

# **WORKSHOP**

## **Workshop on the Effects of Tired Creek Dam and Stormwater Holding Ponds on the County's Lakes**

**Tuesday, June 18, 2013**

**1:00 – 3:00 p.m.**

**Leon County Board of County Commissioners' Chambers  
Leon County Courthouse, 5<sup>th</sup> Floor**

**Leon County  
Board of County Commissioners**

**Notes for Workshop**

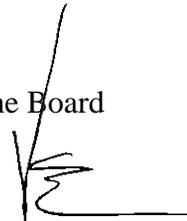
# Leon County Board of County Commissioners

## Workshop Cover Sheet

June 18, 2013

**To:** Honorable Chairman and Members of the Board

**From:** Vincent S. Long, County Administrator



**Title:** Workshop on the Effects of Tired Creek Dam and Stormwater Holding Ponds on the County's Lakes

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<b>County Administrator Review and Approval:</b>	Vincent S. Long, County Administrator
<b>Department/ Division Review:</b>	Herb Thiele, County Attorney Tony Park, P.E., Public Works and Community Development David McDevitt, Director, Development Support & Environmental Management
<b>Lead Staff/ Project Team:</b>	John Kraynak, P.E., Director, Environmental Services Division

**Fiscal Impact:**

This item has no fiscal impact to the County.

**Staff Recommendation:**

Option #1: Accept the status report on the effects of Tired Creek Dam and stormwater holding ponds on the County's lakes.

## **Report and Discussion**

### **Background:**

At the April 9, 2013 Board meeting, the Commission voted to schedule a workshop on the effects of Tired Creek Dam and stormwater holding ponds on the county's lakes. Recent drought patterns combined with the construction of large stormwater holding ponds have raised the question as to whether these ponds have an adverse effect on the lakes in Leon County.

### **Analysis:**

Leon County has been thoroughly engaged in environmental actions north of Leon County in an effort to protect Leon County's lakes, streams and rivers, as well as endangered species, from environmental pollutants and reservoir construction in the State of Georgia.

Recent efforts have involved assistance from Congressman Steve Southerland who has been helping the County address concerns about the environmental problems posed by the Army Corps of Engineers' issuance of a permit to Grady County, Georgia, to build a dam on Tired Creek (Attachment #1). That dam will create a large lake totaling 960 acres (1.5 square miles). Unless the permit terms are changed, the timing, volume, and quality of water released from the dam may negatively impact Leon County's lakes and rivers, as well as the wildlife, including endangered species, dependent on adequate clean water. Below is a summary of the possible damage to Leon County's water quality and quantity, effects of possible septic tanks, and effects on endangered species from affected waters within Leon County if the permit issued by the Army Corps of Engineers to Grady County, Georgia, is not revised.

### **Effects of the Grady County Reservoir/Dam on the County's Lakes**

***Tired Creek*** - Tired Creek is a significant tributary of the upper Ochlockonee River, a river that flows through Grady County, Georgia, before passing directly into Leon County, Florida, before making its way to the Gulf of Mexico. Construction of the large dam and 960-acre fishing lake will require the impoundment of sections of Tired Creek, resulting in the flooding of more than 129 acres of wetlands and more than nine miles of streams. These wetlands filter, purify and protect water flowing from this area that helps supply drinking water for Leon County. Without this protection, Leon County's drinking water quality and volume may suffer.

***Lake Iamonia*** - This is a wide and shallow lake, unusual because the source of most of its waters are episodes of high water from the Ochlockonee River rather than from groundwater or other streams. Approximately ten percent of the time (depending on the amount of rainfall), the river recharges Lake Iamonia. Because this recharge only occurs at times of high flow, the lake and the ecosystem, which depends on it, are extremely sensitive to reductions in flood conditions. Therefore, even apparently small changes in upstream flows could "shave the peaks" off these flows, potentially causing harm to the lake and its associated ecosystem.

The current permit terms do not assure adequate recharge from Tired Creek, especially during the period of the first three to five years when the lake is to be initially filled. This is due to the Corps' failure to analyze flows during the period the Tired Creek Reservoir is to be filled, and because the permit terms were written in annual average terms, which are likely to cut off high flows downstream. Unless the permit terms are revised to assure adequate flood stage releases, the quality and quantity of water in Lake Iamonia may suffer significant harm, impairing its use as a source of water and for recreation.

**Lake Talquin** - The Ochlocknee River feeds Lake Talquin, downstream of the Lake Iamonia connection to the river. The State of Florida reports that Lake Talquin's water quality is threatened by excessive nutrients and the algae excess nutrients help grow. The County is concerned that nutrient concentrations in the incoming water may increase with reduced flow from Tired Creek. Furthermore, if the Tired Creek Fishing Lake management practices allow fertilizer application within the lake basin, incoming nutrient concentrations to Lake Talquin may increase, which could further impair this important water source and recreational resource.

The permit to Grady County did not place any restrictions on property uses for areas located more than 100 feet from the proposed fishing lake. With the exception of the 100 foot setback required by the permit, Grady County has placed no restrictive easements or restrictive covenants over land near the proposed fishing lake, which would proscribe further development or the use of septic tanks over 100 feet away from the proposed fishing lake. Therefore, the permit would not prohibit residences with septic tanks to be built 101 feet away from the proposed fishing lake, which may drain into the lake and eventually downstream into Leon County.

