



Alabama NRCS

Tech News

Winter 2008

Don't Forget The Buffers

By Bill Prince, Environmental Engineer, NRCS, Auburn, AL

Check a dictionary for the definition of the word "buffer" and you will find many usages, hardly any having to do with agricultural waste. But you will find a general sense of the word that does apply to our ag use, and that is "something that lessens or absorbs the shock of an impact." We use this sense in agriculture to apply the term buffer to a distance

between a potentially offensive object and a sensitive area, or to an area of vegetation between an area of potential pollution and a sensitive area.

More specifically, the term "buffer" is used in animal agriculture to denote:

- an area around a feedlot or animal production facility
- a distance between animal production facilities and a property line or public use area
- an area vegetated in thick permanent grass between a potential source of waste (building, incinerator, disposal field, etc.) and water (stream, pond, spring, well, sinkhole, etc.).



The appropriate minimum buffer distance in this case is 100 feet horizontal from the house corner to the normal waterline of the new pond.

Calendar

March 12: One-day Grazing Clinic, Fayette, AL

March 12: RC&D Executive Board Meeting, Montgomery, AL

May 23: PSC Advisory Council Meeting, Montgomery, AL

June 25: State Committee/AACD Exec/Planning Committee, Montgomery, AL

July 9: RC&D Executive Board Meeting, Montgomery, AL

August 10-12: NACD SE Regional Meeting, Beau Rivage Resort, Biloxi, MS

August 20: AL Ag and Cons Development Commission, Montgomery AL

September 10-13: SE Association of RC&D Councils, Wytheville, VA

September 17: State Committee/AACD Committee Meeting, Montgomery, AL

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- an area vegetated with trees, shrubs, and grasses next to a stream or other body of water
- a barrier of trees and shrubs intended to block noise, dust, odors, vision, etc.
- a distance or objects intended to separate objects or areas of incompatible uses.

The effectiveness of grassed buffer and filter strips next to a disposal area is well documented. While not a perfect solution, these grassed areas are a proven “bandaid” in separating land applied nutrients and sensitive water bodies. And while not scientifically documented, distance buffers are accepted by the Alabama

Department of Environmental Management (ADEM) as suitable protection for neighboring property lines and public use areas.

A complete list of required and recommended buffers recognized by ADEM and NRCS can be found at [www.aces.edu/dept/aawm/BufferSummary\(6-05\).pdf](http://www.aces.edu/dept/aawm/BufferSummary(6-05).pdf). This is a color-coded summary of buffer distances to be used between potential sources of pollution (e.g., new or existing wet or dry waste handling systems, animal production facilities, animal mortality facilities, and wet or dry waste disposal fields) and sensitive areas (e.g., water, property lines, public use areas, roads, buildings, and

floodplains). It is important to note that the buffers required by ADEM carry the force of law and must be correctly planned and installed or observed.

The summary is too extensive to include here, but we will consider one frequently occurring situation for an example. This is the required buffer distance of a minimum of 100 feet between animal production facilities and water or sinkholes. This is a horizontal distance measured between the closest edge of the facility (corner of a building, edge of an incinerator, or composter pad, etc.) and the nearest edge of a waterbody (top of streambank, normal pond waterline, edge of sinkhole, wellhead, etc.). This buffer distance is to

be observed regardless of whether the facility or the water exists first. The intended use for this type of buffer requires that the soil in the buffer be covered with close growing permanent vegetation.

Please be alert to all of the possible buffer situations that may apply. Remember that an error in buffer distance selection cannot be hidden, and these errors are usually difficult and expensive to correct after the fact. A printed copy of the color-coded buffer summary would make an excellent field tool for planners to include in their field toolbox. Please review it often and use it every time buffers are planned.

Teaming Up to Better Serve Forest Owners

The Alabama Forestry Commission (AFC) and NRCS entered into an agreement in February 2008 to provide increased assistance to forest landowners in Alabama. This joint partnership will help promote forest management, advance conservation on forestlands, and improve delivery of technical assistance to private landowners in Alabama.

