

HANDS ON



Fieldworks by XYZworks

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XYZ works hit the ground running with Fieldworks 1.0. But I could not believe how much it has been improved now that they are up to version 2.14. Not only does it use all total stations, servos, robotic stations, and distance machines, it also interfaces with all GPS receivers and RTK systems. What started out as a great program is now better than ever before.

What is all this hoopla about? Graphics! Curt Busby has integrated Fieldworks with PocketCAD. This puts an incredible amount of power in your hand. I am running it on the new Panasonic Toughbook 01 (see photo below) where before I was running it on an iPAQ 3635. The Panasonic is more rugged and waterproof and has a keyboard, but with the same good color display as the iPAQ.

Compatibility and Stability

Not only does the program work with virtually anything, Fieldworks is super stable. Collection has all the tools needed. You can locate the instrument if you can measure to any two known points (two point resection) or see any three points (three point resection). You can also establish the elevation of the instrument point from a remote bench mark, take offset shots both horizontally and

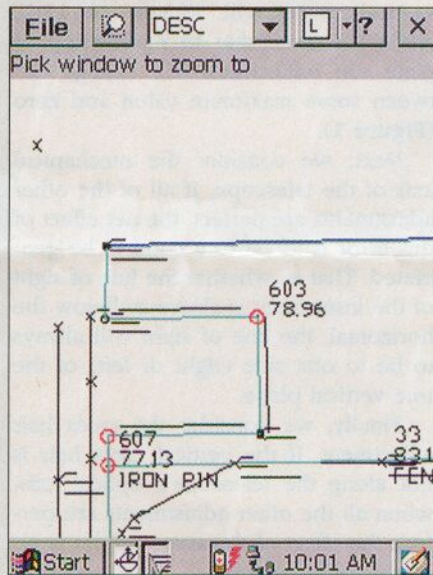
"This program combination could change the way in which construction staking is performed."

vertically with a key stroke, measure the horizontal distance between any two points, and measure without putting the instrument on either of them.

One of the very strongest new functions is Road. This function allows you to store an alignment (road, canal, etc.) with curves and even spirals. You can also store a vertical alignment matched to the horizontal alignment, or store templates of the design cross section. The Road function is also useful for walking or staking lot lines since it will display the station and offset from the line updating in real time as you move around. This makes a fast way to stake with a robot or GPS system; you can walk along watching your station until you get to the right station, move to the offset you want, read the cut/fill off the screen, and write it on the stake. Want to find a catch point? Move out at the desired station until your cut/fill reads zero.

The image in the right column is an actual screen capture of the Toughbook screen in PocketCAD using Fieldworks Plot-as-you-go function. The "X" in the upper left is the instrument setup on a previously adjusted control net. The backsight is another control monument 1258' to the right of the screen. The blue lines are the deed lines and the black lines are deed calls which are too small to reproduce at the present scale of the display. The drawing was created in AutoDesk's Civil Series 3 and transferred to the Toughbook running PocketCAD. The black symbols at the corners are found monuments that I measured, and they were *immediately* placed on the CAD drawing by Fieldworks. Using the Fieldworks COGO, I created points 603 and 607 with a distance-distance intersect. I then placed monuments using Fieldworks radial stakeout program. You can

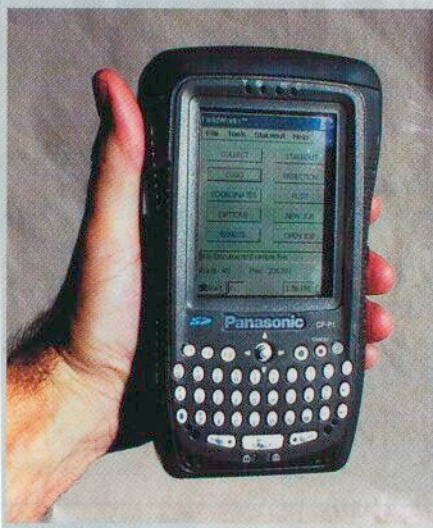
customize the Plot-as-you-go function to put your own symbol blocks, point numbers, elevations, and descriptions, as well as all the linework and curves on any layers you want based on the point descriptions. For example, describe a shot as Manhole or MH from a simple dropdown list and it can draw your own manhole symbol on the Utilities layer. Shoot Edge of pavement or EP, and it will connect it with line on the Roads layer to your previous EPs.