There have been no studies completed in conjunction with the permit to determine the distance any septic tank would need to be from the fishing lake to prevent drainage into the lake. Although it has been stated by Grady County that any development near the lake would require either a package sewage treatment plant or connection to Cairo's wastewater treatment facility, the permit does not require this. Leon County's waters will be negatively impacted if septic tank discharge reaches the fishing lake created by the Tired Creek impoundment, or if other development is allowed in the area of the proposed fishing lake. Additionally, unregulated application of fertilizer on properties adjacent to the proposed lake will also increase nutrient loading and associated negative impacts in the Ochlocknee River and Lake Talquin.

#### Endangered and Threatened Species

Several endangered or threatened species live in or are supported by the Ochlocknee River in Leon County. These species include two endangered species of freshwater mussels, the Shinyrayed pocketbook (*Lampsilis subangulata*) and Ochlocknee moccasinshell (*Medionidus simpsonianus*), as well as a threatened species of freshwater mussels, the purple bankclimber (*Elliptoideus sloatianus*). These species will be adversely affected by reductions in the quality and quantity of water flowing into Leon County via the Ochlocknee River.

As stated previously, Leon County has attempted to suggest remedies to the Army Corps of Engineers by various means, including correspondence, litigation, and meetings. The suggested remedies include:

***During Construction:***

- Ensure that there is adequate containment and buffering of the river/stream to prevent a wash out of mud and debris from the construction site during a rain event.

***Post Construction:***

- Conduct recurring studies of downstream water flow from the dam into the Ochlocknee River, especially as it relates to Lake Iamonia.
- Create operational protocols for the dam gates that ensure adequate flow, especially in a heavy rainfall event, to allow "flood waters" to actually reach the lake. Currently, the only time water reaches Lake Iamonia from the Ochlocknee River is during a "flood."
- Conduct recurring studies of any impact on endangered species (mussels, etc.) downstream of the dam. It is believed that the applicant has never examined any impacts.
- Create a conservation easement (greater than the current 100-foot limitation on development) around the border of the lake to prevent harmful future development and prevent the use of septic tanks close (no closer than 500 feet) to the lake. This would also address the issue of fertilizer application adjacent to the lake.

As of this date, efforts by Congressman Southerland are still being made to have the Army Corps of Engineers revisit these issues, but to date, none of Leon County's suggested "remedies" have been implemented. The primary focus is to assure adequate flood flows downstream; as such changes may do the most good in recharging Lake Iamonia and maintaining the health of that ecosystem.

**BASF Plant, Attapulgus, Georgia**

This issue is one of water quality in that the BASF plant in Attapulgus, Georgia has in the past, and continues to dump approximately two million pounds of nitrate a year into Little River, a tributary of Lake Talquin. The Leon County Attorney's Office is continuing to address this matter and presently is seeking to negotiate with the Georgia Environmental Protection Division through the Environmental Protection Agency in Atlanta to address the issues. The focus is to dramatically reduce the nutrient discharge from this plant. BASF has a market capitalization of over \$60 billion and can easily afford the rudimentary upgrades needed to achieve such nutrient reductions.

### **Effects of Stormwater Holding Ponds on the County's Lakes**

Stormwater is the flow of water that results from a rain event. Permitting for stormwater holding ponds in the County began in the late 1970s to protect downstream properties from flooding due to the new impervious areas constructed by development. Prior to that time, uncontrolled growth added significant impervious area, causing widespread flooding in the County's streams, lakes, rivers and closed basins. The early stormwater facilities provided rate control only for smaller storms as compared to today's standards. In the early 1980s, the State of Florida passed minimum water quality treatment standards to protect the downstream lakes from sedimentation and nutrients. Since that time, Leon County has increased the protection of water quality by implementing watershed conservation measures, closed basin standards, a Lake Jackson 50-year Post-development Retention Standard for non-single-family residential property and the Bradfordville 4-inch Standard.

Stormwater treatment facilities are mandatory by both the Federal and State governments. The Federal Clean Water Act regulates discharges of pollutants into waters of the United States. There is statutory basis for the National Pollutant Discharge Elimination System (NPDES) permit program, which is managed by our Public Works Department. The State of Florida Department of Environmental Protection (FDEP) sets the State minimum standards, which are permitted by the Northwest Florida Water Management District (NFWFMD). The Comprehensive Plan also requires minimum levels of service for stormwater management. The Land Development Regulations provide water quality and flood control for property protection and for protection of our streams, lakes and rivers.

In order to understand the effects of stormwater and holding ponds, it is important to first understand the hydrologic cycle, which is the exchange of water between the earth and atmosphere. In a natural system, rain falls on the forested areas and infiltrates into the rich leaf-litter soils, and will only produce runoff in larger storm events. Some of the rainfall is caught in depression storage areas, some evaporates from the surface, some infiltrates into the surficial aquifer and some is used by the trees and vegetation providing evapotranspiration. Once development occurs, the surface is changed by adding impervious areas. These areas modify the normal hydrocycle by shifting more of the rainfall to runoff. The additional runoff eventually causes flooding and water quality problems in our streams, lakes and rivers.

The effects of additional impervious area and runoff are mitigated by constructing stormwater holding ponds. There are two types of stormwater holding ponds: 1) "detention" and 2) "retention". Even though these two types of ponds are often mistakenly used interchangeably, there are major differences. "Detention" ponds collect and temporarily store stormwater with subsequent gradual release of the stormwater to downstream receiving bodies. Examples of detention are sand filter ponds and wet detention ponds (Attachments #2 and #3).

