



# The Dirt Digger



## Welcome...

**t**o the December 2003 issue of the Dirt Digger. Christmas is fast approaching and our elves have packed this issue full of news for you!

We begin by congratulating NSW Distributor of 12d Model, Extra Dimension Solutions, on winning Distributor of the Year for the financial year 2003. After Queensland's 3-year winning streak, Tony Ingold and Greg Newman have stepped up to the forefront to give the Sunshine State a run for its money!

Those who regularly check our web site may have noticed two new sections - Training Courses and Customisation. Under Training Courses we list the dates for those upcoming courses which are open to all interested parties. Under Customisation, we are adding files and information relevant to particular states or countries.



We are pleased to announce in this issue the release of the next major upgrade to 12d Model version 6 (V6c2), which includes a number of general enhancements and special surveying additions as well as a new 12d Model Usage feature. The new version will be available on [www.12d.com](http://www.12d.com)

Surveying firm Tomlinson and Carruthers in New Zealand has used 12d Model extensively on an important project in Masterton. We spoke to Derek Roberts about the many benefits of using 12d Model.

In other exciting news, 12d Model is being used by the Abigroup Leighton Joint Venture (ALJV) to assist with Australia's largest urban road project, the Westlink M7 (previously known as the Western Sydney Orbital), which will fill the longest remaining gap in the orbital road network of motorways around Sydney.

12D Solutions has recently been informed by Queensland's Department of Main Roads that our file format, 12D ASCII, will be added to their Department standards. This will be of great advantage to the surveying and engineering communities of Queensland.

In this issue, as with Issue 18, we have been forced to devote our entire back page to the Welcome Aboard section to keep up with the continued backlog!

We hope you enjoy Dirt Digger 19 and look forward to any feedback you may wish to give.

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## Distributor of the Year

**W**e are pleased to announce a revolution in the competition for 12D Solutions Distributor of the Year! After a three-year run of success for the Terrific Trio from Queensland (Ian Cameron, Peter Taynton, and Noel Burton), New South Wales Distributor Extra Dimension Solutions (formerly Lakeshead Services) has crept up ahead to pip Queensland at the post! Tony Ingold and Greg Newman's sales record led the pack for the 2003 financial year. Their support for our NSW customers was also impeccable.

Congratulations, Tony and Greg, on spicing up the competition!

## New upgrade to 12d Model version 6!

**12**D Solutions has released its next major upgrade to 12d Model - V6c2. The new upgrade includes general enhancements such as a new point snap tolerance, prefixes and postfixes for grid labels, and a scale for converting paper and pixel text when outputting to AutoCAD. Interactive plot parameter editors were first introduced in V6 for long section and cross-section plots, and these have now been extended to include long section plots for drainage, pipeline and Melbourne Water sewer and drainage plan plots. Target boxes and source boxes have been added to even more options and the filter for source boxes has been further enhanced.

Special surveying additions include Trimble Link for downloading data for all Trimble instruments and uploading points, triangles and design data to Trimble instruments. Support for binary strings for TP Stakeout, exploding point strings on download and three-point line styles also enhance the use of 12d Model for surveying.

The new 12d Model Usage feature monitors single-user and network licenses (or a mix of both) whether they are installed on a single computer, a local-area network, or a wide-area network across different time zones. Reports can be generated to show 12d Model usage by computers, dongles, 12d projects, users, folders, and 12d software versions. 12d Model V6C2 will soon be on our web site.

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## The changing face of NZ surveying

**N**ew Zealand firm Tomlinson and Carruthers Surveyors Ltd has been in operation for over 55 years. It operates in the Wairarapa region (approximately 100km north-east of Wellington) and covers a radius of about 150km around its Masterton office.

Traditionally, cadastral surveying has been the firm's main focus but in recent times Tomlinson and Carruthers has branched out into more extensive roading, engineering and subdivision designs.

Surveyor Derek Roberts said, "I think the engineering design work we're now doing is increasing due to a buoyant and expanding industry, combined with new staff and a new curriculum in the New Zealand Surveying degree that has covered changing technology such as using 12d Model and GPS."

"For example, 12d Model was used extensively on a recent project in the northern end of Masterton, near a big roundabout on the way out of town. The land concerned is known as 'the horseshoe', which was part of a significant local car park."

