

Chapter 2

Farm and Homestead Maps

*Thomas M. Bass and Julia W. Gaskin, Biological & Agricultural Engineering Dept.,
University of Georgia*

A farm or homestead map is a valuable tool for managing and protecting the natural resources on or near your farm property. Understanding where creeks, wetlands, ponds and wells are in relation to livestock pens, barns, manure storage or septic systems is a major first step to protecting water quality on-farm and in the community. In addition, crop planning or grazing management can be made easier with a view of the available lands for these activities. In the case of an emergency, it can be valuable to have gas lines, electrical boxes or fuel storage identified on a map. Some cost-share programs require a map before implementing a new practice or building a structure. In the case of nutrient management planning a farm map is essential.

A good map for nutrient and conservation planning will include many of the following items:

- farm property lines
- land use -- cropland, pasture, forest, etc.
- farm field boundaries with field identification
- surface water locations, including streams, rivers, ponds, ditches and wetlands
- arrows showing the direction of stream or river water flow
- well locations
- buffers around sensitive areas including surface water, wetlands, wellheads, springs, rock outcrops or sinkholes
- any residences or public gathering areas
- spreadable acres
- North arrow
- date prepared
- "Prepared with assistance from (Name)"
- road names or numbers
- name of county
- legend with map symbols
- BAR SCALE on the map

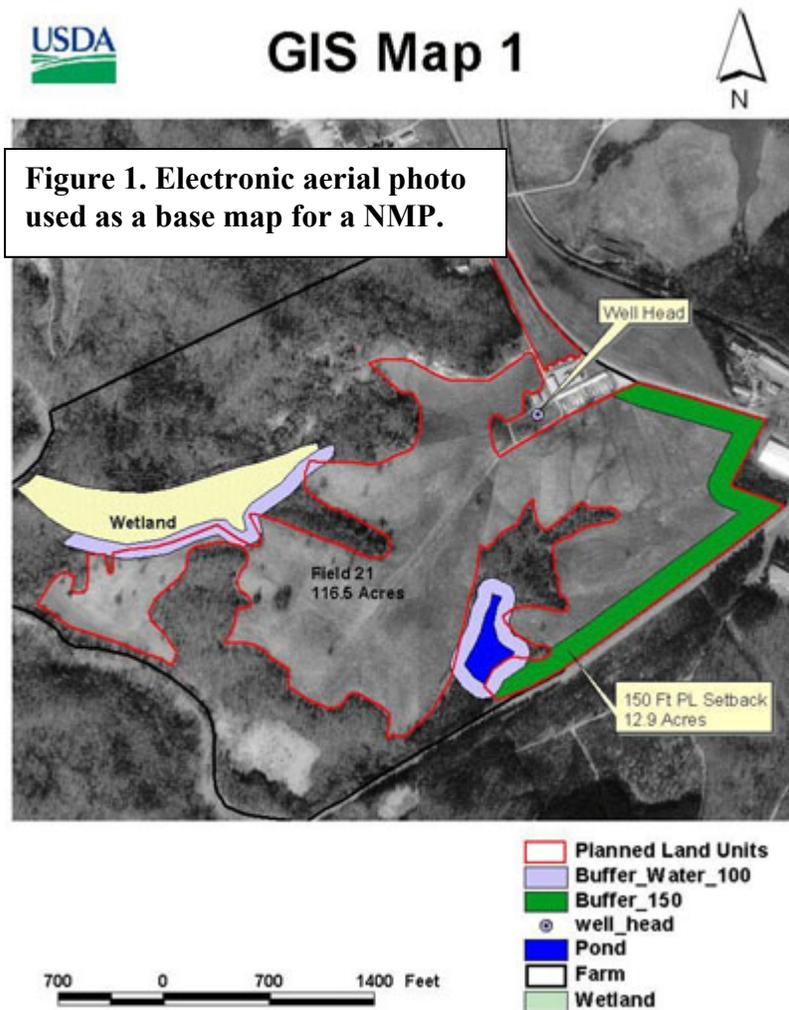
Making a Base Map

How do you go about getting this information? There are several ways including: computer based maps produced by professionals like the NRCS, computer based maps downloaded from the internet on a home computer, maps hand drawn over an aerial photograph or road map, or maps drawn completely by hand. An accurate and detailed map is much more useful than one lacking detail or accuracy. Hand drawn maps will only be able to show basic details at an approximate scale.

NRCS Toolkit

The easiest way to acquire the map information needed for a NMP is to use the Natural Resources Conservation Service (NRCS) Toolkit. USDA Service Center Offices are equipped with computers and technology that can generate a map for you. A conservationist can come to your farm, and bring an electronic aerial photo of the farm with the Farm Service Agency (FSA) property lines and field lines. You can work with the conservationist to add streams, as well as other water bodies, and locate buffers. This technology is in place in several district offices and should be available throughout the state in the near future.

Figure 1.



