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# The Dirt Digger

News from 12d Solutions



## Welcome

...to the July 2010 issue of the Dirt Digger.

We are constantly reviewing and improving our administrative processes; product and company communications; and last but certainly not least, 12d Model itself.

In this issue we will look at:

- Case Study: Jabal Khanadama Development -Mecca.
- Winner: 'Sales Region of the Year'
- An in-depth look at the '12d Model International User Conference 2010'
- More Power To Super TINs
- New LINZ Support
- Subsurface Utilities Engineering
- Latest Brochure Download Links

With so much happening we are struggling to keep 'The Dirt Digger' to only 4 pages. Rest assured that as news breaks we will keep you posted via email.

Regards,

Dr Lee Gregory Mr Alan Gray

Managing Director Technical Director lee.gregory@12d.com alan.gray@12d.com

## Sales Region of the Year

It's official – Queensland is 12d Model's number one sales region again. This victory was announced at our Conference in March, and was met with no great surprise overall...they just keep doing it!

Financial Year 2008/2009 was another successful sales year overall for 12d Model, despite the Global Financial Crisis, but this success was reflected particularly keenly in Queensland.

A big 'thank you' goes out to all our loyal customers, and a big 'welcome' to all our newcomers.

## Case Study: Jabal Khandama Development - Mecca

## **Outline:**

This case study is based on the **urbanisation project** covering 60 ha in the immediate neighbourhood of Mecca and is estimated to cost over US\$3 Billion.

The site is on the western side of **Khandama Mountain**, which overlooks the **Holy Mosque of Al- Haram** and the royal palaces.

The proposed development includes a range of hotels, seasonal services, permanent residential apartments and retail shopping complexes. It creates efficient and safe pedestrian links to the Holy Mosque and complements the surroundings of the Al Haram.



## **Background:**

**Buro Happold** was commissioned to produce **Earthworks, Road Design** and to create a **3D landform model** for master planning.

Other services included **utility coordination** and **geotechnical studies**.

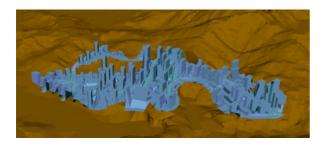
Due to the extremely high number of Muslims that visit the Al-Haram, be it for the **annual pilgrimage** to the Holy Mosque (during **Ramadan**) or simply for daily prayer, there has become a need for long-term accommodation in the adjacent mountains.

Khandama, with a prime location looking down onto the Mosque, is ideal for both visitors and investors.

## Methodology:

As the project is at the **master planning stage**, some of the design was of high-level and therefore did not require too much detail.

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The topography required a detailed 3D model to understand the site's constraints, as well as the complexity of the project.

12d Model was used to create both an earthworks tin. and a finished surface tin.

With height differences across the site of up to 120m. both the Architects and Engineers used this model to help with the design.

#### Issues:

A number of issues were evident before the actual project began; main points are as follows:

- The sheer volume of people who visit Mecca. Access is required to and from the holy mosque all V10 Sneak Previews year round.
- The steepness of the site. Levels varied so much number of exciting developments were shown at the that rock cuttings of up to 50m are required in the design. This also leads to a huge amount of excavation.
- A number of road tunnels exist underneath Khandama Mountain. A minimum clearance of 14m must remain to avoid any damage from foundations.
- · Existing watercourse running under the proposed site (holy water).

Saudi Highway Standards state that no road shall have a maximum grade of more than 8%.

This became an issue right from the planning stage, with existing slopes of up to 40%.

12d Model helped determine the best alignment for each road to keep within these strict guidelines.

Proposed access to the hotels / apartments will be through a number of roads and pedestrian radial spines. Thank you to those who have already submitted

These spines, facing in the Al-Haram direction, will give pedestrians free-flowing access to the mosque and provide a safe environment - something that is lacking at present.

An existing river runs beneath Khandama Mountain. This river contains holy water, known as **Zam Zam** water. The water is extremely sacred in this area, and thus no buildings works are to affect it.

For this reason, and because of the location, a maximum excavation level was adopted to prevent any such contamination.

