

Solving the rural land development puzzle the “soil science way”

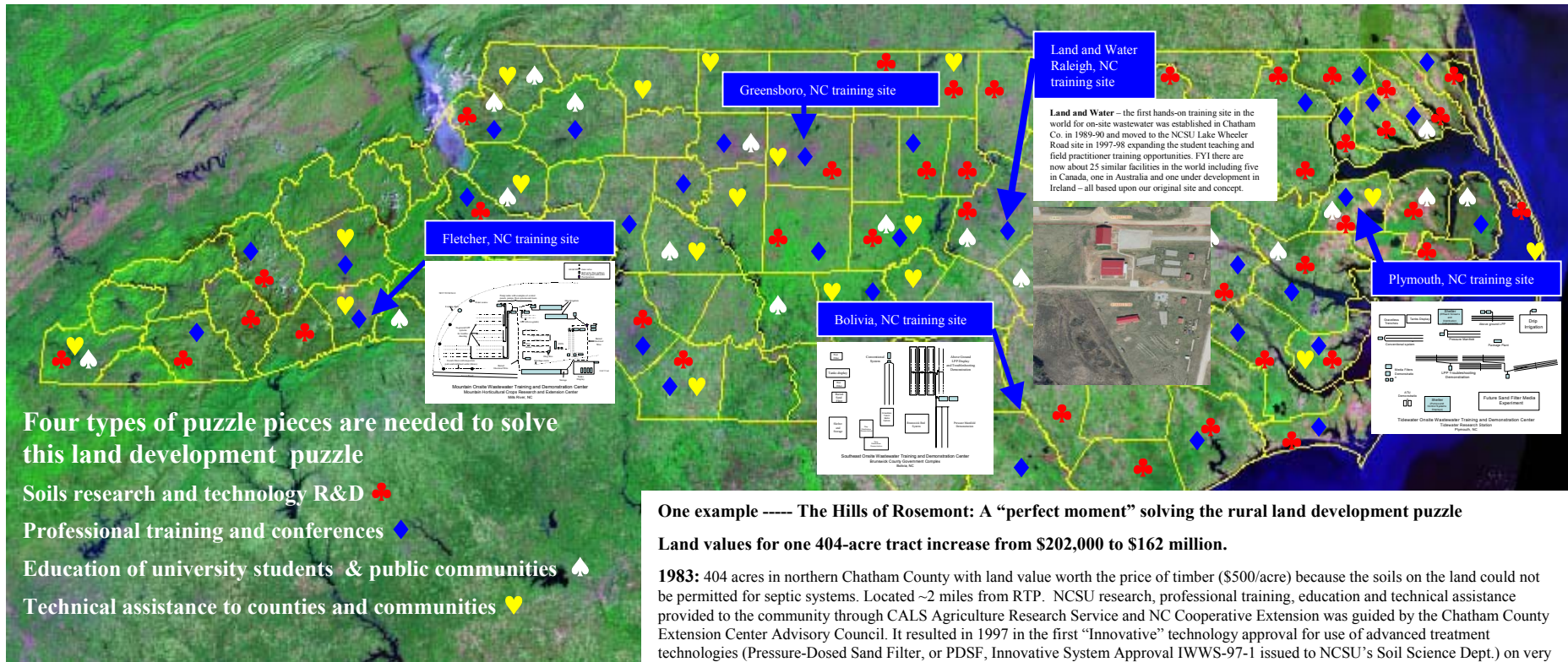
“All acres are not created equal” (K. Morris, 2008).

The land (particularly its soils) are the resource that decisions about septic system suitability are based upon.

Some acres have soils usable with the old-fashioned traditional septic system.

Other acres have soils that can only be used with advanced on-site or decentralized cluster treatment systems.

Numerous soils still need technology options developed and designed for them – no solution today.



Four types of puzzle pieces are needed to solve this land development puzzle

Soils research and technology R&D

Professional training and conferences

Education of university students & public communities

Technical assistance to counties and communities

One example ----- The Hills of Rosemont: A “perfect moment” solving the rural land development puzzle

Land values for one 404-acre tract increase from \$202,000 to \$162 million.

1983: 404 acres in northern Chatham County with land value worth the price of timber (\$500/acre) because the soils on the land could not be permitted for septic systems. Located ~2 miles from RTP. NCSU research, professional training, education and technical assistance provided to the community through CALS Agriculture Research Service and NC Cooperative Extension was guided by the Chatham County Extension Center Advisory Council. It resulted in 1997 in the first “Innovative” technology approval for use of advanced treatment technologies (Pressure-Dosed Sand Filter, or PDSF, Innovative System Approval IWWS-97-1 issued to NCSU’s Soil Science Dept.) on very limited soils that could not be permitted otherwise. This PDSF Innovative Approval paved the way for state approval of many proprietary packed bed media filter technologies on the same types of limited soils.

Pre-1997: \$202,000 total land value for 404 acres prior to this PDSF approval, no homes in area. Low land value since, for example, only 2 septic system permits were possible on 180 acres of the land tract checked for permits. Land value at this time was only worth the price of timber or ~\$500/acre.

Post-1997: \$5,252,000 land value following PDSF Innovative System Approval allowing large land tracts to be sold in bulk at ~\$13,000/acre for development so that homes could be built, each with its own advanced on-site wastewater treatment system.

Post 2008/2009: Numerous homes now located on this 65 lot development (and FAMILIES including those now living on “Perfect Moment Drive”) who can safely use their land while protecting the environment. Land value dramatically increases reflecting higher tax values also for Chatham Co. Building lot costs, as of 2008/09, averaged ~\$590,000 each (range of \$465,000-\$775,000) with each lot potentially including a home with an average value of ~\$2,492,500 (home costs typically now range from ~\$2-\$3 million each including lot price). Total estimated land value (once subdivision is built-out) of ~\$162 million. **This Soil Science Dept. and College of Agriculture and Life Sciences effort at NCSU has increased land values by more than 160,000,000 dollars for this example 404-acre land tract. Similar benefits exist for land tracts, communities and families throughout NC. Our Research/Extension/Teaching strategy at NCSU works!**

Has the rural development puzzle been solved yet?

Yes, the puzzle has been solved for some types of soils on high dollar-value land tracts. For instance consider the example of a recently developed land tract (The Hills of Rosemont) near the Research Triangle.

No, however, for many other soils and landscapes.

No for land tracts (and home sites) with typical (average) \$ values.

No for sites that would benefit from technologies not now approved but that could be approved using national NSF wastewater standards.

Not for communities and counties that can not afford to pay for their regulatory staff to attend high quality hands-on training programs.

No for those wanting decentralized water/wastewater reuse systems