Online Maps

There are several sources for maps online, two options are listed below. These maps can serve as your base from which to build a more detailed depiction of the farm and its surroundings. The aerial photographs available at some of these sites can also be used to make the base map for your NMP. After you have obtained the topographic map or aerial

photograph of your farm, you can hand draw the property boundaries, streams, fields, etc., or use computer software to add the needed features. You will have to determine the scale of the photograph by measuring a known distance on the map. More details on how to add features and determine scales follows in the photocopied maps section.

FREE:

- TerraServer USA: <http://terraserver.microsoft.com>. From the homepage, use the “advanced find” function to search for the property in question by address. If available, both a USGS topographic map and aerial photo will be offered.

FEE BASED:

- Georgia Spatial Data Infrastructure web site: <http://gis.state.ga.us/>.
- Topozone, by Maps a la carte, Inc.: <http://www.topozone.com/>.

Photocopied Maps

Maps can also be constructed from photocopies. Sources of a base map may include a detailed county road map, old FSA maps, USGS topographic maps or county soil survey maps. To complete a map the following items may be useful:

- several copies of the base map for the farm
- a copy of the county soil survey map from NRCS
- colored pencils or fine point markers
- a ruler

Important features and land uses must be added by hand using the pencils or markers.

Suitable Areas

Site suitability for manure application is largely determined by the soils and topography, although other issues may include how close a field is to public roads, public gathering areas or residences. The best sites for manure application are on level to gently sloping, deep, well-drained soils with some clay content. Areas that require extra care include:

- Soils less than 24 inches to bedrock
- Soils with water tables less than 36 inches below the soil surface
- Slopes greater than 12 to 15 percent.

Detailed information on soil maps and characteristics are available from NRCS.

Setbacks and Buffers around Sensitive Areas

Sensitive areas are things such as wellheads, streams, or wetlands that are sensitive to nutrient inputs. Setbacks are areas in which manures and nutrients are not applied. Buffers are setbacks that are managed with certain types of vegetation to help prevent nutrients and sediments from reaching surface waters.

Setbacks around wellheads will reduce the potential for groundwater contamination due to nutrients from manures, fertilizers or pesticides. Table 1 gives the distances required by law that you need to have separating wellheads from various potential contaminants. Table 2 gives recommendations for separation distances from potential contaminants.

Table 1. Minimum distances between wells and potential contaminants based on the Georgia Well Standards Act of 1985.

Distance from Well (feet)	Potential Contamination Source
10	Sewer line
50	Septic tank
100	Septic tank absorption field
150	Cesspool or seepage pit
100	Animal or fowl enclosure

Table 2. Recommended separation distances from various potential contaminants.*

Distance from Well (feet)	Potential Contamination Source
150	Waste lagoon
50	Dead animal burial pits
100	Pesticide storage, mixing & loading facilities
100	Fertilizer storage
500	Petroleum tanks

* Tyson, A. 1996. Improving Drinking Water Well Condition. Georgia Farm*A*Syst, Cooperative Extension Service Bulletin 1152-3.

Setbacks and buffers around streams, rivers, ponds and wetlands reduce the chance these surface waters will become overloaded with nutrients. Most fresh water bodies in Georgia are particularly sensitive to phosphorus. Phosphorus in runoff or in water moving through the soil into the surface water can cause excessive algae growth that creates problems for recreation and other uses. Table 3 gives some general guidelines for buffer widths. Effective buffers are highly site specific and depend on land use, slope, and vegetation. You should review any proposed buffers with NRCS or county extension personnel. Governmental rules and regulations may require specific setback and buffer widths. These take precedence over

any recommended widths. A rule of thumb for buffers, that has origins in regulation, is they should be 100 feet wide for bare or sparsely vegetated land or 35 feet wide if well vegetated.

Table 3. Guidelines for surface water buffers. Do not apply animal manures within these buffers.

Distance from Surface Waterbody *	Feature
At least 35 feet	Ponds, sinkholes, wetlands
At least 35 feet if buffer is well vegetated	Streams, rivers
At least 100 feet if buffer is not well vegetated	Streams, rivers
At least 35 feet	Ditches (non vegetated)

*Rules and Regulations for Water Quality Control, GA DNR-EPD, "State CAFO Rule".

Considering "Spreadable" Acreage

Setbacks and buffers needed around these sensitive areas may reduce the land available for application of manures and fertilizer. The land area within a field available for manure application should be marked on the map. The acreage of the buffers and setbacks must be subtracted from the total acreage of the field. The use of manures in areas close to houses or public gathering places, if there is a potential for odor complaints should be limited or appropriately scheduled. These areas should also be marked on the map, and subtracted from the useable land acres if necessary. If a map is proper scale these acreage calculations can be made using the map. For hand drawn or photocopied maps without a reliable scale, the measurements should be made in the field and penciled in on the map.

Summary

You have now developed the basis for your NMP. These maps are critical for conservation, planning land application of manures, and crop rotations. You should keep them as accurate as possible.