

# COUNTY COUNCIL OF BEAUFORT COUNTY

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SUZANNE M. RAINEY  
CLERK TO COUNCIL

## AGENDA NATURAL RESOURCES COMMITTEE

Wednesday, August 7, 2013

3:30 p.m.

Executive Conference Room  
Administration Building

### Committee Members:

Brian Flewelling, Chairman  
Cynthia Bensch, Vice Chairman  
Gerald Dawson  
William McBride  
Jerry Stewart  
Tabor Vaux  
Laura Von Harten

Staff Support: Tony Criscitiello

1. CALL TO ORDER – 3:30 P.M.
2. WATER BUDGET ASSISTANCE AGREEMENT WITH SOUTH CAROLINE DEPARTMENT OF NATURAL RESOURCES (SCDNR) THROUGH CLEMSON EXTENSION—HYDROLOGY WATERSHED STUDY, ADDITIONAL \$5,000 EXPENDITURE (INFORMATION ONLY) ([backup](#))
3. DEVELOPMENT AGREEMENT FOR BLUFFTON GATEWAY
4. CONSIDERATION OF REAPPOINTMENTS AND APPOINTMENTS
  - A. Rural and Critical Lands Preservation Board
  - B. Solid Waste and Recycling Board
  - C. Southern Corridor Review Board
  - D. Stormwater Management Utility Board
5. ADJOURNMENT





**BEAUFORT COUNTY STORMWATER UTILITY**  
 120 Shanklin Road  
 Beaufort, South Carolina 29906  
 Voice (843) 255-2801 Facsimile (843) 255-9478



TO: Councilman Brian Flewelling, Chairman, Natural Resources Committee

VIA: Gary Kubic, County Administrator  
 Bryan Hill, Deputy County Administrator  
 Alicia Holland, Interim Chief Financial Officer  
 Robert McFee, Director of Engineering and Infrastructure  
 Dave Thomas, Purchasing Director  
 Eddie Bellamy, Public Works Director

*[Handwritten signatures and initials: jnh, AH, R. McFee, Dave Thomas, Eddie Bellamy, and a large signature of Danny Polk]*

FROM: Danny Polk, Stormwater Utility Inspector

SUBJ: **WATER BUDGET STUDY BY SCDNR/CLEMSON**

DATE: July 31, 2013

**BACKGROUND.** In August 2010, the Natural Resources Committee approved the acceptance of a SCDNR proposal for Quantifying Water Budgets in Beaufort County in the amount of \$50,000. This proposal included hydrologic studies for the purpose of developing water budgets for watersheds in the County. The two watersheds included in the studies were the developed Okatie River and the undeveloped New River. Clemson University provided the technical assistance for the studies on an annual basis of \$25,000 for two years. The Stormwater Utility and County Engineering Department have been working with Dr. Bud Badr, Adjunct Associate Professor of Civil Engineering with Clemson to analyze the data compiled and the final presentation format for the studies.

Expenditure of the \$50,000 fee with Clemson was paid over the two year period with the last payment made in May 2013. An additional expenditure for \$5,000 was acquired for the monitoring equipment that was not included in the original total proposal amount of \$50,000 approved by the Natural Resources Committee in 2010. Clemson University has submitted a final invoice for \$5,000. The funding for the hydrologic studies is from the Stormwater Utility Budget Professional Services Account #50250011-51160. The FY 2013 available balance in this account is \$183,023.55. The \$5,000 for the monitoring equipment's use will be paid from this stormwater account.

**ACTION.** For presentation at the August 6, 2013 Natural Resources Committee.

**RECOMMENDATION.** This agenda item is presented for information only and does not require any action by Natural Resources Committee.