## **Accreditation:**

Created by: Andrew Paterson Position: Senior Civil Designer Company Name: Buro Happold

Company Location: London, United Kingdom

Website: www.burohappold.com

## The 12d Model International User Conference 2010

Our latest 12d Model International User Conference, which was held on 7th, 8th and 9th March 2010 at the Brisbane Convention and Exhibition Centre (BCEC), Queensland, turned out to be another great success.

Over **400 people attended** over the course of the three days! Conference delegates were given a wealth of opportunities to interact with 12d Solutions staff and other experienced 12d Modellers, with benefits expressed to us by many.

## Thank You To Our Presenters And Sponsors

A huge 'thank you' goes out to all those who presented papers which covered all areas of surveying and civil design – your contributions were such an important part of making the Conference a success.

Also a special 'thank you' to our wonderful sponsors -Brown Consulting, XP Software and Dalton Consulting Engineers (DCE).

**12d Model 10** is now entering the **Beta** stage and a conference including:

- **Dynamic GIS Interface** where presenters hooked up live to ARC GIS systems in Bundaberg and St Paul (USA) to obtain background photos and data directly from the GIS systems.
- **Timelines** moving vehicles, trains and planes can now be part of 12d Visualisations, and also used for construction sequencing and traffic simulations.
- **Design Components** provide libraries of intersection and roundabout objects for quick insertion into a design in both 2D and 3D.
- **12d Field Pickup** provides the ultimate approach to survey data collection with 12d's unique hierarchical attributes with simple-to-manage coding, templating and instrument control, all in the field.

### Conference Evaluation Surveys

Conference Evaluations. The feedback so far has been almost invariably positive.

We will endeavour to utilise as many user suggestions as possible in our planning for the 12d Model User Conference 2012 (plans are already underway!), so please keep those Evaluations coming.



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#### **Dinner & Entertainment**

The three-course Conference Dinner was held in BCEC's Plaza Ballroom. This was an excellent venue, conveniently located within the Centre.

A special thanks must go to our performer, **The Space Cowboy**, who not only wowed the audience with his amazing and death-defying stage routine, but also spent time after his show doing close-up performances with audience members up the back of the room, whom he feared might not have been able to see his act adequately.

Excerpts from his performance will be on the **Conference DVD** which is currently in production.

## Birds Of A Feather - Users' Vote of Approval!

One recurring suggestion from delegates in the past was that we devote more time to the daily 'Birds of a Feather' sessions, so we allocated **two hours per day** to them at this Conference.

For those who haven't attended a 12d User Conference, these sessions involved **breaking into smaller groups** so attendees can attend any of the six **special tutorials**, or wander from **stand to stand** asking more detailed questions about any aspect of 12d Model, or about other products or companies on display.

Stands included Queensland Transport And Main Roads, BricsCAD, CatchSim, CR Kennedy (Leica), Forum8 (Visualisation), Global Pos (Javad), Pacific Data Systems (radios & tablets), Position Partners (Topcon), Sitech Solutions (Trimble) and XP Software.

We can't wait to see you at the next Conference in 2012.

## Super TIN Functionality Extended with V9C1d

A unique feature of 12d Model is the Super TIN, which allows surfaces to be dynamically combined so if one or more of the surfaces change, the Super TINs automatically update.

The powerful Super TINs worked with many 12d Model options but in **Version 9 C1d**, Super TINS support has been extended to almost every option including exact volumes, contouring, and visualisation.

## **TAKE ADVANTAGE & UPGRADE TODAY!**

## New LINZ Support

Monday 24th May 2010 was another big day for Land Information New Zealand's Landonline and New Zealand's Cadastral surveyors, with the introduction of the new "Rules for Cadastral Survey 2010". The days prior to this date found surveyors frantically trying to get all their surveys into Landonline before the roll-over. With no live testing facilities available beforehand, Monday was always going to be interesting to say the least.

12d Solutions produced a full working version on time and our Users starting testing this out from the earliest possible moment. The rules required a new LandXML version (V1.2), enumeration changes, new checks and mappings, which all had to lodge as seamlessly as our Users have come to expect.

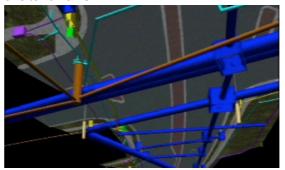
The first week was eventful but very smooth for 12d Model, with some of the first Landonline plans being lodged via the **new 12d Model** interface.