This is the first formal agreement between the federal agency and the state agency. Staffs from both agencies have

worked together at the local level for many years. This agreement recognizes this cooperation, and lays the groundwork for more detailed agreements to share staff and financial resources.

NRCS administers many federal programs that can benefit forest landowners. Both NRCS and AFC assist landowners. This agreement will strengthen the relationship between the two agencies.



This agreement promotes sharing technical assistance, information, training, and continuing education opportunities to better assist landowners. AFC State Forester Linda Casey (seated l) and Alabama NRCS State Conservationist Gary Kobylski sign joint partnership agreement to provide increased assistance to forest landowners in Alabama. Standing l-r: Steve Musser (NRCS); John Pirtle, Arthur Hitt, and Bill Baisden (AFC), and Tim Albritton (NRCS).

Forest Health Initiative Continuous Sign-up

Timber stand improvement is an intermediate treatment made to improve the composition, structure, condition, health, and growth of even- or uneven-aged stands. Alabama NRCS is offering a continuous sign-up for the Environmental Quality Incentives Program (EQIP) Forest Health Special Initiative that is designed to promote and inform private forest landowners about the practices that can improve growth, reduce risks, and improve forest health.

Forestland makes up about two-thirds of the state and many of these acres are overstocked and at risk of wildfire. The Southeast has recently experienced abnormally dry conditions that have fueled severe wildfires that have destroyed natural resources.

Although most people don't realize it, insects and diseases harm forests more than wildfires. In fact, they destroy 43 times more trees than wildfires. Pine bark beetles are the most destructive forest insects in the South.

The Southern Pine Beetle (SPB) is the most significant forest insect pest. In recent years, SPB levels have reached epidemic status and has destroyed millions of

dollars worth of timber.

The Pine Engraver Beetle (*Ips* spp.) is another pine bark beetle that has had severe impact on our forest. Because *Ips* infestations tend to be relatively small and scattered, they usually cannot be effectively controlled or salvaged, but their economic costs may approach those of SPB.

Eligible lands for this special initiative program include pine forest lands that are overstocked and subject to fire hazard, disease, or insect infestation.

Applicants must meet basic guidelines and eligibility requirements:

1. Must be a minimum of 10 forested acres.
2. The maximum number of acres for prescribed burning and firebreaks is 500 acres. This payment is for one year only.
3. The maximum number of acres for Timber Stand Improvement (pre-commercial and commercial thinning) is 200 acres. Eligible acres have a Southern Pine Beetle score of 100 or more.
4. Forest landowners becoming Certified Burn Managers may receive a one-time payment of \$375 upon providing proof of certification.

5. AFC will develop a plan for each approved applicant on the offered acres, and NRCS will develop a conservation plan for reporting forest management and related wildlife practices.

Approved practices:

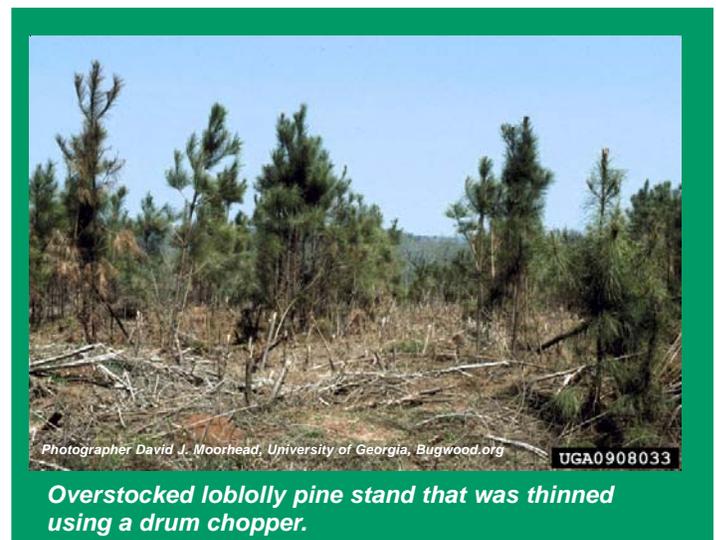
- Prescribed Burning - Applying fire to predetermined areas under conditions that the intensity and spread of the fire are controlled.
- Firebreak - A strip of bare land or fire-retarding vegetation.
- Fuel Break - Control and reduce the risk of the spread of fire by treating, removing, or modifying vegetation, debris, and detritus.
- Timber Stand Improvement - Precommercial Thinning - Removing undesirable trees