DP/mjh

- Attachments: 1) Clemson Invoice #89144 dtd 5/14/13  
 2) Clemson ltr dtd 3/25/11  
 3) 8/10/10 NRC Minutes  
 4) SWU Manager 7/20/10 Agenda Item

Clemson University  
INVOICE



Date: 14-MAY-2013

Invoice Number: W0911289144  
Billing Dept.: 0911-Civil Engineering  
Billing Dept. Phone: 864/656-3000

To: County Council of Beaufort County  
Beaufort County Engineering Division  
102 Industrial Village Road, Building #3  
Post Office Drawer 1228  
Beaufort, SC 29901-1228

Terms: Payable Upon Receipt

Remit To: Clemson University  
Accounts Receivable  
Administrative Services Building  
108 Silas N. Pearman Blvd.  
Clemson, SC 29634  
Telephone (864) 656-5604  
Federal ID 57-6000254

DESCRIPTION OF CHARGES

Attend mtng /Beaufort Cty\*Visit & select watersheds & select equip/devices for monitoring\*Purchase/install field equip\*Download data on periodical basis/fixed tech prolems\*Visit sites\*Verify collected data/analyze\*Inv period 12 mths ending 03/2013.

Net Due \$5,000.00

You can now pay your bill on-line by visiting <http://clemson.edu/cfo/payar>

OR

Please make check payable to Clemson University  
and indicate invoice number on remittance advice.

Accounts not paid within 30 days are subject to collection costs.

MZGLINI

# CLEMSON UNIVERSITY

March 25, 2011

Dan Ahern, PE BCEE  
Stormwater Manager  
Beaufort County Stormwater Utility  
120 Shanklin Road  
Beaufort, SC 29906

Dear Mr. Ahern,

We will be pleased to assist you in an advisory capacity to develop a hydrologic study on two watersheds to determine the impact of development on stormwater runoff. We will assist you based on the following communication from you:

The county has identified two similar watersheds where one is developed and the other is undeveloped. They both are about 1,000 acres and have similar percentages of wetland and upland (60% upland and 40% wetland).

One is in the upper reaches of the Okatie River and is fully developed in Sun City

The other is in Palmetto Bluff and is a currently undeveloped watershed draining into the New River. They are within about 10 miles of each other and both exit through a pipe.

Stormwater runoff volume is a current concern in Beaufort County and is being controlled in new development. The watershed in Sun City may be a factor in the fecal coliform impairments in the Okatie River that is closed to shellfish harvesting.

Retrofits may involve reducing total volume from this watershed. Having a study allowing a determination of excess stormwater flow will be very helpful in determining needed reduction.

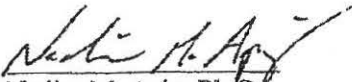
Therefore we are requesting assistance to help the Stormwater Utility to

1. Develop a plan to monitor each watershed with recommendation on what/where and how to monitor.
2. Evaluate data collected by the Utility.

The Utility is willing to fund this assistance on an annual basis of \$25,000 for two years.

As you know, Dr. Bud Badr, Adjunct Associate Professor of Civil Engineering is ready to start providing the assistance needed upon the receipt of the "go-ahead" from you.

Sincerely,



Nadim M. Aziz, Ph.D.  
Professor and Chair



### 3. Water Budget Assistance Agreement with S.C. Department of Natural Resources (DNR)

**Discussion:** Mr. Dan Ahern said this is a redirection of something the Natural Resources Committee approved back in January — a budget agreement proposed on the headwaters of the May River to find the water budget in the area. Subsequently, budget cuts at the state level precluded that being done. This is the alternative proposal as stated in the July 20, 2010 memo — to compare two different watersheds, the Okatie and the New Rivers. One of the waters is already fully developed. Another watershed on Palmetto Bluff is totally undeveloped. We will actually ask the state Hydrologic Office to give us guidance, but will be done mostly by County staff who will measure flow and other data. The watersheds are very similar, the same size and consistency of uplands and wetlands, Mr. Ahern explained. This will give us good data about what we do and how we change the water when it is developed. It also will be helpful because one of the waterways is in the Okatie TMDL area and gives us a good feel for how much we need to reduce. Previously the request was for \$115,000, but they are now asking the committee to approve \$50,000 for a two-year study in its place.

Mr. Flewelling asked from where the money comes. Mr. Ahern replied it comes from the Stormwater Utility fund and will basically replace the \$115,000, which was already approved and budgeted. This will be less than what we anticipated. Mr. Flewelling stated this is a drop in the bucket.

