

## Using ArcPad® and GPS to Navigate

ArcPad offers two fundamental methods for basic navigation when using a GPS unit. The first method involves navigating from the current position to a destination. The destination is usually a point which already exists as part of a shape file on the Pocket PC. The second basic method involves using a GPS tracklog. This white paper will concentrate on the first method, navigating to a destination. Specifically, we will concentrate on using the Find button on ArcPad's Browse toolbar.

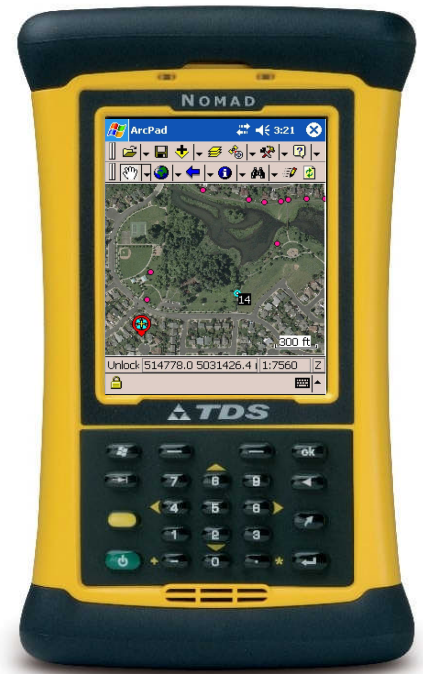
The navigation function is commonly used to find a point or object in which the user does not know the location. It is also useful, from a safety standpoint, to allow the user to travel the safest route to the destination. This frequently is not the shortest distance. Safety comes into play when working in brushy situations, in steep dangerous topography, and in heavy traffic areas.

The equipment involved will include ArcPad loaded on a Pocket PC such as the Nomad 800L pictured to the right. The GPS unit could be an external unit such as the SXBlue II GPS pictured below the Nomad. It also could be a GPS unit built into the Pocket PC. Consumer grade GPS units provide 2 to 5 meter accuracy, while the SXBlue II GPS unit is sub meter accurate. This variation in accuracy doesn't matter in some cases, but is very critical in others. Navigating to easily recognized objects in open areas can usually be done with consumer grade GPS units. Navigating to section corners hidden by salal brush on steep, uneven topography lends itself to a higher quality unit such as the SXBlue II GPS unit. In dense salal, it is much easier to find your destination when your search radius is about one or two meters. Some consumer grade GPS units have very poor accuracy under dense tree canopy. The search radius could easily be 10 to 20 meters.

Another consideration when navigating is to have the antenna on your GPS unit being as receptive as possible to satellite tracking. This is especially important when navigating under dense tree canopy or around tall buildings.

The following pages illustrates the procedure for navigating in ArcPad.

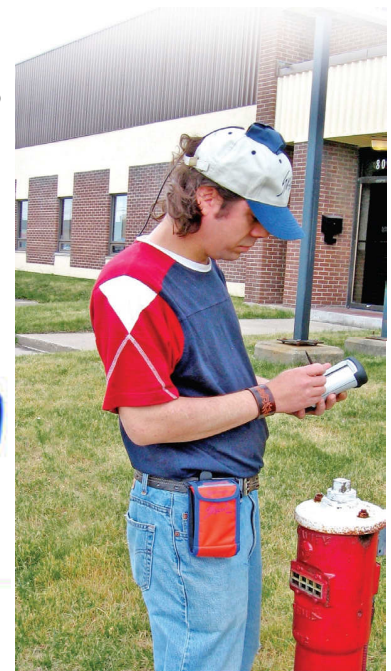
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Nomad Pocket PC