On the other hand, "retention" ponds maintain onsite storage of stormwater with subsequent disposal by infiltration into the ground or evaporation in such a manner to prevent surface discharge of stormwater runoff downstream. An example of retention is a percolation pond (Attachment #4). Basically, "detention" allows for stormwater discharge downstream and "retention" keeps the stormwater on-site.

Most of the development permitted before the 1980s was either constructed without stormwater ponds or with detention holding ponds, which added more water downstream. Since the 1980s, the vast majority of the permitted holding ponds constructed have continued to be detention facilities which add more water to our streams, lakes and rivers. The permitting for the Lake Jackson Basin area illustrates this point.

The Lake Jackson Basin was chosen as an example because this lake has received the most attention due to recent drydown periods where the lake bottom was fully exposed. Lake Jackson is the County's prized bass fishing lake, so when the lake disappears, questions arise as to why the lake is continuing to go dry or stay at low water levels. Staff has heard numerous concerns about the construction of large stormwater holding ponds and the possibility that these holding ponds are the cause for the lake going dry. In 1995, the Board adopted a strict retention standard to protect Lake Jackson from pollutants from non-single-family development. This standard requires that such development retain the resultant stormwater onsite for all storms up to and including the 50-year storm event. This means that the runoff from a 9.6-inch storm event must be kept onsite in a retention holding pond and recover by percolation through the pond bottom with no discharge allowed by overland flow downstream. Typically, these stormwater facilities are large, and questions have been raised as to whether they are "robbing" the lake of its water.

Staff performed an analysis of County permitting within the Lake Jackson Basin since the adoption of the 50-year retention standard in 1995. The Lake Jackson Basin is 27,262 acres, or 42.6 square miles in size. There have been a total of sixteen (16) 50-year retention facilities constructed in the basin since 1995. These facilities collect runoff from a drainage area of 64.24 acres. This is approximately 1/500<sup>th</sup> or 0.2% of the Lake Jackson Basin. Assuming that all of the pre-development runoff that normally would discharge downstream is contained in the 50-year retention facilities, the volume lost for any storm event can be calculated. Staff chose a two-inch storm event since the majority of the rainfall events occurring during the year fall at or below that event. Staff modeled the two-inch storm event, which resulted in 26,992 gallons of pre-development runoff being retained in the sixteen 50-year facilities.

At the same time, there were 514 residential lots permitted since 1995. These lots were either vested and permitted with no stormwater holding ponds or permitted with detention facilities. Staff modeled these 514 residential lots as detention and found that for the same two-inch storm event, the additional impervious area generated an additional 2,645,133 gallons of stormwater runoff. Therefore, approximately 100 times (2,645,133) more gallons of runoff were produced by the residential permitting versus what was lost by the commercial development (26,992).

This analysis clearly indicates that stormwater ponds are not causing the lake to go dry. The summary of this analysis is shown in Attachment #5. The analysis would be similar if applied to other major County lakes such as Lake Iamonia, Lake Lafayette, Lake Munson, etc. The volume would be even higher than the volume for Lake Jackson since these other lake basins do not have the 50-year retention requirement.

In addition to County permitting, the City of Tallahassee has permitting jurisdiction for approximately 9.4 square miles of the Lake Jackson Basin. The City did not have the 50-year retention standard until the standards were unified under the Countywide Minimum Environmental Regulations adopted last year. Thus, most of the impervious area permitted by the City was permitted with detention facilities adding a significant amount of additional stormwater to Lake Jackson. In addition, developments such as Summerbrook and the Tallahassee Mall added significant amounts of impervious area that added more stormwater to the lake.

Based on this information, staff maintains the reason Lake Jackson isn't maintaining a constant water level is due to a combination of sinkhole openings and rainfall patterns. Lake Jackson was referred to by the Native Americans as "Okeehoopkee" or "disappearing waters" due to periodic dry downs. Part of the dry down was due to sinkhole openings, such as Lime and Porter Sinks shown in Attachment #6. These sinks are naturally sometimes open and other times silted closed. However, the primary reason for low lake levels is rainfall patterns. The graph in Attachment #7 shows the Tallahassee annual rainfall from 1950 to 2012 with the red line delineating the mean annual rainfall of 64.6 inches. The graph shows a wet rainfall period from 1963 to 1980, but a significantly dry period from 1995 to 2012. The dark dots signify the dry down years, which have mostly occurred over the last 15 years. This sustained below average rainfall deficit has caused Lake Jackson and many other lakes in Leon County to go dry.

**Options:**

1. Accept the status report on the effects of Tired Creek Dam and stormwater holding ponds on the County's Lakes.
2. Do not accept the status report on the effects of Tired Creek Dam and stormwater holding ponds on the County's Lakes.
3. Board direction.

**Recommendation:**

Option #1.

**Attachments:**

1. Correspondence between the County Attorney's Office and Congressman Steve Southerland, II
2. Cross-Section Diagram of Sand Filtration Pond
3. Cross-Section Diagram of Wet Detention Pond
4. Cross-Section Diagram of Dry Retention (Percolation) Pond
5. Lake Jackson Runoff Impacts Graph
6. Lake Jackson Sinkholes Diagram
7. Tallahassee Annual Rainfall Graph

REPLY TO  
ATTENTION OF:DEPARTMENT OF THE ARMY  
SAVANNAH DISTRICT, CORPS OF ENGINEERS  
100 W. OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401-3640

NOV 5 2012

Executive Office

Honorable Steve Southerland, II  
House of Representatives  
2133 Rayburn House Office Building  
Washington, DC 20515-1010

Dear Mr. Southerland:

I refer to our meeting on October 12, 2012, regarding the continued concerns of Leon County, Florida, with the Department of the Army permit that was issued to the Grady County Board of County Commissioners for construction of a 960-acre lake on Tired Creek in Grady County, Georgia. As you explained during our meeting, Leon County is concerned that lake construction and operation would have the potential to adversely impact flows in the Ochlocknee River, water levels in Lake Iamonia and Lake Talquin, and ultimately salinity levels in Apalachicola Bay.