It was moved by Mr. Dawson, seconded by Mr. Flewelling, the Natural Resources Committee approves and recommends to County Council the acceptance of the S.C. Department of Natural Resources proposal called "Scope of Work for Quantifying Water Budgets in Beaufort County, SC" in the amount of \$50,000. The vote was: FOR – Mr. Baer, Mr. Dawson, Mr. Flewelling and Mr. Sommerville. ABSENT – Mr. McBride, Mr. Rodman and Mr. Stewart. The motion passed .

**Recommendation:** Council approves the S.C. Department of Natural Resources proposal called "Scope of Work for Quantifying Water Budgets in Beaufort County, SC" in the amount of \$50,000.





8/10/12  
NR

To: Councilman Paul Sommerville, Chairman, Natural Resources Committee

Via: Gary Kubic, County Administrator  
David Starkey, CFO  
Rob McFee, P.E. Director of Engineering & Infrastructure  
Eddie Bellamy, Public Works Director  
Robert Klink, P.E. County Engineer

From: Dan Ahern, P.E., Stormwater Manager

Date: July 20, 2010

Subject: Water Budget Assistance Agreement with SC Department of Natural Resources (DNR)

#### BACKGROUND.

The Natural Resources Committee had previously approved a proposal titled "Quantifying the Water Budget in the Headwaters of the May River" in the amount of \$115,878. This was detailed in the January 25, 2010 memo to the Committee. Due to budget cuts at SC DNR they will not be able to assist with the original project. The County had previously identified two similar watersheds that were being considered for a watershed Fecal Coliform comparison. These two watersheds are similar except that one is developed and the other is undeveloped. This offers an excellent opportunity to determine the impact of development on the hydrology of the watershed. The developed watershed is in the headwaters of the Okatie River and the undeveloped watershed is in the New River watershed. Knowing how development has changed the hydrology in the Okatie River watershed will be helpful in designing a retrofit plan to meet the requirements expected in the Okatie River Fecal Coliform TMDL. The County also needs to develop a "reasoned" approach to addressing impacts from SW Volume from existing development that has caused problems in many of our tidal headwaters. As part of this "reasoned" approach we need to know how much the existing development has changed our local hydrology and what the impacts of other practices, like well pumping and irrigation, are having on our hydrology. We also are concerned if the standard method of determining stormwater volume is being impacted by the additional application of imported water.

We request approval for a new scope of work detailed in the attached "Scope of Work for Quantifying Water Budgets in Beaufort County, SC". It is proposing that we will fund technical support from SC DNR to:

1. Develop a plan to monitor each watershed with recommendations on what to monitor, where to monitor, and how to monitor the various components of the water budget
2. Evaluate data and develop water budgets for each watershed.

The study has been presented to SW Utility Board at their July 2010 meeting. The proposal calls for an annual budget of \$25,000 for two years. It will replace the previously approved proposal for \$115,878. The funding is coming from Stormwater Utility FY2011 budget account 13531-51160.

#### RECOMMENDATION.

Recommend that the Natural Resources Committee approve and recommend to County Council the acceptance of the SC DNR proposal called "Scope of Work for Quantifying Water Budgets in Beaufort County, SC" in the amount of \$50,000.

#### Attachments

1. January 25, 2010 Memo
2. July 13, 2010 Proposal



**BEAUFORT COUNTY PUBLIC WORKS**  
120 Shanklin Road  
Beaufort, South Carolina 29906  
Voice (843) 470-6400 • Facsimile (843) 470-6418



To: Councilman Paul Sommerville, Chairman, Natural Resources Committee

Via: Gary Kubic, County Administrator  
David Starkey, CFO  
Rob McFee, P.E. Director of Engineering & Infrastructure  
Eddie Bellamy, Public Works Director  
Robert Klink, P.E. County Engineer

From: Dan Ahern, P.E., Stormwater Manager

Date: January 25, 2010

Subject: Water Budget Study by SC DNR

BACKGROUND

The County has approved ordinance changes to control Stormwater (SW) volume from new developments. This effort and addressing "approved but not built" projects should stop future impacts to our receiving waters. The County will need to develop a "reasoned" approach to addressing impacts from SW Volume from existing development that has caused problems in many of our tidal headwaters. As part of this "reasoned" approach we need to know how much the existing development has changed our local hydrology and what the impacts of other practices, like well pumping and irrigation, is having on our hydrology. We also are concerned if the standard method of determining stormwater volume is being impacted by this additional application of water.