## Subsurface Utilities Engineering (SUE)

With its powerful modelling capabilities and instant visualisation, 12d is at the forefront of the exciting new area of **subsurface utilities engineering**, or **SUE** for short.

**12d Model easily combines data** from paper records, GIS systems, outputs from the new generation of location devices and 12d surveys to produce 3D subsurface utility models for use by 12d designers.

When construction begins, 12d Field not only sets out the design and new utilities, but can record the actual position of all the new works to provide continual clash warnings for future works. So, redesigns can be done to avoid problems rather than expensive onsite reworks.



## **Latest Downloads - Brochures**

**Utilities & Urban Drainage** 

http://12d.co.uk/download\_file/view/190/

Survey

http://12d.co.uk/download\_file/view/187/ 12d Field

http://12d.co.uk/download\_file/view/185/ <u>Earthwork & Volume Analysis</u>

http://12d.co.uk/download\_file/view/183/

## SALES & SUPPORT AUSTRALIA

## **NSW, ACT & SA**

Tony Ingold Extra Dimension Solutions tingold@exds.com.au Ph. (02) 9452 6771(sales) Ph. (02) 9453 9449 (tech)

#### WA - Design

Maria Bernhagen Critical Image criticalimage@bigpond.com Ph. 0412 559 019

### WA - Survey

Graham Wirth graham.wirth@12d.com Ph. (02) 9970 7117

#### VIC

Matt Stephens 12d Solutions vic12d@gmail.com
Ph. (03) 9530 2753

#### QLD & NT

12d Solutions Ph. (02) 9970 7117(sales) qld.sales@12d.com

## UK, EUROPE, MIDDLE EAST & AFRICA

Joel Gregory 12d UK joel.gregory@12d.co.uk Ph. +44 (0) 845 051 372

## **NEW ZEALAND**

Lane Irwin 12d NZ lane@12d.co.nz Ph. +64 27 477 7787

## **USA & CANADA**

Lori Abbey XP Software lori@xpsoftware.com Ph. +1 (888) 554 5022

## **ASIA**

Phil Davies 12d Asia phil.davies@12d.com.sg Ph. +65 9026 0402

## **JAPAN**

Anita Byrnes Forum8 anita@forum8.co.jp Ph. +61 2 9130 1448

MALAYSIA - Design

Caruppaiya Natarajan Astasoft caru@astasoft.com.my Ph. +60 3 8075 6133

#### FI.I

Kevin McConell Lukemine Enterprises lukemine@connect.com.fj Ph. +679 337 0858

3D Consultants – Bangladesh 3D Engineering Surveys Pty Ltd – Qld 4M Civil – WA 4M Civil – WA
Abigroup Contractors Pty Ltd – NSW,
Qld, Vic
Acor Consultants Ltd – NSW
Acor Baseline Consultants Pty Ltd – NSW, Qld ADW Johnson – NSW AECOM – ACT, NSW, Qld, SA, Vic, WA; NZ; UAE Ahern James Naismith Surveyors – Qld Akiyama Yuabisu Construction Co. Ltd – Japan Al Futtaim Carrillion – UAE Al Jaber Construction – UAE All Jaber Construction – UAE All Surveys – Qld Alluvium Consulting – Qld Aman Manusia Sdn Bhd – Malaysia Arabian Investments – Oman Arup – NSW, Qld, Vic; London Aspect Infrastructure Design Limited -UK ASR Ltd – NZ Asset Mapping and Surveying – NSW Aurecon Group – Brisbane, Perth; NZ; UAE
