The Dirt Digger

Welcome...

to the first issue of Dirt Digger, 4D Solutions' newsletter.

Dirt Digger will be published on a regular basis and distributed by fax. Our aim is to help you realise the full business benefits offered by 4D Model by bringing you corporate and product news from 4D Solutions and by giving you examples of how your colleagues in the civil engineering market are benefiting from the use of 4D Model.

We will also publish a regular technical tips section, The Tipster. These tips will be based on commonly asked questions and we encourage you to call us or send a fax with your own tips or questions.

This issue carries a story on Version 3 of 4D Model which has just been released. Version 3 builds on the concept planning features of earlier versions and adds detailed design features to give you a full civil engineering solution. The software is backed up by expert technical support, service and training unparalleled in the civil engineering software market yet crucial to the success of your project.

We also look at Westrail's successful use of 4D Model in planning a new rapid transit system and have comments from Melbourne civil engineering company Fisher Stewart on their opinion of 4D Model.

We hope you enjoy this issue of Dirt Digger and look forward to receiving your feedback. There is a reader response form on Page 4 to register additional people who wish to receive this complimentary newsletter, and/or to inquire about any of the stories contained in this issue.

We look forward to hearing from you.

Dr Lee Gregory   Mr Alan Gray
Managing Director   Technical Director

4D Solutions Pty Ltd
ACN 056 019 713
PO Box 103, Narrabeen NSW 2101
Aust. Tel. 02-9970 7117 Fax. 02-9970 7118
Int'l. Tel. 61 2-9970 7117 Fax. 61 2-9970 7118

4D Model -

the timely solution to your civil engineering application

The latest release of 4D Model offers engineers a complete civil design solution.

4D Model Version 3 enables engineers to not only decrease design time but also to provide more detailed designs to the construction company so there are fewer problems once they start work.

"Many of our customers have used 4D Model mainly as a concept planning tool," said Dr Lee Gregory, Managing Director of 4D Solutions Pty Ltd. "Version 3 builds on existing features to give engineers detailed design capabilities for small and large projects."

4D Model has been in development since 1990. The first module was released in 1991 and other modules and refinements have been added progressively. The software runs on Windows NT- and Unix-based computers.

"The fact that 4D Model is at the start of its development life cycle is seen as a major strength by our customers and prospects," Dr Gregory said. "They feel secure in the knowledge that while the product conforms to industry standards and has been extensively tested, they are only just starting to see the potential of 4D Model. They don't run the risk of being left behind by their competitors.

"The software offers users an exciting design path and an opportunity to optimise their investment in the latest computing technology, as opposed to older products which have been designed on outdated systems and to a design criteria which is no longer applicable.

"Our customers don't want to buy into a dead solution, they want to see the package developing; they are constantly trying to cut costs so need to be assured that further increases in productivity are possible with the help of the software."

...the timely solution (cont'd)

Version 3 of 4D Model features template modifiers for detailed design; boxing, stripping, volumes to sub-grade, corridor analysis and drainage strings capabilities; links to existing drainage systems such as RATHGL; and enhanced plotting capabilities.

"The final product delivered to the client is normally a portfolio of plots so we have extended 4D Model's plotting capabilities," Dr Gregory said.

New plot production features include plot frames for plan details; plot parameters for long and cross-section plots for tailoring to local standards; HPGL2 plotter support; and title block generator which automatically reflects changes to the plots including scaling, plot file, chainages, sheet numbers, drawing sheet numbers, the date, and user-defined text and fonts.

4D Model also has a programming language for customisation of the software, extensive library areas, user-defined function key short cuts, user defined menus, correct geometric detail for spiral and vertical curves, and double precision arithmetic throughout ensuring the highest level of accuracy particularly for AMG (Australian Mapping Grid) co-ordinates.

The software can efficiently handle data sets greater than 100,000 data points.

Designed specifically for civil engineers, 4D Model uses the same terminology and methodology used by them so is more readily accepted by the engineers and improvements in productivity are achieved more quickly.

4D Solutions Pty Ltd was established by Dr Gregory and Technical Director Alan Gray, in 1988. The company sells and supports 4D Model direct and through approved Distributors across Australia and in Asia.

"We hold a unique position in the Australian marketplace because we wrote the software so are able to provide expert service and support on demand," said Dr Gregory. "This expertise is crucial when supporting civil engineers who work on projects worth anything from $25,000 to millions of dollars."