from non-merchantable pine stand and lowering the density to acceptable level.

- Heavy Thinning of Pine Stands - Removing undesirable or lower quality trees from a merchantable pine stand and lowering the density to acceptable level. From a forest management perspective, the "lower quality" or "poor quality" trees are trees which will remain pulpwood quality regardless of size or age.

Lands currently enrolled in the Conservation Reserve Program (CRP), EQIP, Wildlife Habitat Incentives Program (WHIP), or other Farm Bill programs are ineligible.

Contact the local county NRCS office for more information.



Washington County Soil Survey Progress Field Review

By Angela Warden, Soil Scientist, Washington County Soil Survey Office, Jackson, AL

The Washington County Soil Survey Office hosted a Progress Field Review in August 2007 to demonstrate the use and importance of soil surveys completed by NRCS soil scientists.

A steel plant is being constructed in northern Mobile County, and Washington County is seeing an increase in development. There is a real need to help educate the people in the county about soils that are acceptable or not acceptable to build upon.

The progress review began on Monday at a potential building site on an Atmore soil. Local commissioners, Health Department employees, soil scientists, U.S. Fish and Wildlife, and Natural Resources Conservation Service (NRCS)

employees saw the importance of a soil survey for planning for homesites or converting land into a commercial site. In addition, we viewed some of the beautiful wetland plants which grow throughout Washington County on similar landscape positions and soil types.

We stopped on Commissioner Hilton Robbins' land to look at a Tibbie Soil that the NRCS Soil Survey is proposing as a new soil series.

We demonstrated the importance of using plants in conjunction with the soil as indicators for potential soil problems.



Tibbie Soil Profile (l) and Pitcher Plants and Carolina Red Root on Tibbie Soil surrounded by crawfish mound.

Several surface and subsurface soil profiles were exposed showing that this area contained dominant obligate and facultative vegetation and that this poorly drained soil had hydric and non-hydric characteristics.

We discussed the definition of a hydric soil. As with the Tibbie site, there were obligate plant indicators, such as Pitcher Plants scattered throughout the landscape. This was also a great visual exercise to show how quickly soils can change in their criteria across the landscape.

The last stop for Monday was on the Vinegar Bend quad to look at some more landform components. This soil is an Arenic Plinthaquic Paleudults.

NRCS Soil Scientist Joey Koptis showed participants what he has been finding while mapping in this area. Randy Roach and Jodie Smitheron helped everyone brush up on plant names while Wade Hurt demonstrated how difficult it can be to determine a true hydric soil.



Tibbie Soils Landscape with Pitcher Plants in a 20-year-old stand of struggling pines.



Wade Hurt demonstrates hydric soil indicators.



A Wetland Flat Landscape

On Tuesday, our first stop was to view a Maubila Soil Series that is found along many of the steeper areas throughout Washington County. They are also known to be found along short choppy side slopes, upland ridges, and knolls in the Southern Coastal Plain. This soil is oftentimes found in conjunction with a complex of soil types. It is a moderately well drained soil that has slow permeability. They are

classified as an Aquic Hapludults. This is not the kind of soil one would initially seek out to place a house or plant crops. It will, however, grow a decent stand of hardwoods and pines.