Aurum Survey Consultants Limited – NZ
Ausenco – Old
Australian Defence Force – Afghanistan
Australian Water Environments – SA
AWJ Earthmoving – NSW
Ayson & Partners – NZ
B T W South Ltd – NZ
Bangkok Metropolitan Administration –
Thailand Thailand Bankstown City Council Civic Design Services – NSW Services – NSW
Barlow Gregg VDM Pty Ltd – Qld
Barwon Water – Vic
Bass Coast Shire Council – Vic
BCL Surveyors Ltd – NZ
Beasley and Burgess Surveyors Ltd – NZ
Beca Infrastructure Ltd – NZ
Belhasa Six Construct LLC – UAE
Bennett and Bennett – Qld
Bennett and Bennett – Qld Bereza Civil Surveys – ACT Beveridge Williams – Vic BG & E Consulting Engineers Pty Ltd – BGC Contracting Pty Ltd – Qld, WA Bhutan Power Corporation Limited – Bhutan Power Corporation Limited –
Bhutan
Bill Guy & Partners – ACT
Black and Veatch – UK
Black Creek Engineering Surveys – NSW
Blackman Surveyors Limited – NZ
Blacktown City Council – NSW
Bland and Howarth Ltd – NZ
Bloxam Burnett and Olliver Ltd – NZ
BMD Group – Brisbane, Sydney,
Townsville BMD Group – Brisbane, Sydney,
Townsville
Bodley Brothers Ltd – NZ
Bonacci Group Pty Ltd – Qld, Vic
Boyd and Moore Pty Ltd – Qld, Vic
Boyd and Moore Pty Ltd – Qld
BPA Engineering Pty Ltd – WA
Brandon & Associates Pty Ltd – Qld
Breese Pitt Dixon – Vic
Brisbane City Council – Qld
Brisbane City Works – Qld
Brook & Associates – Qld
Brook & Associates – Qld
Broome Survey Services – WA
Brown Consulting (Aust.) Pty Ltd – ACT,
NSW, Qld, Vic
BRR Nias Selatan – Indonesia
Buckton Consultants Ltd – NZ
Bundaberg Regional Council – Qld
Burchill VDM Pty Ltd – Qld
Burchill VDM Pty Ltd – Qld
Burchill VDM Pty Ltd – Qld
Calibre Projects Pty Ltd – Qld, WA
Cansult Maunsell AECOM – UAE
Capita Symonds – UK
Cardno – NSW, Qld, NT, Vic, WA; NZ;
UAE
Cato Bolam Consultants Limited – NZ
CR Constructions – Old Townsville Cardinio – NSW, Cidi, NT, Vic, WA, NZ, UAE

Cato Bolam Consultants Limited – NZ
CB Constructions – Qid
Central Goldfields Shire – Vic
Central Japan Railway Company – Japan
Central Surveys Ltd – NZ
CH2M Hill – NSW
Charles O'Neill Pty Ltd – Qld
Charters Towers Regional Council – Qld
Charters Towers Regional Council – Qld
Charles Towers Regional Council – NZ
Christchurch City Council – NZ
Christchurch Polytechnic Institute of
Technology – NZ
City of Charles Sturt – SA
City of St Paul Public Works – USA
Civil Contractors (Aust) Pty Ltd – Qld
Civil Dimensions Pty Ltd – Qld
Civil Engineering and Construction Givil Engineering and Construction Surveys – Qld Civil Services (HB) Ltd – NZ CKL Surveys Limited – NZ Clarence Valley Council – NSW

Welcome Aboard...apologies we have a back log & we are endeavouring to list all clients.