"The project started as a straightforward two-lot subdivision to provide a council-owned car park with the balance remaining in private ownership. On closer inspection it was found that a larger than normal percentage of the land was actually being utilised as road. To formalise the situation these areas were vested as road in the ownership of the Local District Council. The back of the footpath was used to define the inside lot boundary with the outside being the existing Certificate of Title boundary (road carriageway). In conjunction with this, to the south-west there is part of a river with an open stream flowing through the area. The stream actually forms a natural boundary which we picked up to be compared with the underlying data in preparation for a future project."

"We did absolutely everything in 12d for this job, including creating all cadastral data, design, CAD and plotting. We started by creating our scheme plan (plan of proposal) in 12d which was plotted out and used as part of the application, and then survey pre-calcs were completed within 12d before visiting the site. This information was uploaded into the GPS unit directly from 12d, so when on site we were able to walk directly onto these marks via coordinates rather than having to use conventional methods. This in particular has meant a huge saving in time



and also given us a different approach to the majority of our jobs."

"The information gathered by GPS and also conventional instruments was then downloaded into 12d Model. This data was used to form the basis of the 12d traverse spread sheets through which the majority of the linework for the title and survey plans was prepared and submitted on A2 litho paper. As this project was done using GPS, we also had to use the transformation functions to work out and apply the appropriate scale factors. Using GPS combined with 12d Model's interface for processing pre- and post-data has probably halved the time required on site. A project of this nature would take approximately two weeks' worth of work spread over the different stages, including about three days in the field and five days' worth of calculations and drafting. This is phenomenal compared with the time it would have taken using conventional methods!"

"For Tomlinson and Carruthers, the major benefits of using 12d on this and similar projects have come from the 12d traverse spread sheet – in particular the way it does all the line work, point symbols and annotation of the plan all at once. This has the advantage over other software because 12d is able to calculate and annotate the true information rather than just the projected information."

"Once the information is in the 12d traverse spread sheet, the drafting is done automatically. This means the potential for human error – which occurs mainly with reading and writing at the different stages – is kept to a minimum while the whole process is simplified and sped up. We are finding that using 12d Model in conjunction with GPS is

saving us around 30-50% of our time spent on this and other projects. 12d's ability to reduce errors has served us well, particularly with the use of GPS and electronic data recorders. Though you can never beat independent checks, the Traverse Spread Sheet Drafting has removed one of the more difficult areas to police."

"Luckily, we have found that the training curve for 12d is very small, even for those with minimal CAD experience. For new users of 12d, probably half the learning time has been spent gaining an understanding of survey calculation methods rather than of 12d itself. Ease of learning was particularly facilitated by the ability to set up default files and screens to standardise procedures throughout the office and the whole firm."

"Being a former SDR Map user, I found the 12d traverse spread sheet very appealing and easy to use overall. 12d has really revolutionised our methods and our approach to the majority of our projects!"

## 12d orbits Sydney!

**12**d Model is assisting with visualisation, design interrogation, drainage and the “pegging out” of Australia’s largest urban road project, the Westlink M7 (formerly the Western Sydney Orbital).

Begun this year, the Westlink M7 will fill the longest remaining gap in the orbital road network of motorways around Sydney and is expected to cost \$1.5 billion. The Westlink M7 will be a 40km motorway with dual carriageways to be constructed between the M5/Hume Highway at Prestons and the M2 at West Baulkham Hills.

The Westlink M7 will allow safer and more efficient passenger and freight movements in Western Sydney and, by providing the link between the northern and southern motorway systems, will improve access between Western Sydney and the growing regional areas of Central Coast/ Newcastle and the Illawarra/Canberra.

The Abigroup Leighton Joint Venture (ALJV) is undertaking the design and construction of the motorway, which is scheduled for completion by the end of 2006.

SMEC/Maunsell are the designers for ALJV and have set up a dedicated design team on site. 12d Model has been used extensively for stormwater drainage design on the project. Philip Campbell (SMEC), leader of the drainage design team, said, “12d Model was used for all aspects of the drainage design, including layout of pit and pipe networks, measuring catchment areas and calculating time of concentration, design of onsite detention and water quality basins, and transverse drainage.”