SXBlue II GPS Unit



**Resource**

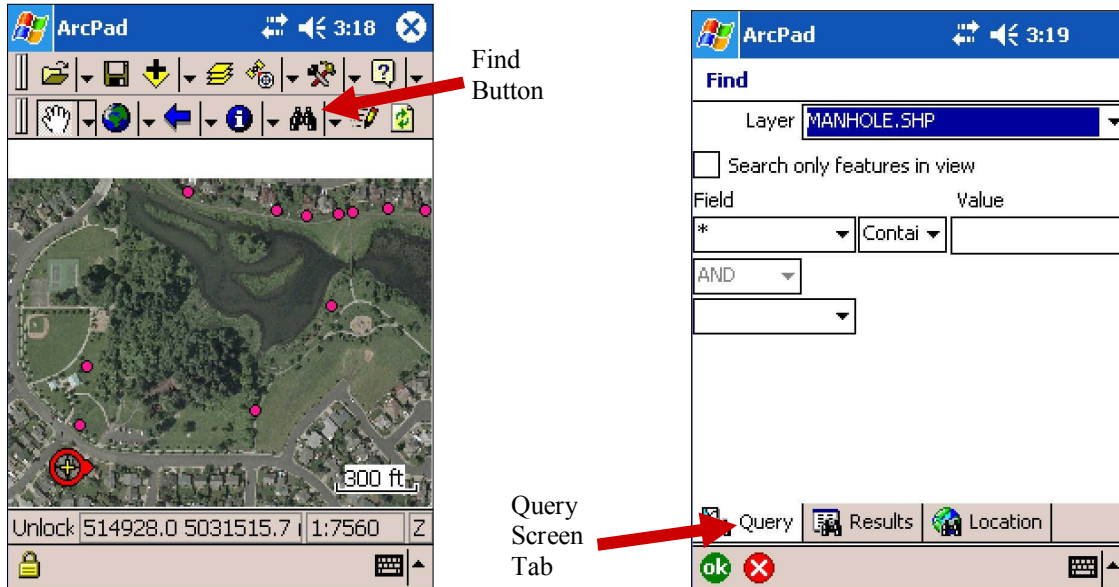
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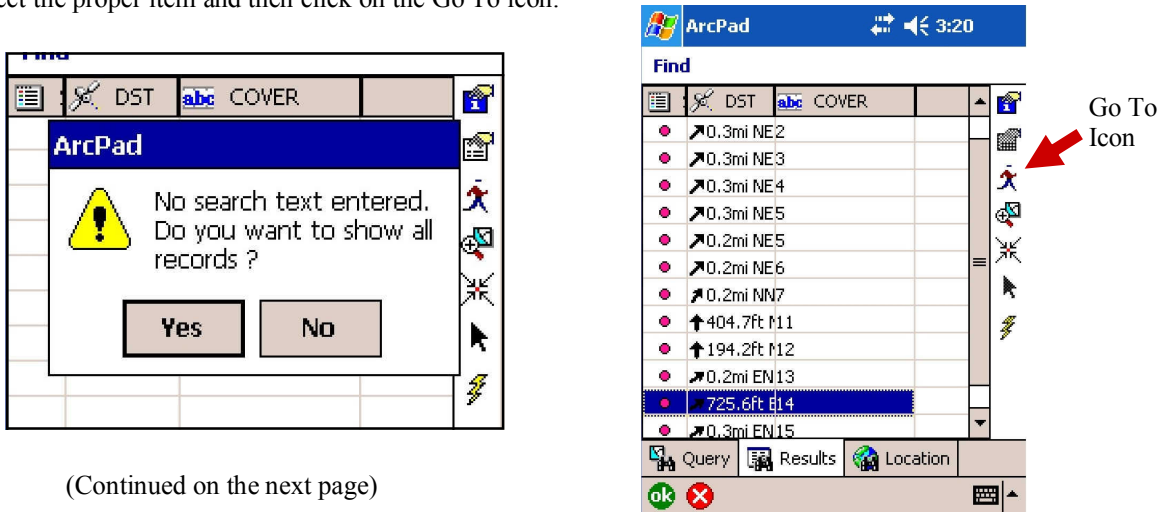
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## Navigating in ArcPad

In this example, we are going to navigate to a specific man hole cover in a park. The screen shot below shows the manhole covers in the park, as well as the current GPS position (red circle with a yellow plus sign). To start the navigation process, the user needs to click on the Find button (binoculars). A query screen comes up next as seen on the right.



If you know the value for the particular manhole cover you are navigating to, you can enter it in the value field. If not, click on the results tab at the bottom of the screen. When the screen on the lower left comes up, click Yes. The next screen will list all the values. In this example, we are searching for Cover # 14, near the bottom of the list. Select the proper item and then click on the Go To icon.