Parallalance (John Holland) – NSW

Hutch Engineering Surveys Pty Ltd – Qld

Ltd – NZ

CLC Consulting Group Ltd – NZ

Clough Engineering Ltd – Qld

COMS Surveyors – NSW

consultants Ltd – NSW

aseline Consultants Pty Ltd –

Coatswide Surveys Ltd – NZ

J. Wyndham Prince – NSW

Qld Departn

Coats Harbyur City Council – NSW

Roads – RSW

Roads – Roads coastwide Surveys Ltd – NZ
Coffs Harbour City Council – NSW
Coleman Engineering Services – ACT
Complete Urban Pty Ltd – NSW, Qld
Construction Geomatics Pty Ltd – Qld
Consulting Engineers Group – India
Contour Surveys – NZ
Cook Shire Council – Old Cook Shire Council – Qld
Cossill and Webley – WA
Covey & Associates Pty Ltd – Qld
CPG – Vic; NZ Cross Geomatics Pty Ltd – Qld Cross Roads Civil Design – NSW Cross Roads Civil Design – NSW
CSC Consulting – Qld
CSM Group Pty Ltd – Qld
CTC Surveys Ltd – NZ
Currahee Solutions – NSW
Custom Spatial Solutions – SA
Cuttriss Consultants Ltd – NZ
Dalby Regional Council – Qld
Dalton Consulting Engineers – Vic
Daniel Di-Mattina – Qld
Dar Mazen Al-Sane Engineering
Consultant – Kuwait Consultant – Kuwait
Darwood Engineering Consultancy – Darwood Engineering Consultancy –
Sultanate of Oman
Davie Lovell Smith Ltd – NZ
Davorin Zivkovic – Vic
Decmil Australia Pty Ltd – WA
Demeyne Aviation – ACT
Dennis Price and Miller Pty Ltd – Vic
Department of Defence (Army) – NSW
Department of Infrastructure, Planning
and Land Services – WA
Department of Military Worke – ILAE Department of Military Works – UAE Department of National Roads – Fiji Department of Works – Papua New Guinea Dinas Bina Marga Kab, Purwakarta -Indonesia DKS Consulting – Qld
D.M. Rosborough Drafting Services Pty Downer EDi Works Pty Ltd – Qld, WA DPI – Construction Division NT – NT DTEI – SA DTEI – SA
Dubai Gulf Contracting LLC – UAE
Dubai Men's College (Higher Colleges of
Technology) – UAE
Dubbo City Council – NSW
Dungog Shire Council – NSW
Earl Covington & Associates – Qld
Easdale Surveyors Ltd – NZ
Fargry Surveys – NZ Easdale Surveyors Ltd – NZ
Energy Surveys – NZ
Engenium Pty Ltd – WA
Engineering and Mapping Surveys Pty
Ltd – Qld
Engineering Surveys – SA
Environment Canterbury – NZ
Ergon Energy – Qld
ESO Surveyors – NSW
Etec Consultants – WA
ETS Group – Old ETS Group – Qld Eurobodalla Shire Council – NSW Eurobodalia Snire Councin – NSW
Expedition Engineering – UK
Farr Engineers Associates Pty Ltd – Qld
Fletcher Construction Company Ltd – NZ
FMG Engineering – SA
Forbes-Brown Civil Limited – NZ
Fredriksen MacLean & Associates – Qld Fredman Wilson Surveying – Qld Frogyz Limited – NZ Fyfe Pty Ltd – SA GEO Image Services – NSW GeoMatic Surveys – NZ GHD – Brisbane, Melbourne, Perth; Qatar Gladstone Regional Council – Qld Gold Coast City Council – Qld Graeme Wylde – NZ GRD Minproc Limited – Qld, WA Griffith City Council – NSW Griffith University – Qld Haigh Consultants Ltd – NZ Haigh Consultants Ltd – NZ
Halcrow – Old; Qatar
Halls Fripp Surveying – Old
Hard and Forester – NSW
Harper Somers O'Sullivan – NSW
Harrison Contracting Limited – NZ
Harrison Grierson – Auckland, Manukau,
Parnell, Tauranga (NZ)
Hatch Associates – Old; New Caledonia
Hawker Moss Surveyors – WA
Hendriks House – Old
Henwood Consulting Engineers – Old
Hervey Bay City Council – Old
Hick Bros Civil Construction Ltd – NZ
Horizon Surveys Pty Ltd – WA
Housing Authority – Fiji Housing Authority – Fiji HPSurvey – WA HSS Engineering Sdn Bhd – Malaysia Hughes & Associates – NZ