At our next stop, we looked at a Blanton Soil Series. These soils are found on uplands and along higher stream terraces throughout much of Washington County.

These soils are somewhat excessively drained to moderately

well drained with moderate to slow permeability. They are classified as Grossarenic Paleudults. These sandy soils have between 40 inches to 60 inches of a sandy upper layer before seeing an increase in clay content.

The final stop for Tuesday was to take a look at an Olla Series. These soils are found along highly dissected uplands in the Southern Coastal Plain. They are well drained soils and moderately permeable. They are classified as a Typic Hapludults and associated with Maubila soils in Washington County.

For the rest of the day, we viewed some wet Bibb and Johnston Soil Series sites in flood plains.

On Wednesday, we began by looking at a soil series we were trying to set up in Washington County called Cowpen. I

have been finding this soil on the McIntosh quad. It is a soil with a very high content of clay that exhibited slickensides which are found in Vertic and very Smectitic or Montmorillinitic clays. They form from the rubbing of pressure faces along the clay seams due to the shrink-



Blanton soil pit and profile. (below) Protected Gopher Tortoise found living in burrows on these sandy soils.



swell activity (from wet to dry and cold to hot). After much debate, the Soil Quality Data Specialists (SDQS) Greg Brannon from Alabama and Tom Kilpatrick from Mississippi felt that it would be best to map this soil with one that they have been mapping in Mississippi called Susquehanna. Although the vegetation did not indicate a high base saturation, we took some samples to determine if this is an Alfisol, high base soil. It will be up to the Soil Project Leader to make this final call. For now, it will be mapped as Susquehanna.

Next, we continued on along the McIntosh quad on the Henson Land to look at some Quartzipssaments (80"+sand) Grossarenic (40" to 60" sands) and



(l) Maubila Soil Profile showing its subangular blocky structure and iron depletions (gray colors) and iron accumulations (brown and reddish colors). (r) The steep Maubila Landscape.



SDQS Greg Brannon approves the Olla Profile.

Our last stop for the day was along Highway 43 to look at some hydric soils located directly behind an area that had been cleared for a business.

On Thursday, we traveled to the Bear Lake area to look at a Kenansville soil that the Project Leader found while mapping in this area on the Wagarville Quad. This soil is a well drained soil found



Bear Lake.

Arenic (20" to 40" sands) soils found along steeper side slopes and uplands adjacent to this Cowpen soil. Later, we traveled to the area of the county where our new contract Soil Scientist will be mapping and discussed our concepts on some of the soils that we saw along these areas.

“There is a real need to help educate the people in the county about soils that are acceptable or not acceptable to build upon.”

on gently sloping uplands and on stream terraces throughout the Southern Coastal Plain. This particular pit was dug on upland flat.