In order to better assess the impact of existing development on our local hydrology we contacted the South Carolina State Hydrologist and requested assistance in determining the hydrologic changes that are taking place in the headwaters of our tidal creeks.

Dr Bud Badr, Chief Hydrologist, of SC DNR and members of his staff have made three visits to the County. The first to meet with representatives of the county and the Town of Bluffton to hear concerns; another to tour sites in the May River to develop a study plan for tidal headwaters; and finally to discuss plans with the May River Technical Advisory Committee.

He has developed a proposal titled "Quantifying the Water Budget in the Headwaters of the May River". While this study will be done in the May River, it will develop models that can be used in tidal headwaters throughout the county. The agreement will have the county funding equipment and data collection (funding one technician) and the State supplying their time to analyze and prepare reports. It is estimated that the equivalent contracted support that the state will supply will be over \$200,000. It is expected that the study will be completed within one year of authorization if sufficient rainfall events are obtained. Preliminary findings may be available as early as six months.

The proposal has been presented to SW Utility Board for review as well as the May River Technical Advisory Committee. Since BJWSA might be impacted by the findings of this study, we have contacted them and they agreed to partner with the county on this study.

RECOMMENDATION

Recommend that the Natural Resources Committee approve and recommend to County Council the acceptance of the SC DNR proposal called "Quantifying the Water Budget in the Headwaters of the May River" in the amount of \$115,878. - SW Utility Fee



MEMBER  
NATIONAL SAFETY COUNCIL



# **SCOPE OF WORK FOR QUANTIFYING WATER BUDGETS IN BEAUFORT COUNTY, SC**

**A proposal from the South Carolina Department of Natural Resources**

**Land, Water and Conservation Division**

**Hydrology Section**



**DNR**

**July 13, 2010**



# SCOPE OF WORK FOR QUANTIFYING WATER BUDGETS IN BEAUFORT COUNTY, SC

## Introduction

The South Carolina Department of Natural Resources (SCDNR), at the request of Beaufort County Stormwater Utility (BCSWU) (see attachment), is herein providing a proposal that outlines the role that SCDNR will play in assisting BCSWU with designing hydrologic studies for the purpose of developing water budgets for watersheds in Beaufort County. Water budgets are needed primarily to determine the volume of fresh water that is being discharged into local tidal creeks and to determine how development is affecting components of the water budget. Areas of interest include the upper reaches of the Okatie River, which is part of a watershed that is fully developed and includes the retirement community of Sun City, and the area around Palmetto Bluff, which is part of a watershed that is relatively undeveloped.

To address this issue, SCDNR proposes a network of surface- and ground-water monitoring stations strategically located within each watershed that will quantify precipitation, runoff, and changes in ground-water and surface-water storage. Evapotranspiration will also be estimated either using an evaporation pan or by using a temperature-based approach. Data collected from the monitoring networks will be the basis for developing water budgets for the watersheds. SCDNR will also assist the BCSWU in the analysis and interpretation of this data.

## Water Budgets

In its simplest terms, a water budget is an accounting of the volume of water entering a watershed (inputs), the volume of water leaving a watershed (outputs), and changes in the volume of water that is stored in the watershed (storage), over a fixed time interval. It is generally expressed by the equation:

$$Q_{in} - Q_{out} = \Delta S,$$

where  $Q_{in}$  is the volume of water coming into the system (watershed) per unit of time,  $Q_{out}$  is the volume of water leaving the system per unit of time, and  $\Delta S$  is the change in the volume of water in storage per unit of time.

Water enters a watershed primarily in the form of precipitation where it runs off to surface water bodies, evaporates and/or transpires from plants, or seeps into the ground. In this case, the water-budget equation above can be more accurately expressed as:

$$P - (RO + ET) = \Delta S,$$

where P is precipitation, RO is runoff, and ET is evapotranspiration.