JDSi Pty Ltd – WA Jeff Brown Surveys JKR Negeri Kelantan – Malaysia John Fillmore Contracting Ltd – NZ John Holland Group – NSW, Qld Jones Flint and Pike Pty Ltd – Qld Jones Filint and Pike Pty Ltd – Qld
Jones Filint and Pike Pty Ltd – Qld
JSA Consulting Engineers – UK
J.T. Metro JV – UAE
JTW Surveys Ltd – UK
Kea Consultants Ltd – NZ
Kellogg Brown and Root – NSW, Qld, WA
Kempsey Shire Council – NSW
Kerry Surveys – ACT
Kevin Lonergan – NSW
Khansaheb Civil Engineering LLC – UAE
KLM Spatial – Vic
KN Group – Qld
Knobel Consulting – Qld
Knobel Consulting – Qld
Kolej Poly-Tech MARA, Kuantan –
Malaysia
Laing O'Rourke (BMC) Pty Limited –
NSW
Lamb and Molloy Ltd – NZ NSW
Lamb and Molloy Ltd – NZ
Lambert and Rehbein Pty Ltd – Qld
Lanco Group – Vic
Land and Marine Surveying Limited – NZ
Land Dimensions Ltd – NZ
Land Limited – NZ
Land Partners Limited – NSW, Qld
Lands and Survey Department – Fiji
Larsen and Toubro Limited – India
LBS Engineers – Solomon Islands
Leighton Abigroup JV – Qld
Leighton Contractors – NSW, Qld; UAE;
Indonesia Indonesia Indonesia Lendrum & Associates – NZ Leucor Enterprises Pty Ltd – Qld Local Government Engineering Services – NSW NSW
 Locaters – NSW
 Logan City Council – Old
 Lynton Surveys Pty Ltd – NSW
 McConnell Dowell – Vic
 McDowall Affleck Pty Ltd – WA
 Mackay Regional Council – Old
 McMurtrie & Associates – Old
 Main Roads Western Australia – Marin Hodds Western Australia – WA Maranoa Regional Council – Qld Mark Clancy – Qld Martens & Associates – NSW Matteo Ascenzo Design Enterprises Pty Matteo Ascenzo Design Enterprises P
Ltd – Vic
MCM Design and Management – Vic
Meinhardt – NSW, Vic
MH Surveys – ACT
Millar I Merrigan – Vic
Mine Survey Services – WA
Minstaff Survey Pty Ltd – Qld
Moreton Bay Regional Council – Qld
Monteath and Powys Pty Ltd – NSW
MPA Surveying Pty Ltd – Qld
MPN Consulting – Qld
MS MGM Consulting Engineers –
Ethiopia M/S MGM Consulting Engineers –
Ethiopia
MS Sunder Trading Co. – Pakistan
Muir Associates – Ireland
Murray Hislop Surveyors – NZ
MWH – Qld; NZ
Napier City Council – NZ
National Survey Authority (Ministry of
Defence) – Sultanate of Oman
Nawnham Karl Wair & Partners – NSI Newnham Karl Weir & Partners – NSW Nexaldes – UAE Nexaldes – UAE
NSW Department of Services,
Technology and Administration – NSW
O'Neill Surveying Ltd – NZ
Ontrack (NZ Railway Corporation) – NZ
Opus – Darwin, Toowoomba; NZ
Ostwald Bros Civil Pty Ltd – Old
Pacific Fonineering Surveyors – Old Pacific Engineering Surveyors – Qld
Pacific Survey Pty Ltd – NSW
Papuan Oil Search Limited – NSW
Parsons Brinckerhoff – NSW, Qld, SA, Vic, WA; Philippines Paterson Pitts Partners Ltd – NZ Paterson Pitts Partners Ltd – NZ
Pattle Delamore Partners Ltd – NZ
Pattle Delamore Partners Ltd – NZ
PDM Surveys – Qld
Pirie Surveying Ltd – NZ
Portarlington Holdings Ltd – NZ
Precision Enterprises Pty Ltd – WA
Precision Survey Group Pty Ltd – NSW
Price and Myers – UK
Pritchard Francis Pty Ltd – WA
Pritchard Group Ltd – NZ
Probuild Civil (QLD) Pty Ltd – Qld
Projex North Pty Ltd – Qld
ProSurv Pty Ltd – NSW, Qld
PT BK Global Lestari – Indonesia
PT Dhanar Mas Concern – Indonesia
PT Kalimantan Citra Bara – Indonesia
PT Kideco Jaya Agung – Indonesia