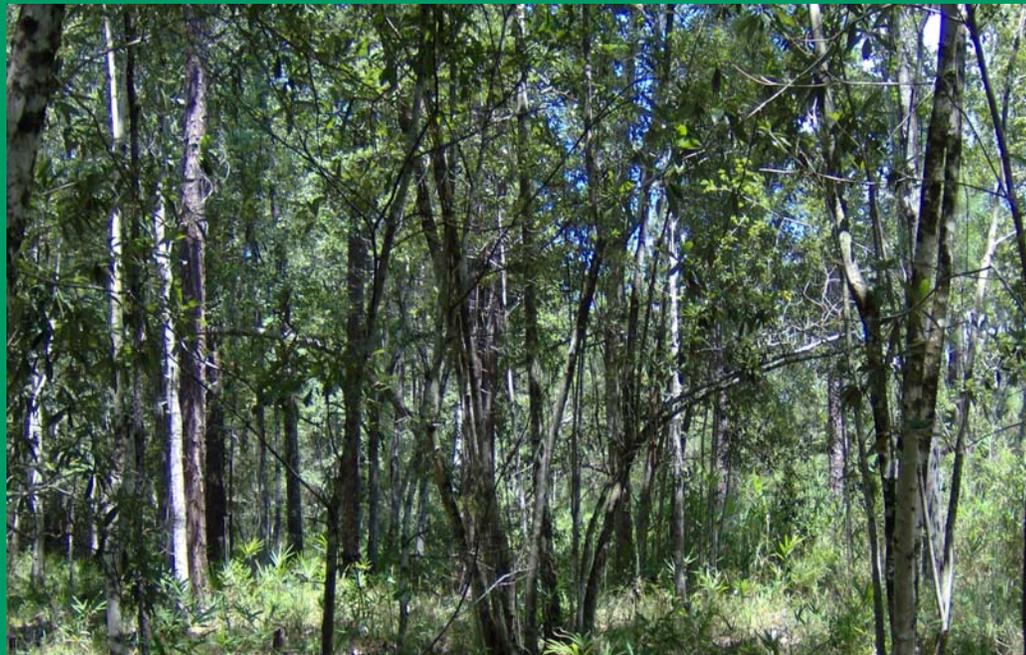
Next, we traveled to look at a sandy hydric soil found on a side slope just behind Bear Lake.

Through the Washington County

Soil Survey Progress Review, we were able to convey the importance of the work that we are doing with the initial soil survey for Washington County, Alabama

Thanks to the Soil Survey team that worked very diligently to manually dig the majority of the pits used for visually demonstrating the soil series.

It is notable to mention that through the Soil Survey process, the Survey Team got seven additional soil series approved to the Washington County legend.



Example of vegetation that dominates areas of Bibb and Johnson soils.

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Efforts of Local Partners Prevent Potential Dam Failure

Quick action by a host of local partners averted a potential failure of a watershed dam in Marion County recently.

Little New River Site #2 is one of the oldest watershed dams in the state of Alabama. Located on Bostick Creek near Brilliant, the dam was completed in 1960. Its primary purpose is flood protection and prevention, but during an inspection in April 2007, a problem was discovered. The reservoir was full. It was up to the crest of the emergency spillway, as much as 20 feet above normal pool level, even though recent rains had been minimal. In addition, there was very little flow through the principal spillway pipe, leading the NRCS engineer to surmise that something (woody debris,

leaves, concrete, etc.) was clogging the riser.

The condition of the reservoir was compared to that of July 2006, when annual mowing maintenance was completed. The photo below shows that the pool level was very low and the riser was exposed several feet above the water level. At that time, it was noted that the valve, located at the bottom of the riser near the pool floor, appeared to be leaking, allowing the water level to drop. Also, the access hole to the inside of the riser was open and the trash rack was in need of repair or replacement.

Marion County engineer Mike Shaw was immediately notified of the situation due to the hazard downstream in case of breach and/or

failure of the dam. The Marion County Commission immediately secured and installed a 6-inch siphon pipe and began drawing down the reservoir so that the riser could be inspected. Several weeks of siphoning dropped the water level several feet; however, the top of the riser was still more than 10 feet below the surface.

In early July 2007, a meeting was held between NRCS personnel, the Marion County SWCD, and the assistant Marion County engineer. They discussed the severity of the problem and the need for more aggressive measures to lower the reservoir water level and to remove the blockage

from the riser. During the meeting it was agreed to initiate pumping and to continue trying to siphon.

During the following weeks, the county used a 6-inch rented pump and hired a diver experienced in watershed structure problems. The diver evaluated the condition of the riser and attempted unsuccessfully to remove the blockage.

Subsequently, the county rented another 6-inch pump and by mid-August, the water level had been lowered so that the riser was visible within a couple feet below the water's surface. A major setback was encountered on the evening of August 17, when Brilliant received a 6-inch rain which caused

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Watershed dam in July 2006 before problem.



Riser completely under water in April 2007.