• • • • •

Welcome Aboard

Gold Coast City Council
WP Brown & Partners (ACT)
Roads & Traffic Authority, Wagga Wagga
Queensland Rail, Rockhampton
Ross C. Watson (Malaysia)
Clough Engineering (WA)

4D Model Seminars

4D Solutions will hold a series of half-day seminars across Australia on the latest version of 4D Model.

The seminars will take place in February. If you would like to know more about these free seminars please complete the reader response form on Page 4 of this newsletter and fax it to 4D Solutions in Sydney on (02) 9970 7118.

• • • • •

Fisher Stewart on 4D Model

M elbourne-based civil engineering company Fisher Stewart is an advanced user of 4D Model. The company has a three-year research and development agreement with 4D Solutions.

"When we decided to review our software systems in 1994 we conducted an extensive review of all available civil engineering packages," said Barry Norman, General Manager, Fisher Stewart. "We chose 4D Model for a number of reasons: the package was in its infancy rather than at the end of its life cycle so would be a better investment for us, it was not a proprietary system - that is, it could run on a wide range of UNIX systems as well as on Windows NT-based PCs, and the developers were quick to respond with any enhancements we requested."

Said 4D Solutions' Dr Lee Gregory, "In working closely with companies like Fisher Stewart our objective has been to deliver software that can handle all tasks within a civil engineering office. From the automatic production of title blocks on plans to providing multiple, linked views of the terrain for easier viewing and manipulation of data, we aim to provide features which help our customers improve their productivity and their competitiveness."

• • • • •

The Tipster

*When editing an alignment string, the **height** option can be used in a **plan view** to insert vertical intersection points (VIPs) into the vertical geometry.*

*After selecting the **height** option, any position can be selected on the alignment string in the plan view and the chainage of the picked position is used as the new VIP chainage. The **height** prompt for the new VIP will then appear.*

4D Model Puts $550m Rail Plan On Track

When the Western Australia Government Railways (Westrail) started planning the proposed route for a $550 million suburban rail system to Perth's South West Corridor), its first priority was to produce a good, quick preliminary plan.

Australian civil engineering software, 4D Model, enabled Westrail to produce the plan quickly and to visualise the proposed route so planners, developers and the community could gain a good understanding of its potential impact and advantages.

"The initial planning required more than proving up the engineering for the route," said Peter Martinovich, Manager, Transit Planning, West Australian Department of Transport, who has planning responsibility for the proposed system. "We have shown on the recently constructed Northern Suburbs Rapid Transit System (NSTS) that to be successful such systems must be integrated with land use and other transport modes, and provide a viable alternative to private car use. They must be fast, frequent, comfortable and safe."

The new rail system will run south from Perth. The Western Australian government has agreed in principle to construct a rapid transit system to Mandurah, the South West Corridor (SWC) and Rockingham. It has also given an undertaking in principle to construct the first stage to Jandakot within 10 years.

In seeking approval for the proposed route Westrail worked closely with the WA Planning Commission (WAPC) and took just 12 months to define the optimum rail reserve using 4D Model, supplied by Perth-based systems integrator, Integrated Technical Software (ITS).

"4D Model was of great assistance," Mr Martinovich said. "We were on a deadline. We needed an alignment which was good enough to give us preliminary land-use requirements and prove the engineering design, as well as meet environmental and community approvals. We chose ITS and 4D Model as we had worked successfully with ITS when developing the NSTS.

"The route had to access key centres," he said. "It had to serve the fast-developing Thompsons Lake area at Jandakot, the township of Kwinana which has never had a good transport system, and incorporate Rockingham and its regional centre as well as Mandurah and its regional centre."

To ensure the SWC Rapid Transit System will provide a viable alternative to private cars the alignment has been engineered for speeds of up to 150km/hour. This speed can be achieved using the same high-class track, signalling, power and overhead systems structure as used on the NSTS, with a slight increase in the power output of the electric rail cars. Curvature restricted the speeds on the NSTS to 110km/h but on the SWC line the radius of curvature was limited to allow the higher speeds.

The Senior Structure Planner for the Ministry for Planning, Tim Auret, also stipulated that the rail must run at natural ground level or below through residential urban areas for reasons of aesthetics, privacy and noise control.