On November 5, 2012, the Georgia River Network and American Rivers filed a complaint against the US Army Corps of Engineers (USACE), *Georgia River Network and American Rivers v. USACE, et al.*, Case No. 4:10-cv-00267. Leon County intervened as a plaintiff in this case. On March 19, 2012, the District Court granted the USACE's cross motion for summary judgment. The plaintiffs filed an appeal of this decision to the United States Court of Appeals for the Eleventh Circuit. Leon County did not join the appeal. On September 27, 2012, the court granted the plaintiffs-appellants' motion to expedite the appeal, and scheduled oral arguments for December 6, 2012.

During our meeting, you indicated that Leon County would like to meet with my staff to discuss the operation of the Tired Creek Lake. In view of the pending court action, such a meeting would not be appropriate at this time. However, once the pending litigation is resolved, my staff would be available to attempt scheduling of a meeting between Leon County and Grady County to discuss lake operations.

I appreciate your interest and concern in this matter. If my office can be of any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff M. Hall".

Jeffrey M. Hall  
Colonel, US Army  
Commanding



# Leon County

## Board of County Commissioners

301 South Monroe Street, Tallahassee, Florida 32301  
(850) 606-5302 www.leoncountyfl.gov

Commissioners

April 5, 2013

BILL PROCTOR  
District 1

The Honorable Steve Southerland, II  
U.S. House of Representatives  
1229 Longworth House Office Building  
United States House of Representatives  
Washington, D.C. 20515

JANE G. SAULS  
District 2

JOHN DAILEY  
District 3

BRYAN DESLOGE  
District 4

Re: Proposed Grady County, Georgia Dam/Tired Creek Reservoir

KRISTIN DOZIER  
District 5

Dear Congressman Southerland:

MARY ANN LINDLEY  
At-Large

We understand that you may be meeting soon with the Corps of Engineers on a number of pending issues, including the Tired Creek Lake and its adverse downstream effects.

NICK MADDOX  
At-Large

Per your request, this letter outlines Leon County's concerns about the Corps' approval of a permit under section 404 of the Clean Water Act, allowing construction of a dam on Tired Creek Lake in Grady County, Georgia. Leon County is especially concerned about the dam's reduction in downstream flow and the subsequent reduced recharge of Lakes Iamonia and Talquin, both located in Leon County, downstream of the Tired Creek Lake.

VINCENT S. LONG  
County Administrator

HERBERT W.A. THIELE  
County Attorney

Leon County seeks your help in specifically asking the Corps to clarify and revise a single condition of the permit it issued for the dam (permit condition 25). That clarifying revision will enable easier and more effective monitoring and enforcement of the dam's downstream flow requirements. (According to a letter submitted by Grady County to the Corps on January 7, 2013, Grady County also recognizes the need to modify several of the permit conditions, including permit condition 25.) If this one permit condition is not clarified to ensure compliance on a week-by-week basis, Leon County is especially concerned that the recharge of Lake Iamonia will be significantly reduced, especially during the three-to-five year period it will take to fill Tired Creek Lake (as estimated by the Corps).

At our March 5, 2013 meeting with you in Washington, D.C., we noted that Leon County's engineering consultant, EnSafe, had highlighted concerns related to "design, discretion, and data" in the Corps permit, which are as follows:

- **Design.** Maintaining adequate and consistent outflow from the dam may be very difficult, especially during the period of filling Tired Creek Lake. The Corps mathematical model used in approving the permit does not address this critical period, instead analyzing the period AFTER the lake has been filled;

April 5, 2013  
Page 2

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- **Discretion.** The current Corps permit does not define key terms, including “normal rainfall,” which gives too much discretion to the dam operator and makes it nearly impossible to assure consistent compliance with downstream flow requirements; and,
- **Data.** The data sets used to forecast flows from the new lake between the main stem of the Ochlocknee River and the Tired Creek tributaries are inconsistent.

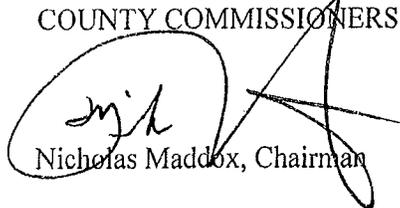
We provided you with EnSafe’s short report outlining these concerns in engineering terms at our March 5<sup>th</sup> meeting. For your convenience, the report is also attached hereto.

To address our concerns as specifically as possible while accommodating Grady County’s interests, we asked EnSafe to help Leon County devise a revised approach for permit condition number 25. This revised approach is consistent with the Corps’ intention to authorize Grady County to retain 25 percent of the Tired Creek’s average annual flow to fill the dam. EnSafe prepared a data table of Grady County’s weekly average rainfall, based on decades of National Weather Service data. This data table (enclosed) can be used to define compliance objectively on a week-by-week basis. Changing to a weekly measurement of compliance against objective rainfall data will go a long way to addressing Leon County’s largest concerns about the Tired Creek Lake permit under section 404.