Wetlands And Farm Ponds

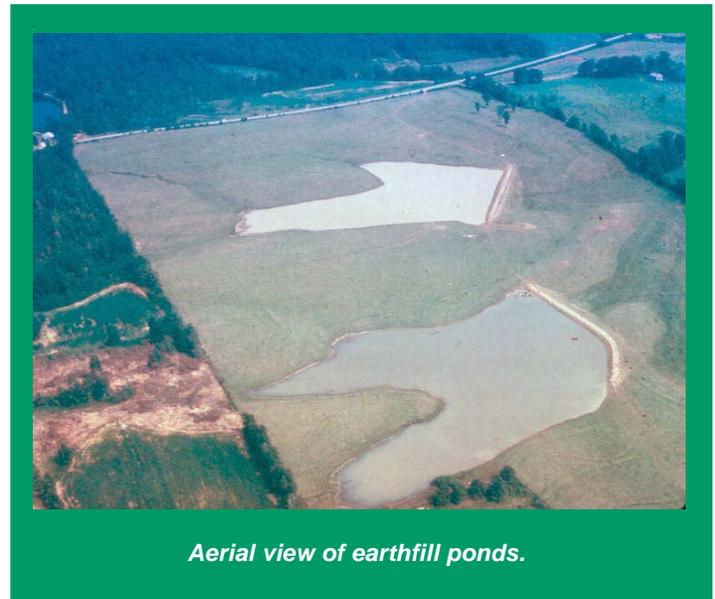
By Jeff Allred, Resource Engineer, NRCS, Decatur, AL

NRCS is often asked to assist with farm pond layout and design. In most cases, the purpose is for livestock water or irrigation. In other cases, a landowner may want a pond for fish production or recreation. Either way, wetlands are often an issue.

At the present time, NRCS in Alabama has a standing agreement with the Corps of Engineers (COE) to exempt farm ponds from wetland permitting, provided they meet two conditions: 1. the pond is constructed in an upland area; 2. the pond is for irrigation or livestock water and is "commensurate" (i.e. having the same measure, proportionate, adequate) with the size of the operation.

How do you determine if a pond is commensurate with the size of the operation? The answer is: Water Budget.

NRCS is presently working on an agreement with the COE to provide guidance on developing water budgets for NRCS and COE employees when servicing requests for ponds. In this agreement, livestock water requirements, estimated crop water needs, minimum pond depth, and storage period have been defined. During severe drought conditions in Alabama, ponds can lose 4 feet of water depth. For this reason, embankment ponds should always have at least 8 feet of water at the deepest part of the pond. In Alabama, the maximum storage period is normally 180 days, or 6



Aerial view of earthfill ponds.

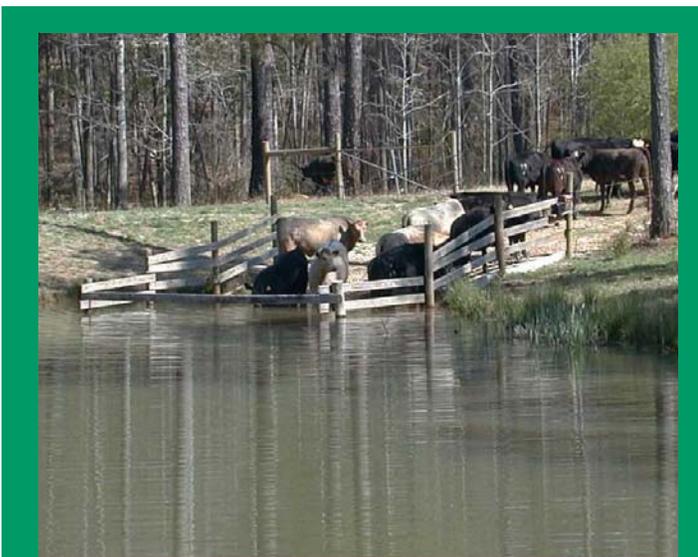
months (dry months of the year) for animals.