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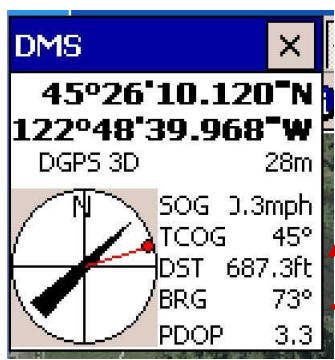
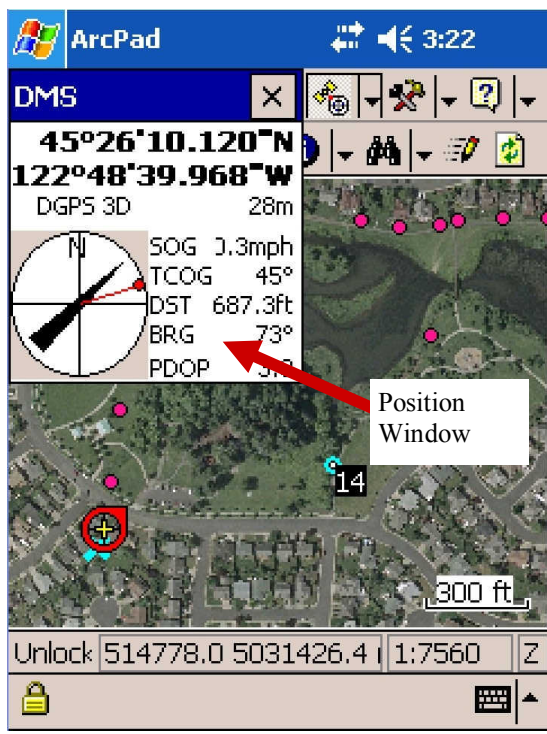
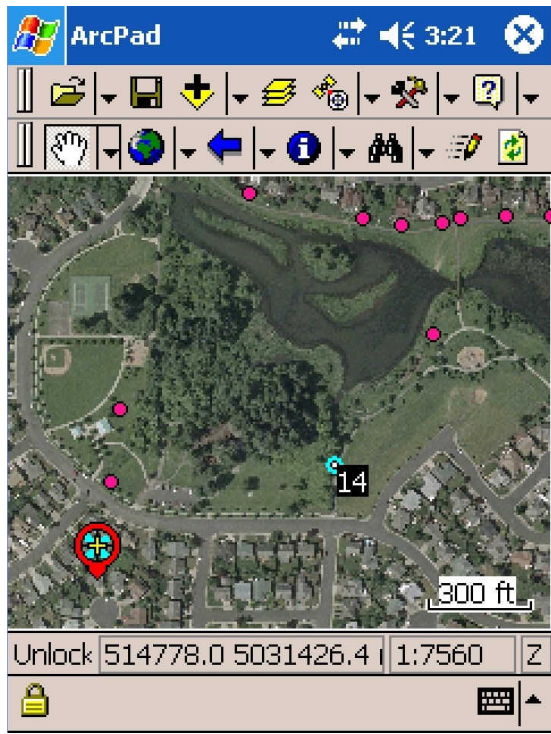
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The manhole cover we are searching for comes up on the ArcPad screen with the field number (14) next to it. We bring up the position window (right, and below for a close-up)



**ArcPad Position Window**

Distance To the Point

Bearing To the Point

The black arrow in the position window points in the direction you are traveling. The red dot with the red line attaching the dot to the center of the circle, indicates the actual direction to the destination. As you move toward or away from the destination, the distance updates automatically, as does the bearing. With practice, you can just glance at the screen to know the direction and distance you need to travel to find your destination.

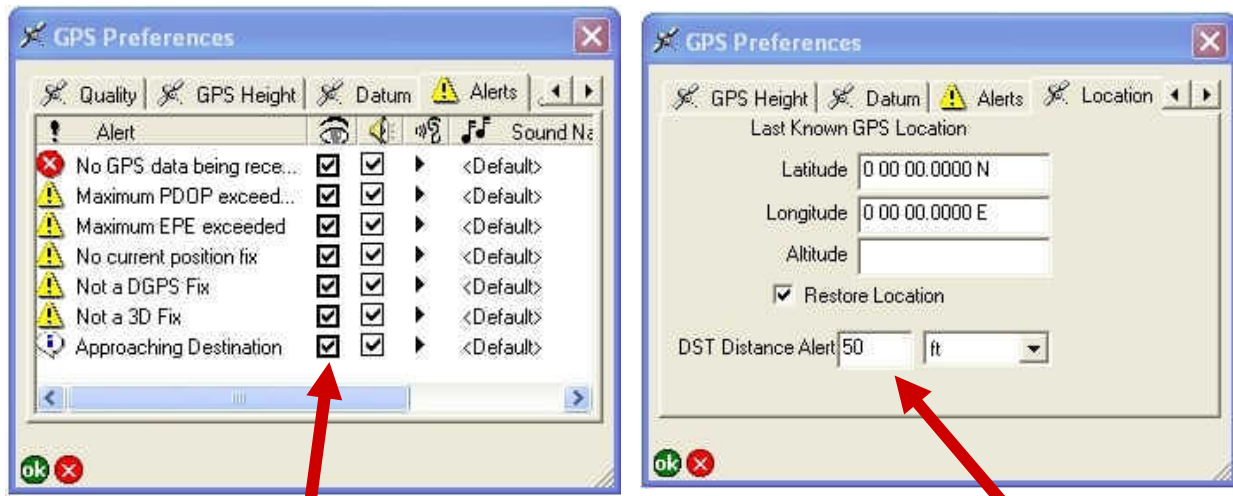
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If you have set up a warning, the ArcPad screen will let you know when you are getting close. Here are two setup screens found under ArcPad's GPS Preferences:



Approaching Destination  
Must be toggled on

Set distance and Units here

Traversing with ArcPad and a GPS unit is easy and can be very helpful in saving time and making the job safer. As with everything else, practice this routine until it is second nature.

For information on purchasing ArcPad, the SXBlue II GPS unit, or a Nomad Pocket PC contact:

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