This meant cut and fill could not be balanced so thousands of cubic metres of cut ground had to be discarded.

Mr Auret said: "The great advantage of 4D Model was that, once we had all the data in, which by its own nature took a long time, we were able to generate alternative scenarios quickly.

"We could assess the implications of engineering and land use.

"We could get hard copy plans easily and take them to the other players and get their input.

"I honestly don't believe we would have completed the project in time without 4D Model. Our objective was to specify the land requirements as well as to specify engineering criteria from a social and land-use point of view."

Ron Chamberlain, a former Westrail planning engineer was employed as a senior consultant to assist on the project.

"4D's big advantage is its overall coverage," Mr Chamberlain said. "We could get an overall picture of the whole route. When we had to make variations on curve radii and intersection points we could easily slot them in."

Jim Stirk, a civil designer with ITS said 4D Model was superior to many other civil engineering packages because it was a fully rounded planning tool and could handle significantly more data than competitive packages.

"With 4D we can change alignments very quickly, which was particularly useful as we could consult with other groups and show them a choice of alternatives.

...Rail Plan On Track (cont'd from page 3)

"Also, it's an easy tool to put down and pick up. Our civil designer, Ken Moore, was away from it for three months during which time there was an upgrade to the software. It took only three hours to become fully updated with the software.

"Speed was also important. On the Perth-Mandurah project we have about 100 basic drawings, all of which have been through a dozen major or minor changes, meaning we have pumped out 1200 versions. 4D can manipulate large data sets at an impressive rate."

• • • • •

Top Service & Support

I t's 4pm on Friday afternoon, the preliminary plots are due on Monday and your computer system has just gone down....sound familiar?

Civil engineers are constantly working to tight deadlines, constantly putting their reputations on the line. Computer systems have delivered enormous improvements in productivity but even the best system can strike problems and the one thing you don't want to hear is "I can't solve that problem here, I'll have to email our office in the States and get back to you next week" or even worse "I'm sorry, we no longer support that product", or the ultimate heart-stopper -- a Telecom recorded message saying "The number you have dialled has been disconnected".

At 4D Solutions we are committed to providing our customers with the highest level of support. We have many years' experience in the civil engineering market so we understand the issues, the pressures of deadlines and the constant need for expert technical service and support. Most importantly we wrote the software so we are also in the best position to get you back up and running in the shortest possible time.

And we have carefully selected our distributors to ensure they can offer the same standard of expertise on a local level.

In addition to our technical service and support we also provide a range of on-site training courses to help your people become productive with our software, more quickly. There are introductory and advanced courses which can be tailored to meet your particular needs.

For more information please complete the reader response form on this page and fax it to us or call:

Dr Lee Gregory, *Ph. D. (Maths),* or Alan Gray, *B. Eng (Civil),* at 4D Solutions, Tel. (02) 9970 7117;

David Francis, *M Sc Civ Eng*, *MIE Aust* at Integrated Technical Software in WA, Tel (09) 322 2377, Fax (09) 322 2380, email : david@itswa.com.au

Don Peters, *B. Eng (Civil),* at Reoforce Systems in Qld, Tel (07) 3848 7270, Fax (07) 3848 7282; or

Peter Strods, *B. Eng. Grad Dip Sys Anal Grad Dip Munic Eng*, at HDS Computing in SA, Tel (08) 267 4577, Fax (08) 239 0111.

• • • • •

The Tipster

*Clicking the **left** mouse button whilst the cursor is over the + in the view title area will bring up the list of all models that can be added to the view.*

*Typing a single character rather than clicking the left mouse button will **restrict** the list of models to only those **beginning** with the typed character.*

*Typing an asterisk (*) will bring up the **add models to view** panel which can be used with wild cards (*) and characters (**?**) to add more than one model to the view.*

Similarly for the - on the view.

Reader Response Form
Dirt Digger, November '95

Name:_____

Title:_____

Company:_____

Telephone:_____ **Fax:**_____

Email:_____

Postal Address:_____

_____

Existing Civil Software:_____

Existing CAD Softw:are:_____

Existing Computer Hardware:_____

Do you have a CD ROM:_____

Are you re-evaluating your civil software:_____

If yes, when (approx.):_____

Would you like more information on (please tick):

4D Model Version 3   **4D Model Seminars**

Training   **Add to mailing list**

  Please fax to 4D Solutions -- (02) 9970 7118