12D Solutions worked closely with the design team at the start of the project to develop tools for the design/sizing of basins and for locating headwalls for transverse drainage. These routines have greatly assisted in the design of the stormwater elements. Mr. Campbell added, “12d Model’s ability to produce quality output directly to the printer enabled me to plot a drawing just minutes before a meeting, and table the latest design at the meeting.”

“Abigroup has used 12d Model for nearly seven years,” said Brett Lehmann, Survey Manager, ALJV. “We have been able to work closely with 12D Solutions and have input into the software’s development.”

12d Model is also being used on this project to download and analyse the design, and then convert that information to TP Stakeout files for use with the Leica Total Station and to guide the surveyors in pegging out the motorway.

“We are also using 12d Model to help us visualise the designs and so interrogate them to ensure they are viable as well as present the designs to third parties such as other contractors, the Government and community groups,” said Mr Lehmann. “We are able to create a virtual drive-through of the motorway on the computer and test it with the engineer in a ‘live’ environment, so to speak.”

To create virtual images of the planned road ALJV takes the design information and then using the 12d Model software combines it with huge raster files, drapes it over tins and then outputs the information as a 3D image or drive-through.

“12Model is fast, intuitive, easy to use and good value for money,” said Mr Lehmann. “12D Solutions provides prompt

and reliable service – a fundamental requirement when you need support on a project of this size.”

12d Model has been used on many other major Sydney road projects including the M2, Eastern Distributor and M5 East. “As 12d Model has matured we have added many features - raster modules, visualisation capabilities, drainage modules, etc - to meet engineers’ and surveyors’ needs,” said Lee Gregory, Managing Director 12D Solutions. “These features, plus integration with TP SetOut and then TP StakeOut and the ability to handle images of all sizes, has seen 12d Model become the software of choice for large road projects.”



## STOP PRESS - 12D ASCII in Queensland

**Q**ueensland Department of Main Roads has recently advised 12D Solutions that the 12D Ascii file format can be used by Main Roads Districts in the transfer of survey and design information.

This is excellent news for 12D Solutions and will further enhance the interchange of data within the surveying and civil design communities in Queensland.

## Top sales & support

**12**D Solutions is committed to providing not only the best surveying/civil engineering software on the market, but also the best service and support.

Expert sales support is available from:

**Tony Ingold** at Extra Dimension Solutions in NSW  
tingold@12d.com Ph. (02) 9970 7117

**Maria Bernhagen** at Critical Image in WA  
criticalimage@mbx.com.au Ph. 0411 601 066

**Steve Crossley** at SCS Software in Vic  
steve911@bigpond.net.au Ph. (03) 9802 8849

**Ian Cameron** at Technical Solutions in Qld  
techsol@tpgi.com.au Ph. (07) 3378 8702

**Michael Brehmer** at 3D Measurement Solutions in SA  
mb@3dmeasurementsolutions.com.au Ph. (08) 8212 9300

**Richard Worrow** at Waterman IT in UK  
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**Lane Irwin** at 12d NZ in NZ  
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**Anthony Kuch** at XP Software in Canada  
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## Welcome aboard - extended!

*Sorry, but due to lack of space, many of our new licenses/  
additions must still be left until the next Dirt Digger!*