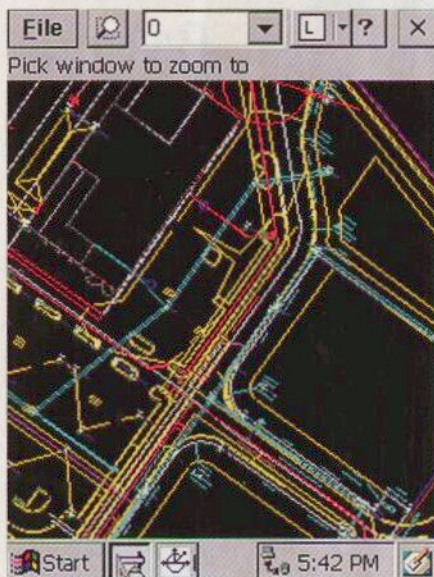


Toughbook screen in PocketCAD using the Plot-as-you-go function.

Power in the Field

Just imagine taking a drawing of the Deeds into the field for Stakeout in the Toughbook. Set up anywhere. You can pick points the old-fashioned way by point number, and now graphically from the drawing with PocketCAD. Find any two monuments to orient the instrument setup, and search for and/or stake all of the other corners. If the idea of seeing what you are staking against the deed appeals to you, think of being able to take a construction drawing into the field in the Toughbook and being able to stake out the whole job without ever calculating a coordinate or trying to remem-





Drawing for staking a shopping center.

ber a point number, in addition to seeing every one of your set points on the drawing as you set them. It does not matter whether you are using GPS-RTK, a robotic instrument, or a total station.

This program combination could change the way in which construction staking is performed. The ability to switch back and forth between Fieldworks and PocketCAD with a single keystroke is wonderful; you get a full screen for graphics and a full screen for text. The ability to use all of the functions of

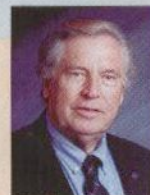
Fieldworks and having the results automatically recorded in the drawing in PocketCAD is better. PocketCAD is not just a drawing viewer, since it has full CAD commands like Pan, Zoom, Window, Object Snap, Undo/Redo, Layers, Properties, Move, Copy, Rotate, Trim, Extend, Offset, Line, Polyline, Sketch, Text, Blocks, Dimensions. Fieldworks customized it for surveyors by adding the ability to Plot-as-you-go, Graphic stake-out, Show current position, and Center the drawing on the current position.

If you are not overwhelmed by the power packed into this combination, you can begin to think of the almost limitless possibilities they present for construction staking. No longer are you saddled with a data collector full of coordinates which you may or may not be able to visualize. To take the simple example of some complicated curb and gutter, you go into the field with a precise AutoCAD drawing of the curb and gutter. You can select the offset stakes in the field to fit any special

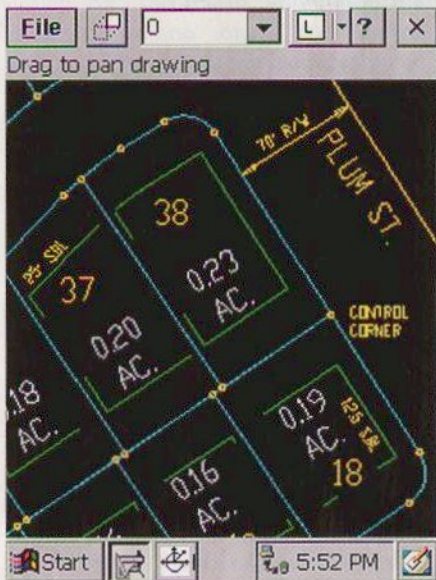
circumstances or requests by simply creating the offsets in your drawing and stake the points and see the points as you stake them. The possibilities for sophisticated and reliable construction staking are mind boggling.

This, to me, is the equivalent of "What You See Is What You Get" (WYSIWYG) which revolutionized word processing. Fieldworks running with PocketCAD could very well revolutionize field work.

If you want to take a look at this program you can download for free a fully working copy of Fieldworks at www.xyz-works.com and PocketCAD at www.pocketcad.com.



JOE BELL is the owner of SCJ GPS/GIS Consultants in Las Cruces, New Mexico, and the Software Reviewer for the magazine.



Picking points for staking subdivision lots.