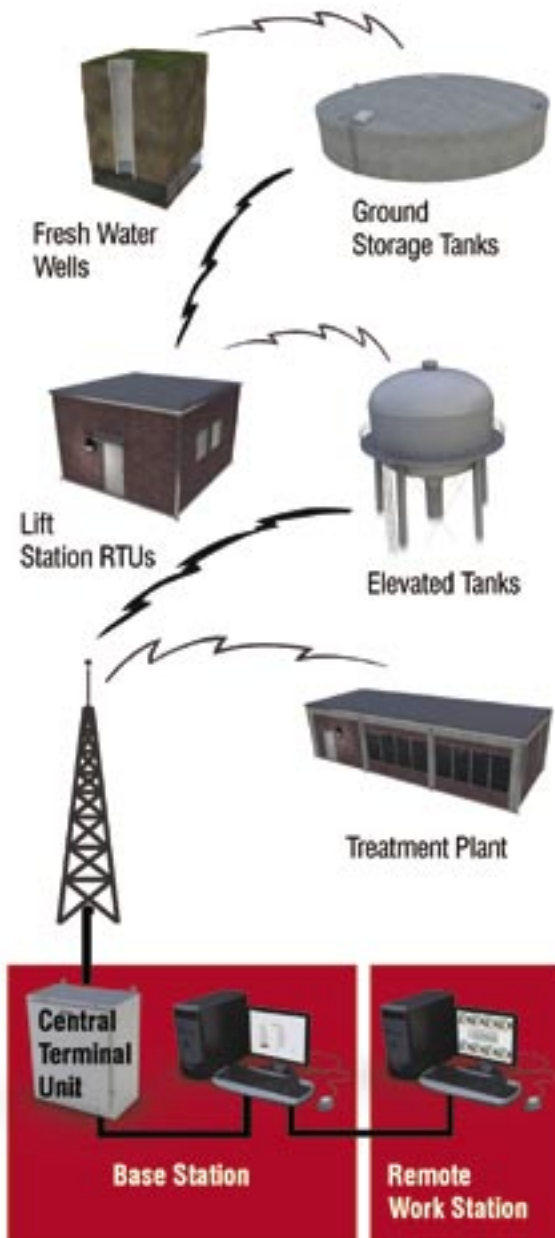


## Typical Wireless Applications



## Hope is Not a Strategy

It's very common for providers of wireless SCADA systems to work strictly from numbers, antenna heights, GPS coordinates, and topographical data, and then hope that the system will work. Hope that no buildings or stands of trees are in the path line. Hope that the chosen communication mode works for each path. Hope that no sources of radio interference are located close to any sites. If such hopes prove false once the system is in place, many hours and dollars may be spent trying to rectify the problems.

A radio path survey and associated analysis confirm design parameters, or establish new ones necessary for proper functionality, lowering the risks of failure. No hoping. No guessing.

**Know what works before you buy and install any equipment.**

Revere has been serving the water and wastewater industries since 1980, satisfying clients' needs for radio telemetry systems that deliver high performance and excellent value.

2240 Rocky Ridge R.  
Birmingham, AL 35216  
800.536.2525 • Fax: 205.824.0408  
[www.reverecontrol.com](http://www.reverecontrol.com)



## Radio Path Survey & Field Testing Services

Now Available  
in the  
Southeast



There are many challenges in designing a wireless SCADA (Supervisory Control And Data Acquisition) system. One is the verification of the radio paths and related characteristics that are planned for a system. This involves checking paths, elevations, and frequencies for all sites in the system to assure that performance standards are met. Several steps are involved.

## Site Data Gathering

A successful study requires that we know the GPS coordinates of each site, the function (lift station, water tank, etc.), the type of information being monitored, the type of power, and the planned communication mode (Ethernet radio, spread spectrum radio, licensed radio, and dial-up, cellular, or satellite modem).

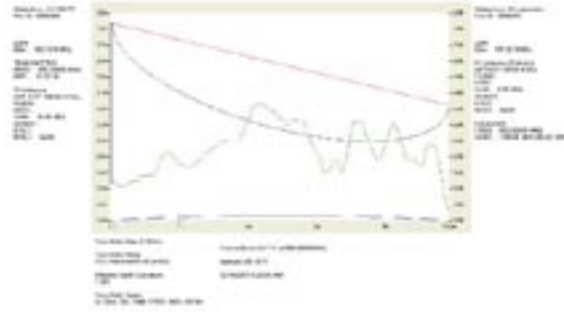


The GPS coordinates are combined with a topography software, and a topographical overview of the planned system is generated.

## Data Entry and Analysis

From this point, we factor in the type of transmission between the antenna and the radio for each site, the type (gain) and height of the antenna, and the radio power (wattage). These data are then combined with topographical information for each site to create a path profile and accomplish the following:

- Identify potential blockages to the path
- Determine whether designed antenna height is adequate for the path
- Verify that designed receive signal levels meet acceptable minimums



*The first part of the path analysis software examines the path topography to identify potential blockages and determine the antenna height needed to avoid such blockages.*

## Field Test and Final Report

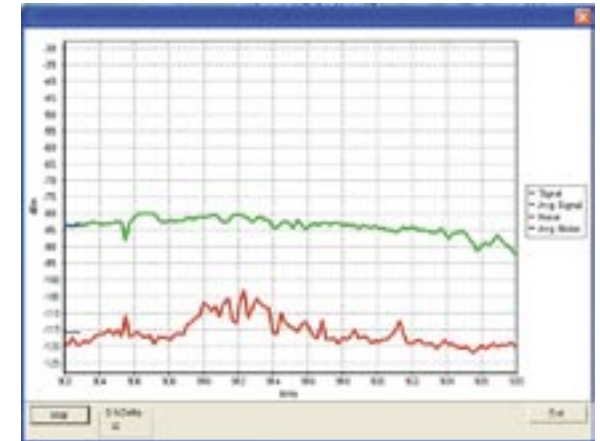
This final step is crucial because it provides the ultimate determination as to the correctness of all the design parameters. A mobile antenna system is towed to each site in the system. This unit can test antenna heights up to about 100 feet. Design characteristics are simulated in software, and the received signal is fed into a



*With tower in place, technician is able to monitor received signal strength with laptop-based software and record results for later analysis.*

laptop computer equipped with signal strength analysis software. This allows an accurate picture of true signal-to-noise conditions for an examined path.

The mobile antenna may also be used as the transmitter. A hand-held boom antenna is used at the receiving sites, with the same laptop software used to perform the same analysis of the signal.



*Software analyzes signal strength-to-noise for each location and specified receiver elevation to identify both good locations/paths (above) and bad ones.*

Depending on the test results, it may be necessary to test alternative design parameters (antenna height, communication mode, etc.) or even alternative site locations.

Upon completion of all steps, you will have complete confidence that your wireless SCADA system's communication paths will function properly. That's value that will pay great dividends in the implementation phase of your system.