexural toppling

Adhikary et al. (1997) defines flexural toppling as failure involving the bending of rock columns formed by a single set of closely spaced, steeply dipping discontinuities (Figure 7). These columns bend forward under their own weight and transfer their load to underlying columns until failure occurs. However, the mechanism of flexural toppling, i.e. how do the rock columns bend, is poorly understood, as it is common for there to be no discontinuities to form basal failure planes (Adhikary et al., 1997). A lower angle discontinuity was observed in the field, but not picked up in the terrestrial photogrammetry analysis. This may form a basal rupture surface. It may have formed when the columns bend and steepen existing cross joints, or form hinge surfaces (Cruden, 1989; Nichol et al., 2002). Therefore this possible rupture surface identified in the field may represent a cross-joint or hinge surface. Cruden and Varnes (1996) state that sliding occurs in when the accumulated overturning of the columns steepens the cross-joints enough for sliding to be possible. These cross-joints or hinge surfaces provide rupture surfaces for rotational slides (Nichol et al., 2002), which is what the morphology of the Mangapapa landslide represents. This type of toppling is a retrogressive failure, with movement occurring at the toe of the slope, and moving up the slope with the development of deep tension cracks (Cruden and Varnes, 1996). This type of failure increases the secondary permeability of the rock mass, resulting in a decreased rock mass strength.

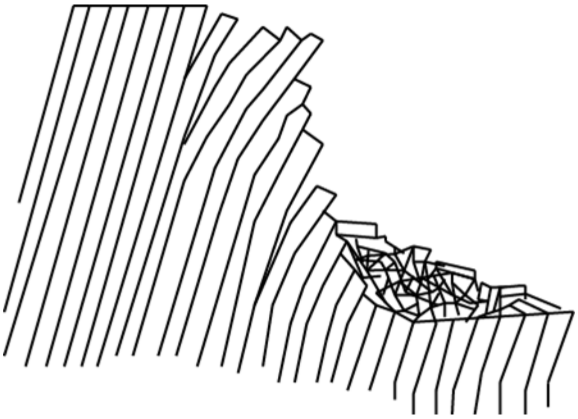

Figure 7: Schematic of the mechanism of flexural toppling

Modelling

Limit equilibrium method of slices technique was used to analyse the stability of the hillslope pre-failure. This modelling was used to determine the factor of safety of the slope, and the critical slip surface (which has the lowest factor of safety). Two base models were created with different rock mass strengths: a full strength and residual strength model. The rock mass properties were defined using Mohr-Coulomb parameters, which were in turn defined using an estimate of the unconfined compressive strength, GSI and Mi of the Mangaweka mudstone. The initial factor of safety for the full strength model was 1.63 (obtained using Morgenstern and Price method), with increasing pore pressure (defined as Ru – pore pressure ratio) decresing the factor of safety to 1.28. The residual strength model starts with a factor of safety of 1.24, and fails at high water pore pressures (shown in Figure 8)

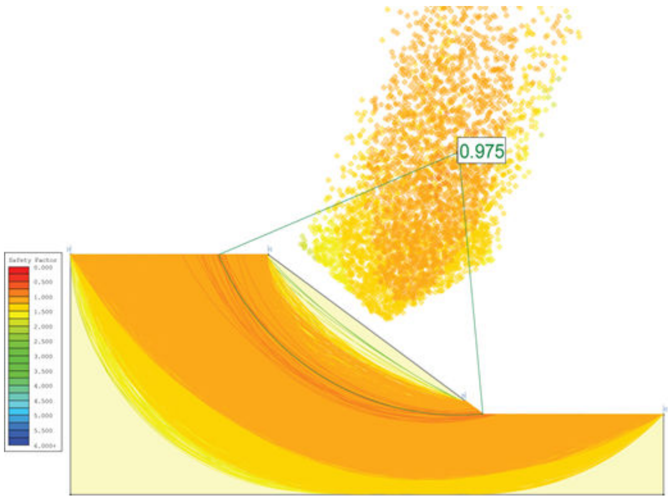

Figure 8: The residual strength rock mass model with a Ru value of 0.3 results in slope failure.

Dam Stability

Landslide dams are a common but complex geomorphic phenomenon, which present direct and indirect mass movement hazards. Costa and Schuster (1988) analysed 225 landslide dams and determined that 50% of dams fail within 10 days of formation, and 90% failed within a year of formation. Research on landslide dams has concentrated on defining the parameters and properties which control the stability of the dams (Casagli et al., 2003; Costa and Schuster, 1988; Dong et al., 2009; Ermini and Casagli, 2003; Korup, 2002, 2004, 2005; Mandrone et al., 2007). Several indices and equations have been developed to quickly and successfully predict the stability of the dams - based on the geomorphology of the dams (Ermini and Casagli, 2003; Korup, 2004). These equations were used to assess the stability of the Mangapapa landslide dam. They provided varying responses – with the classification ranging from stable to unstable. This highlights the ambiguity and the over-simplification of important variables in these equations (Dunning et al., 2005). These indices have a 'black-box' approach, simply classifying dams as either stable or unstable (Dunning et al., 2005). It is interesting to note that the Mangapapa landslide is still impounding a lake, which is above the level of the drainage channel. This is similar to the Young River Landslide Dam, in the South Island which also formed a 'stable' channel after initial overtopping (Massey et al., 2011). It is possible that this dam remnant may erode away or be overtopped again, and the lake level may be lowered.