A copy of the current and proposed revised permit condition are enclosed. Thank you for your leadership on this important water quality and water quantity issue for Leon County and, should you need any additional information, please contact my office.

Sincerely yours,

LEON COUNTY BOARD OF  
COUNTY COMMISSIONERS



Nicholas Maddox, Chairman

NM/ea

cc: Members of the Board of County Commissioners  
Herbert W. A. Thiele, County Attorney  
Ken Morris, Director of Legislative Affairs, County Administration

equivalent of three-fourths of an inch of rain, or 37.5 percent. When the lake is at the normal pool elevation, the operator shall discharge the same volume as it receives from its tributaries, less an allowance, not to exceed ten percent, to address evaporation to the air and infiltration into the ground.

Average Weekly Rainfall – Tired Creek Lake

<b>Week Ending</b>	<b>Average Weekly Precip (inches)</b>
7-Jan	1.02
14-Jan	0.99
21-Jan	1.08
28-Jan	1.04
4-Feb	1.02
11-Feb	1.04
18-Feb	1.04
25-Feb	1.29
4-Mar	1.38
11-Mar	1.42
18-Mar	1.36
25-Mar	1.17
1-Apr	1.04
8-Apr	0.71
15-Apr	0.63
22-Apr	0.53
29-Apr	0.51

6-May	0.49
13-May	0.48
20-May	0.54
27-May	0.73
3-Jun	1.04
10-Jun	1.35
17-Jun	1.53
24-Jun	1.51
1-Jul	1.40
8-Jul	1.26
15-Jul	1.22
22-Jul	1.24
29-Jul	1.22
5-Aug	1.17
12-Aug	1.02
19-Aug	0.90
26-Aug	0.90
2-Sep	0.88
9-Sep	0.98
16-Sep	1.03
23-Sep	0.98
30-Sep	0.90

7-Oct	0.74
14-Oct	0.62
21-Oct	0.57
28-Oct	0.56
4-Nov	0.71
11-Nov	0.86
18-Nov	0.83
25-Nov	0.79
2-Dec	0.74
9-Dec	0.72
16-Dec	0.80
23-Dec	0.86
30-Dec	0.86

STEVE SOUTHERLAND, II  
2ND DISTRICT, FLORIDA  
  
COMMITTEE ON AGRICULTURE  
COMMITTEE ON NATURAL RESOURCES  
  
COMMITTEE ON  
TRANSPORTATION AND INFRASTRUCTURE

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-0902

- 1229 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-6236
- 840 WEST 11TH STREET  
SUITE 2250  
PANAMA CITY, FL 32401  
(850) 785-0812
- 3116 CAPITAL CIRCLE NE  
SUITE #9  
TALLAHASSEE, FL 32308  
(850) 561-3979

October 31, 2012

Colonel Jeffrey M. Hall  
District Commander  
US Army Corps of Engineers  
Savannah District  
101 West Oglethorpe Ave.  
Savannah, GA 31401

Dear Colonel Hall:

Thank you very much for the time you took to meet on October 12, joined by the offices of Senator Bill Nelson and Senator Marco Rubio, to discuss concerns regarding sustained downstream water quality and quantity in north Florida in relation to the Army Corps of Engineers permit of the Tired Creek dam. Your consideration and that of the Army Corps' staff is greatly appreciated in this effort.

As discussed, the protection of Leon County's and the north Florida region's water supply is my chief concern, as Tired Creek is a major tributary to the Ochlockonee River, which feeds Lake Iamonia and Lake Talquin – two drinking water sources in Leon County serving a population of 277,000. I am sure that the Corps shares these same goals as cited in the Army Corps' mission statement, which includes, *"the development of technologies to protect the nation's environment."*

Toward that end, I strongly urge and welcome the Corps commitment toward finding means to working collaboratively with Leon County regarding the flood flow rates needed to recharge Lake Iamonia, as well as coordination of water releases between the operators of the Tired Creek dam and the Lake Talquin dam. This consultation and coordination is vital not only to protect the quality and quantity of drinking water, but also to ensure adequate quantity of water remains available for current recreational and hydro-power generation purposes in Leon County.

As a first step, I hope the parties will seek and obtain technical consensus on the flood stage flow rates needed to sustain flood stage recharge at Lake Iamonia. Once such consensus is achieved, the parties can more confidently examine the effects of the currently permitted flow regime at the Tired Creek Dam on such recharge. As you undoubtedly know, when recharge depends on flood conditions, a change of a few percent in total flow can have a much greater impact than that small percentage figure suggests. The current permit terms allow all flow in Tired Creek above 18.2 MGD to be retained to fill or recharge the Tired Creek Fishing Lake. There is concern that this permit condition could have severe impacts on downstream recharge, especially during the lengthy, five or more years, period needed to fill Tired Creek Lake.

Please note, Leon County as well as the Florida Department of Environmental Protection (DEP) are not alone in their concerns about this project's flow rates. I am attaching the April 20 and May 25, 2010 letters from the U.S. Environmental Protection Agency (EPA) in which the EPA states:

*"EPA remains concerned that the recommended project could result in significant and avoidable adverse effects on the aquatic ecosystem, particularly to water quality... as well as downstream water quality impairments." "EPA has significant concerns that the effect of conversion of these streams into lakes may potentially result in the elimination of existing uses of the streams in and downstream of the area of the proposed project."*

These stream flow concerns go the heart of the issues that I hope the Corps will address with Leon County, specifically the flow rates under varying conditions, particularly flood conditions, needed to protect downstream water supply and quality. Consensus also should be reached regarding flood and other conditions which would warrant coordination between the operators of the Tired Creek Dam and the Lake Talquin Dam. If the Tired Creek operators are making adjustments to releases, the Lake Talquin operators need to know in order to estimate flow accurately for public safety and power generation purposes.