PT Pama Persada Nusantara -Indonesia PT Saptaindra Sejati – Indonesia PT United Tractors Semen Gresik – Indonesia Riccinesia
Pulver Cooper and Blackley – NSW
Old Department of Transport and Main
Roads – Brisbane, Cairns, Nerang,
Rockhampton, Toowoomba
Cuestral Figirited - Vice Quantm Limited – Vic Rak Ceramics – UAE Rand Surveys Pty Ltd – Qld Redland City Council – Qld RHM Consulting Engineers Pty Ltd – NSW NSW
Riley Consultants Ltd – NZ
Rio Tinto – Qld, WA
Roads and Traffic Authority – NSW
Robert Bird Group – NSW, Qld; UK
Rowen Meyer & Associates – Old
RPS – Brisbane, Cairns, Mackay,
Sunshine Coast, Townsville
Saba Engineering PLC – Ethiopia
Schlencker Surveying – Qld
SEE Civil Pty Ltd – NSW
Selarl Michel Grand – New Caledonia
SEMF Pty Ltd – Qld, Tas
Shankland Cox – UAE
Sheehy & Partners Pty Ltd – Qld
Simon Byrne – NT Simon Byrne – NT Sinclair Knight Merz – Adelaide Siniciali Kiligiti Metz – Adelalde, Brisbane, Cairns, Melbourne, Perth, Sydney; Fiji; Guinea; NZ; UK Singleton Council – NSW Skanska UK PLC – UK SM Urban – Vic SMEC – NSW, Qld, SA, Vic, WA; Kuwait; UK
SNC-Lavalin Australia Pty Ltd – Qld
SNL Survey – Qld
South Burnett Regional Council – Qld
South Gippsland Shire Council – Vic
Southern Land CKL Ltd – NZ
SRWP Alliance JV – Qld
Staig and Smith Ltd – NZ
SRWP Alliance JV – Qld
Staig and Smith Ltd – NZ
Stevenson Surveys Pty Ltd – NSW, Qld
Stewart Group Ltd – NZ
STP Consultants – Qld
Stringer Surveys – Qld
Structural Systems SA – SA
Subdivisions (Qld) Pty Ltd – Qld
Summer Regal Sdn Bhd – Malaysia
Sunshine Coast Regional Council – Qld
Survey 21 Pty Ltd – WA
Survey 27 Pty Ltd – WA
Survey of Pakistan – Pakistan
Surveying The Bay Ltd – NZ
Survtech – Qld
Sydney Water – NSW
TABEC – WA
Tablelands Regional Council – Qld
Tak Provincial Industry Office – Thailand
Taylor Thompson Whitting (NSW) Pty Ltd
Consulting Engineers – ACT, NSW
Tenix Alliance Pty Ltd – Qld, Vic
TGM Group – Vic
Thai Military Development Division –
Thailand
The Otago Surveying Company Ltd – NZ SNC-Lavalin Australia Pty Ltd - Qld Thai Military Development Division –
Thailand
The Otago Surveying Company Ltd – NZ
The Project Centre – UK
The Surveying Company – NZ
Thiess – Hinze Dam Alliance – Qld
Tincon Pty Ltd – NSW
TMK Consulting Engineers – SA
Tomkinson – Vic Tomlinson and Carruthers Surveyors Ltd – NZ - NZ
Tonkin and Taylor Group Ltd - NZ
Tonkin and Taylor Group Ltd - NZ
Toowoomba Regional Council - Qld
Townsville City Council - Qld
TRN Group - NSW
Twenty20 Surveys - WA
United Water - SA
URS - NSW, Qld, Vic; NZ
Vassallo Constructions Pty Ltd - Qld
VDM Group - Qld, Wa; Vietnam
Verve Energy - WA
Wallbridge and Gilbert - NSW, Vic
Water Technology - Qld, Vic
Waterman Group - UK
Wayne Davies - WA
Werner Environmental, LLC - USA Werner Environmental, LLC – USA Westera Partners – Qld WestNet Rail – WA Whelans Survey and Mapping Group Pty Ltd – WA
Whitsunday Regional Council – Qld
Wilson Survey Group (Qld) Pty Ltd – Qld
Wollongong City Council – NSW
Wood and Grieve – Qld, WA
Wood and Jepsen Consultants – Fiji
Wood & Partners – NZ
WorleyParsons – NSW, Qld, Vic, WA; Qatar; Saudi Arabia; UAE Yeoman & Associates Ltd – NZ Zektin Group – Qld Zorn Surveying Ltd – NZ