The above equation can be customized depending on the objectives and scale of the project, and depending on the complexity of the system that is being studied. Other inputs, for example, may include water that is transferred from other watersheds or pumped from confined aquifers and used for irrigation in the watershed ( $Q_{ir}$ ). The water-budget equation would then be expressed as:

$$(P + Q_{ir}) - (RO + ET) = \Delta S$$

Once calculated, a water budget is a valuable management tool that can be used to assess the availability and sustainability of water supplies within a watershed. Long-term (10 years) monitoring of the various components of a water budget can be used to assess the impacts that climate change and land-use modifications have on the water resources of an area.

### **Purpose and Objectives**

Watersheds commonly have different water budgets, reflecting differences in land cover, land use, soil characteristics, precipitation, geology, topography, and drainage patterns. Development can also alter the natural flow and distribution of water in a watershed and can change a water budget. Comparisons of water budgets between several undeveloped watersheds can be used to draw conclusions regarding the natural effects that soil characteristics, geology, or vegetation have on the water resources of the watershed. Comparisons of water budgets from undeveloped and developed watersheds can lend insights into the effects that human activities have on the water resources of the watershed.

The purpose of this project is to develop a water budget for the Okatie River area, which is located in a part of a watershed that is fully developed, and one for the Palmetto Bluff area, which is in a part of a different watershed that is relatively undeveloped. The objective is to compare how the budgets differ with respect to the various components of the water budget in order to determine how development has affected the hydrologic cycle.

Specific objectives of this study are to: 1) quantify the amount of precipitation falling in each watershed (P), 2) quantify the amount of water imported into each watershed for irrigation purposes for both residences and golf courses ( $Q_{ir}$ ), 3) quantify the amount of water discharging into Okatie River and New River as surface-water runoff (RO), 4) quantify the change in storage of the shallow water-table aquifer ( $\Delta S_w$ ), 5) quantify the change in storage of the stormwater ponds ( $\Delta S_{sp}$ ), and 6) estimate the

amount of water lost to the atmosphere by evapotranspiration (ET). The general water budget described above can be expressed in more detail for this study as:

$$(P + Q_{ir}) - (RO + ET) = \Delta S_{wt} + \Delta S_{rp}$$

### **Scope of Work**

SCDNR's responsibilities are two-fold: 1) developing a plan to monitor each watershed with recommendations on what to monitor, where to monitor, and how to monitor the various components of the water budget, and 2) evaluating data and developing water budgets for each watershed. SCDNR will also be available to provide guidance on an as-needed basis as the project develops. BCSWU will be responsible for: 1) purchasing the monitoring equipment, 2) installing the equipment, 3) maintaining the equipment, 4) installing monitoring wells, 5) collecting data from the monitoring stations, 6) collecting water use data of imported water and of ground water pumped from confined aquifers, 7) surveying elevations of monitoring wells and recorders in detention ponds, and 8) quality control.

SCDNR's first responsibility will be to develop a monitoring plan for each watershed that will focus on the principal objective of quantifying the water budget. Fiscal budget constraints, however, may limit the number of sites that can be monitored and/or the number of wells that can be drilled. The plan will detail the number and location of monitoring stations, including stream gages, weather stations, pond gages, and monitoring wells. Site visits will be necessary in order to evaluate the outfall areas and to determine where weather stations can be installed without obstructions and where monitoring wells can be drilled without interfering with other construction projects in the study area. Monitoring wells will also have to be sited in each of the major hydrologic soil types that are represented in the watersheds.

SCDNR's second responsibility will be to analyze the data that is collected from the various monitoring stations in order to generate water budgets for each of the two study areas. Water budgets can be computed on a monthly, seasonal, and annual basis. Water budgets can also be calculated for single storm events.

### **Methodology**

Automatic flow meters will measure discharge at the major outfall areas to account for surface-water runoff. Flumes or weirs may have to be constructed at some of these sites to channel flow and improve the accuracy of the measurements. The type of flow meters that will be used in the project will depend on the type of outfall structure. In general, flow velocity will be derived using the Doppler

principle and water-level height will be measured using either a submerged pressure transducer or an ultrasonic device.