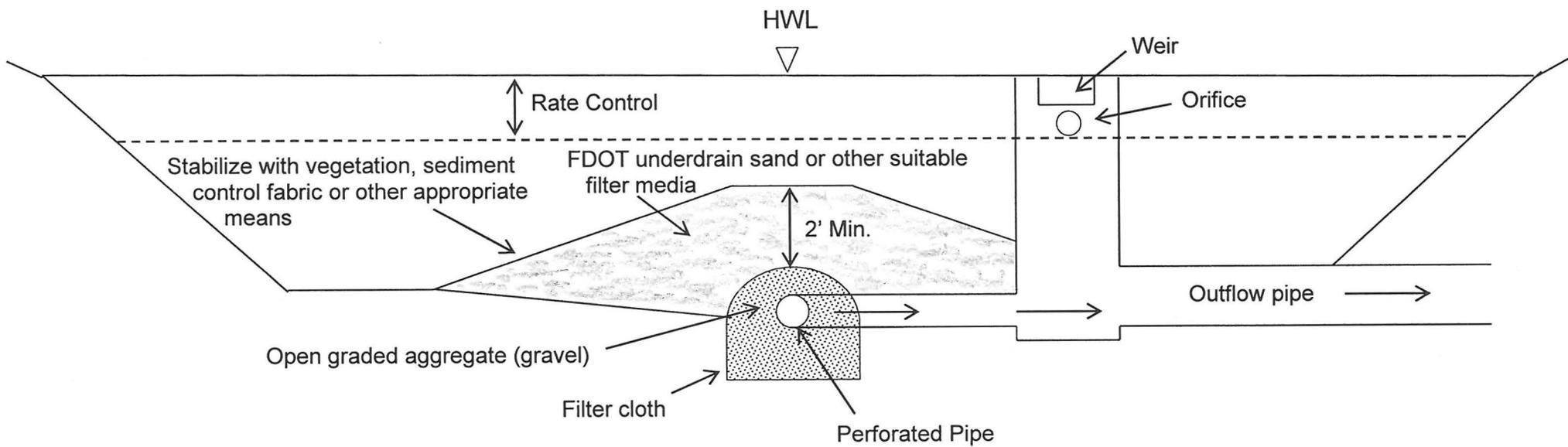
Thank you again for your time and consideration in this important effort. I look forward to continuing to work with you as you seek to ensure collaboration that appropriate flow rates are in place to provide adequate water flow and sustained health to Lake Iamonia and Lake Talquin and preserve the health and sustainability of our water supplies.