For excavated ponds (i.e. ponds that are "dug out"), developing a water budget is a simple process. A Microsoft Excel spreadsheet is used and the number of cattle, storage period, surface dimensions, desired depth and slopes are inserted. The program will then calculate the total storage required (sum of water needs and evaporation losses) and the designed storage. When the designed storage is equal to the total storage required, the pond is "commensurate" with the size of the operation.

For an earthfill pond (i.e. ponds that have an embankment) the process of developing a water budget is more difficult. A survey is

needed to develop stage/storage (i.e. elevation/surface area size) data. A waterline is surveyed (8 feet minimum depth) and the drought elevation (4 feet lower than the surveyed waterline) is checked to determine if the pond is "commensurate". In other words, storage at the drought level is considered available water for irrigation or livestock purposes.

Before a pond is constructed with NRCS assistance and considered exempt from wetland permitting, a water budget will need to be developed. Examples of a water budget (livestock and irrigation) to determine if the pond is "commensurate" with the size of the operation are as follows:



Pond constructed for the purpose of supplying water to livestock.

Example 1:

A producer with a 50-head beef cattle operation has requested a pond exemption. An excavated pond site is not feasible. An embankment pond site with 8 foot of water at the dam would have 0.6 acre of surface area. At a 4 foot depth (drought level) the water surface would be 0.25 acres. Is this site for a pond defensible?

50 hd @ 12 g/day/hd	=	600 gal/day
Maximum storage period	=	180 days
1 acre-ft	=	325,851 gal
Therefore, cattle water needs	=	0.331 acre-ft
Available water at 4 ft drought level 0.4 X 0.25 acre X 4 ft	=	0.40 acre-ft (defensible*)
Pond total volume 0.4 X 0.6 acre X 8 ft		1.92 acre-ft

* Even though the available water at the drought level is more than the cattle needs for the storage period, the site is still defensible since there is only 8 foot of water at the dam.

Example 2:

A producer irrigates 50 acres of cotton and would like to have a 20 acre irrigation pond. The pond site would have 20 acres of surface area with 16 foot of water at the dam and 15 acres surface at the 12 foot depth (drought level). Is this site for a pond defensible?

Crop acreage	=	50 acres
Water needs	=	1.5 ac-ft/ac
Total water needs	=	75 acre-ft
Available water at 12 ft drought level 0.4 X 15 acre X 12 ft	=	72 acre-ft (defensible*)
Pond total volume 0.4 X 20 acre X 16 ft		128 acre-ft

* Even though the pond is defensible, because the pond exceeds 10 acres, documentation will be sent to the COE for review.

Note: Recreational ponds will be required to obtain a Section 404 Clean Water Act Permit from the COE.

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the reservoir to fill 8 feet above the riser.

Due to the efforts of NRCS DC Wade Hill, a

local landowner provided the use of two 10-inch irrigation pumps, in addition to the two 6-inch pumps the county had rented. County

Commissioners Bob Bureson and Mike Davis provided the labor and fuel to to keep the pumps running 24/7 until the riser could be inspected.

Finally, in September, the riser was exposed and NRCS employees used a boat provided by County Commissioner Bob Bureson to inspect it. The Marion County SWCD stepped forward at this point and hired a contractor to remove the blockage from within the riser.

The contractor cleared the blockage which consisted of eight bags of sackrete and two concrete covers originally

installed to cover the riser access. The Marion County SWCD worked with a local contractor to install a new trash rack, cover the riser access, and repair the valve.

The success accomplished on Little New River Site #2 was due largely to the working relationship of the local partners. This situation was so complex that no one agency could have solved the problem alone.

Thanks to the efforts of these local partners - the Marion County Commission, NRCS, and the Marion County SWCD a potential crisis was averted.



(l-r) County Commissioner Bob Bureson and NRCS District Conservationist Wade Hill assemble intake for the 10 inch irrigation pump.