A & K Wilsher Pty Ltd - NSW

Abigroup - NSW

Access Land Surveying Ltd - NZ

Acor Consultants Pty Ltd - NSW

Al Futtaim Tarmac, Dubai - UAE

Alexander Browne Cambridge & Partners - Qld

Anderson & Associates - NZ

Aqua Tech Consulting - NSW

Arup - Vic

Aspect North - NSW

Astral Engineering Surveys - NSW

Barclay Mowlem - NSW

Barwon Water - Vic

Baseline Consulting - Qld

Baulderstone Hornibrook - NSW

BHP Billiton - Qld

Bill Sawers & Associates Ltd - NZ

Blacktown City Council - NSW

BMD Group - Qld, NSW

Bonacci Group Pty Ltd - NSW, Qld, Vic

Brisbane City Council - Qld

Bulloo Shire Council - Qld

Burchill Partners Pty Ltd - Qld

C & W Highway Department - Pakistan

Cardo MBK - NSW, Qld

Christchurch City Council - NZ

City of Casey - Vic

City of Geraldton - WA

Civil Dimensions Pty Ltd - Qld

Civil Services (HB) Ltd - NZ

Civil Technology - WA

Clark Fortune McDonald & Associates Ltd - NZ

CMS Surveyors Pty Ltd - NSW

Coffs Harbour City Council - NSW

Cogswell Surveys Ltd - NZ

Complete Design (NT) Pty Ltd - NT

Connell Wagner, NSW, Vic, NZ

Coomes - Vic

Dalton Consulting Engineers - Vic

Daracon Group - NSW

Department of Main Roads - WA

Development Consulting - NSW

DM Gerloff & Associates Pty Ltd - WA

DPI (Marine and Harbours Branch) - WA

Dubbo City Council - NSW

Dungog Shire Council - NSW

Dutco - UAE

Easdale Surveyors - NZ

Engineering SetOut - NSW

Engineering Surveys - SA

Environment Canterbury - NZ

Eraland Consulting Pty Ltd - Qld

Eric Scerri & Associates - NSW

Eurobodalla Shire Council - NSW

Fiji Lands Department CE - Fiji

Geo Image Services - NSW

GHD Pty Ltd - Qld, ACT, NSW, Vic

Gladstone City Council - Qld

Grogan Richards - Vic

Hard and Forester - NSW

Heb Contractors Ltd - NZ

Industrial Infrastructure Development Division - Bhutan

Ipswich City Council - Qld

Jeanes and Sommerville Surveys - SA

Jeff Mouldsdale & Associates - NSW

Jensen Bowers Group - Qld

John West Surveys Ltd - NZ

Johnson Partners - NSW

Jones and Zorn - NZ

Kellogg Brown and Root - Qld

Kevan Burnett - SA

Kevin Lonergan - NSW

King and Campbell Pty Ltd - NSW

Kingaroy Shire Council - Qld

KLM Spatial - Vic

Koukourou Engineers - NSW

KPD Group - Vic

Kumpulan Liziz Sdn Bhd - Malaysia

Lambert and Rehbein Pty Ltd - Qld

Landlink - NZ

Landmark Surveys - NSW

Lawson and Treloar - Vic

Leddy Sergiacomi & Associates Pty Ltd - Qld

Leighton Contractors - NSW

Logan City Council - Qld

Lynton Surveys - NSW

Magos Enterprises - NSW

Maryborough City Council - Qld

Maunsell Australia Pty Ltd - NSW, SA

Max Padovan & Associates - Qld

Mortons Urban Solutions - Qld

MR Surveyors - NSW

M/S Prismo Universal Italiana - Zanzibar

Muir Associates (Dublin) - Ireland

Native Land Trust Board - Fiji

Neil Construction Limited - NZ

New Zealand Police - NZ

Nigel McDonald - NSW

Nikkel Surveying Ltd - NZ

Noosa Shire Council - Qld

P & A Frost - NSW

Pacific Survey Teams - NSW

Parsons Brinckerhoff - NSW

Patterson Britton & Partners - NSW

Peter Berry & Associates - Vic

Peter Brett Associates (Reading) - UK

Peter Leversedge - Qld

Philips Surveyors - SA

Pine Rivers Shire Council - Qld

PMM Group - Qld

Portarlinton Holdings Ltd - NZ

Pritchard Group Ltd - NZ

Project Services - Qld

PT Asaba - Indonesia

PT Kideco Jaya Agung - Indonesia

PT Kimco Armindo - Indonesia

PT Pama Persada Nusantara - Indonesia

PT Tambang Batubara Bukit Asam - Indonesia

Qasco - NSW

Queensland Main Roads - Qld

Rickard Hails Moretti Pty Ltd - NSW

Ross Robinson Surveys - NSW

RTA Grafton - NSW

Sellick Consultants - NSW

Shaun Skuthorpe - NSW

Sinclair Knight Merz - NSW, Qld, WA

S.K. Brothers - SNG?

SMEC Cooma - NSW

Streat Developments Ltd - NZ

Terra Consulting - NSW

TGM Group - Vic

Townsville City Council - Qld

Trent Seale - NSW

Truebridge Callender Beach Ltd - NZ

United Water - SA

Van der Meer - WA

Walker Corporation - NSW

Waterman Group - UK

Weathered Howe - Qld

Wollongong City Council - NSW

Wood & Partners Ltd - NZ

WP Brown - ACT, NSW, Qld, Vic