Sincerely,

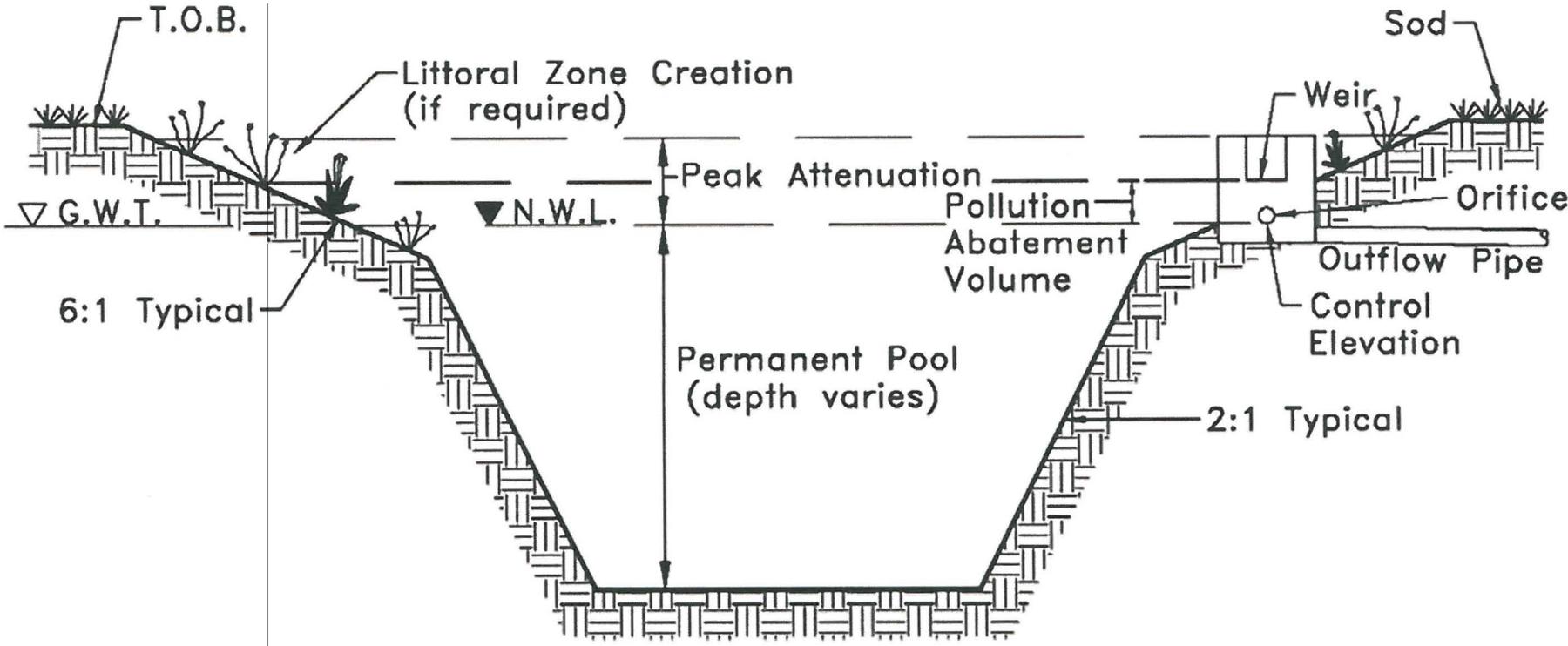


Steve Southerland, II  
U.S. House of Representatives

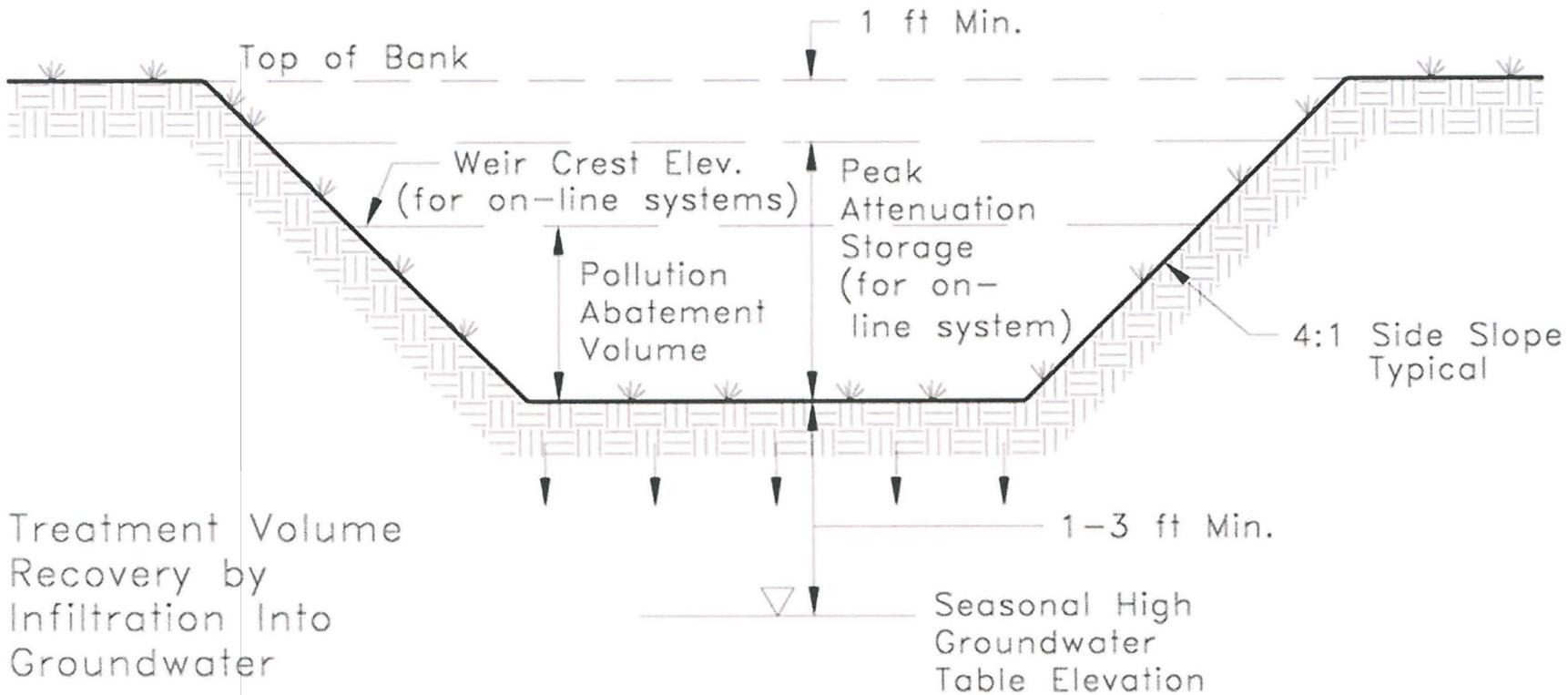
### Typical Cross-Section of Elevated Sand Filter for Stormwater Treatment Used in Conjunction with Dry Detention Facility