Conclusion

The Mangapapa landslide represents a case study of flexural toppling in a very weak rock mass. It was the weakness of the intact rock mass which allowed flexural toppling to occur. The steep toppling discontinuity set of the headscarp had an adverse orientation with respect to the slope aspect of the Managapapa hill. This toppling discontinuity led to an increased degradation of the weak strength Mangaweka Mudstone, by enhancing the secondary permeability along defects, and thus the percolation of water and associated weathering and chemical degradation of the joints. The 2004 storm event provided the final trigger for slope failure. The mechanism of instability was a flexural toppling circular failure, creating the rotational slide morphology of the Mangapapa headscarp. There was strong correlation and agreement between the story told by the structural information and limit equilibrium modelling. The Mangapapa landslide dam has been breached with an erosive channel formed through the deposit; however it still impounds a lake. The dam probably has been breached more than once, and therefore does not fit the simple categories of stable and unstable dams defined by the geomorphic indices. It is possible that the dam may be breached again, lowering the lake level.

Acknowledgements

The authors wish to thank the NZ Geoscience Society for the S.J. Hastie award, and the University of Auckland for scholarship awards. Thanks to C.Wong, M.Frank, and T. Linnell for assistance in the field.

References

Adhikary, D.P., Dyskin, A.V.J., R.J., and Stewart, D.P., 1997, A study of the mechanism of flexural toppling failure of rock slopes: Rock Mechanics and Rock Engineering, v. 30, p. 75-93.

Casagli, N., Ermini, L., and Rosati, G., 2003, Determining grain size distribution of the material composing landslide dams in the Northern Apennines: sampling and processing methods: Engineering Geology, v. 69, p. 83-97.

Costa, J.E., and Schuster, R.L., 1988, The formation and failure of natural dams: Geological Society of America Bulletin, v. 100, p. 1054-1068.

Cruden, D.M., 1989, Limits to common toppling: Canadian Geotechnical Journal, v. 26, p. 737-742.

Cruden, D.M., and Varnes, D.J., 1996, Landslide types and processes, *in* Turner, K.A., and Schuster, R.L., eds., Landslides: investigation and mitigation, Volume Special report 247: Washington D.C., National Academy Press, p. 36-75.

Dong, J.J., Tung, Y.H., Chen, C.C., Liao, J.J., and Pan, Y.W., 2009, Discriminant analysis of the geomorphic characteristics and stability of landslide dams: Geomorphology, v. 110, p. 162-171.

Dunning, S.A., Petley, D.N., Rosser, N.J., and Strom, A.L., 2005, The morphology and sedimentalogy of valley confined rock avalanche deposits and their effect on potential dam hazard *in* Hungr, O., Fell, R., Couture, R., and Eberhardt, E., eds., Landslide Risk Management: London, Taylor & Francis, p. 691-701.

Dymond, J.R., Ausseil, A.G., Shepherd, J.D., and Buettner, L., 2006, Validation of a region-wide model of landslide susceptibility in the Manawatu-Wanganui region of New Zealand: Geomorphology, v. 74, p. 70-79.

Ermini, L., and Casagli, N., 2003, Prediction of the behaviour of landslide dams using a geomorphological dimensionless index: Earth Surface Processes and Landforms, v. 28, p. 31-47.

GNS, 2011, Active fault database, Volume 2011: Lower Hutt, Institute of Geological and Nuclear Sciences.

Hancox, G.T., and Wright, K., 2005, Landslides caused by the Febraury 2004 rainstroms and floods in southern North Island, New Zealand, p. 32.

Kamp, P.J.J., Vonk, A.J., Bland, K.J., Hansen, R.J., Hendy, A.J.W., McIntyre, A.P., Ngatai, M., Cartwright, S.J., Hayton, S., and Nelson, C.S., 2004, Neogene stratigraphic architecture and tectonic evolution of Wanganui, King Country, and eastern Taranaki Basins, New Zealand: New Zealand Journal of Geology and Geophysics, v. 47, p. 625-644.

Korup, O., 2002, Recent research on landslide dams - a literature review with special attention to New Zealand: Progress in Physical Geography, v. 26, p. 206-235.

Korup, O., 2004, Geomorphometric characteristics of New Zealand landslide dams: Engineering Geology, v. 73, p. 13-35.

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The Tauranga Eastern Link Project is one of New Zealand's very own Mega Projects weighing in at $450M and comprising of 23km of new motorway.

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Responsibilities include:

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- Following all work instructions and test methods in accordance with New Standards

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- At least 2-3 years' experience in Laboratory testing
- Technical knowledge and skills to ensure a high level of accomplishment
- Computer literacy in Microsoft Word and Excel

Further you will have excellent customer liaison skills, initiative and an ability to complete work without supervision. If you think you have what it takes to make the step up then apply now!

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Successful applicants will be required to pass a pre-employment medical and drugs screen.

The John Evans Award

The CETANZ conference of 2012 dawned the beginning of a new tradition, the inaugural John Evans Award, which is contested by all presenters at every CETANZ conference and presented to the best judged paper and or presentation.

John Evans sadly passed in early 2010 and will be remembered by CETANZ for his efforts as a founding member of CETANZ and playing an intrical part of the success that CETANZ has enjoyed to date.

John worked in the industry for 45 years which involved working in the Ministry of Works days in Turangi, the Kaimai tunnel project, Huntly power station and later in his career, the OPUS laboratory on Auckland's North Shore.

John was totally committed to the industry and had a wide range of knowledge on a number of areas which include a vast amount of practical and theoretical wisdom. He was well known for developing young staff and was very committed to ensuring that the future of his industry was enriched with anything he could pass on. Most notably, late in his career he was a key leader in developing the recently commissioned laboratory qualification.

A long-time colleague and good friend of John's was Dave Hotham who had the pleasure of presenting the award to its first recipient, Paul Burton. Paul presented on Post-earthquake site investigations, Christchurch September 2010.

Well done Paul and the CETANZ committee look forward to awarding the next recipient at the 2014 conference.