# WET DETENTION (N.T.S.)



# DRY RETENTION (N.T.S.)



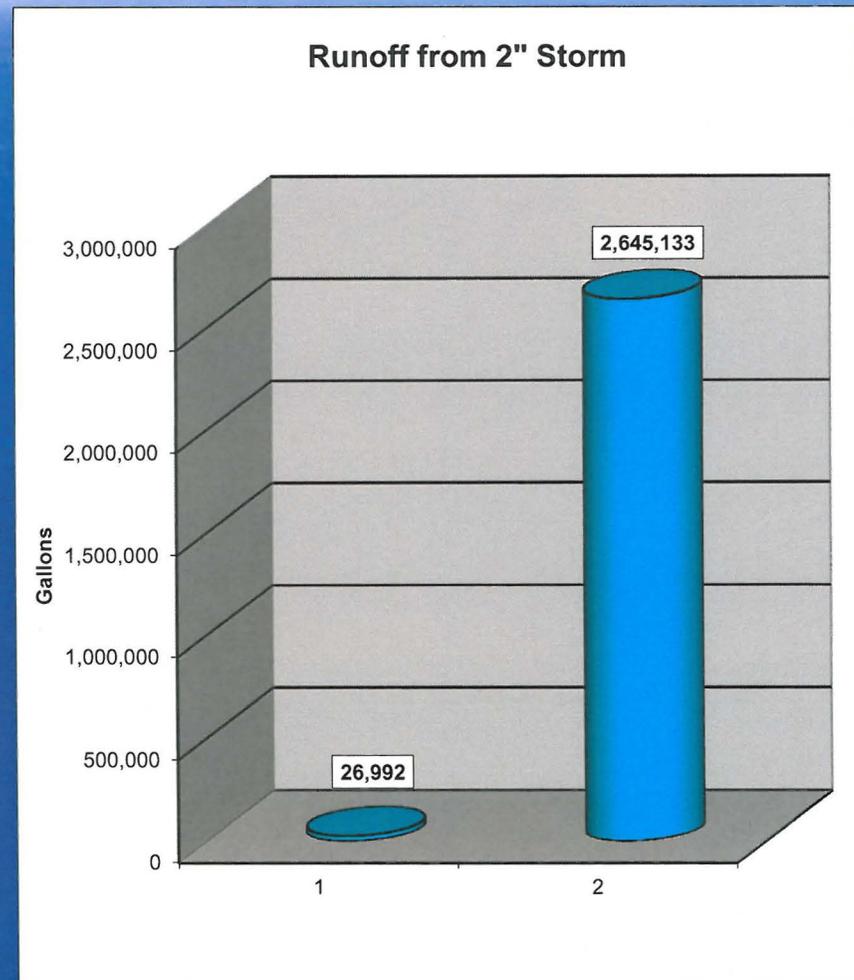
# Lake Jackson Runoff Impacts: 2" of rainfall

## 16 - 50-year Ponds

- 64.24 acres
- Typical soils
- Wooded Condition
- **26,992 gallons retained**

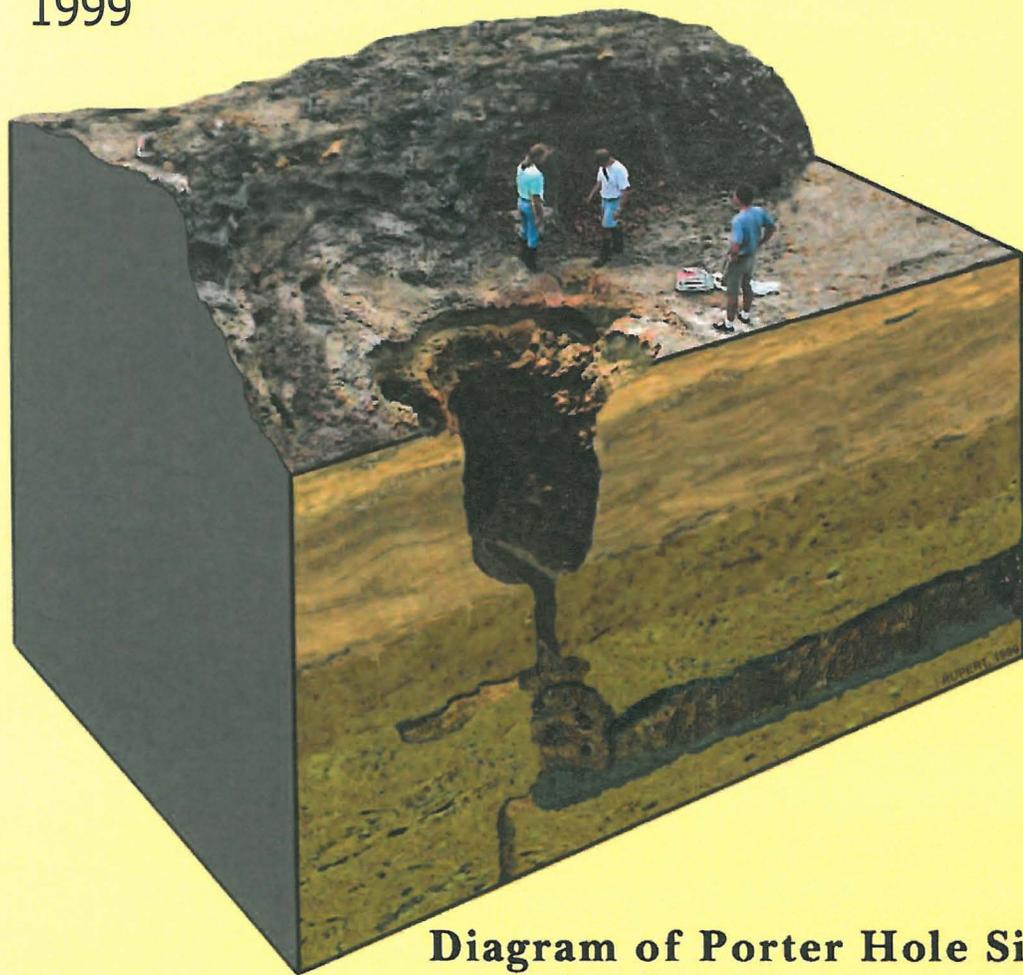
## Residential 1995+

- 514 lots
- 617 acres - 1.2 acre average
- Typical soils
- Woods (pre-development)
- **2,645,133 gallon increase**



# Karst Features (Sinkholes)

1999



**Diagram of Porter Hole Sink**  
courtesy Florida Geological Survey

1982



2012



### Tallahassee Annual Rainfall (1950-2012)