Precipitation will be measured automatically at a number of sites in each watershed, the number depending on the size of the watershed. Exact locations will be determined after site visits to the study areas. In general, they will be located in areas that are accessible, secure, and unobstructed. Automatic rain gages should be of the variety that will allow for rainfall volumes to be computed on temporal scales ranging from minutes to days, as well as provide measurements of rainfall intensity. One or two manual rain gages should be installed as backups in case of equipment failures and for quality assurance (QA) and quality control (QC) purposes.

Surface-water level loggers will be installed at selected stormwater detention ponds to monitor surface-water elevations and changes in surface-water storage. Each logger will be placed in a stilling well or similar structure located in each pond. Sensors should be of the pressure-transducer variety, which measures the water-column height above the pressure sensor. Water-column height will be converted to water-level elevation after being referenced to a standard datum. Data loggers should be of the variety that will enable water levels to be recorded on temporal scales ranging from minutes to days. Several staff gages should be installed as backups in case of equipment failures and for QA/QC purposes.

Monitoring wells will be installed to monitor water-table fluctuations and changes in ground-water storage in the shallow aquifer. The number of wells drilled will be based on several factors including the number of hydrologic soil groups that are present in the study area, local relief, geology, depth to water table and funding considerations. Sediment/soil samples should be collected during the drilling and described in terms of lithology, mineralogy, grain size, sorting, and color. Ground-water level loggers will be installed in each monitoring well. Sensors should be of the pressure transducer variety to measure the water-column height above the pressure sensor and data loggers should be of the variety that will enable water levels to be recorded on temporal scales ranging from minutes to days. Water-column height above the sensor will be converted to water-level elevation referenced to a standard datum.

Evapotranspiration (ET) is the amount of water that is evaporated from open-water surfaces and from land surfaces combined with the amount of water that is transpired from plants. Lysimeters are used to directly measure ET but installing and maintaining a lysimeter can be challenging and probably is beyond the scope of this project. ET can be estimated using a standard evaporation pan or by use of equations that utilize meteorological parameters. An evaporation pan can be easily installed but maintenance is labor intensive. An automated evaporation pan has been developed and would greatly reduce the labor associated with maintaining a conventional pan. A relatively simple alternative to these

station that can measure temperature, solar radiation, wind speed and direction, and humidity. Data from the weather station can be used to make estimates of ET by use of the Penman-Monteith method (Monteith, 1965). The use of telemetry to transmit the data should be considered to reduce the amount of field work and to ensure, from a remote location, that all of the instruments are functioning properly.

It will be important to account for the amount of water that is imported into the watershed, either from public-supply systems or from ground water that is pumped from the Floridan aquifer. This includes water that is used for lawn irrigation (especially important at Sun City), water used for domestic purposes, and water that is used to maintain water levels in the detention ponds for esthetic purposes. Imported water may be an important component of the water budget for the Okatie area, which is developed. Also, it must be determined if communities are served by a centralized wastewater treatment plant and, if so, where the plant discharges its treated wastewater, or if septic tanks are used in the subbasin.

Quality control of the data should be discussed by the interested parties. A quality-control plan should be developed to ensure that parameters are being accurately and consistently measured over the scheduled study period.

### **Personnel**

Dr. Bud Badr, who is now working as a consultant for the SCDNR, will be the principal investigator for the project and will be the main point of contact. Dr. Badr has PhD in agricultural engineering from North Carolina State University and has 25 years of experience as a hydrologist working in South Carolina. Dr. Badr served as the Chief of the Hydrology Section of SCDNR for 10 years until his recent retirement this summer.

### **Payment**

SCDNR and BCSWU have agreed that SCDNR will receive annual payments of \$25,000. It is expected that it will take two years to complete the project.

### **References**

- Hamon, W.R., 1963, Computation of direct runoff amounts from storm rainfall: International Association of Scientific Hydrology Publication, v. 63, p. 52-62.
- Monteith, J.L., 1965, Evaporation and environment. Proceedings of the 19th Symposium of the Society for Experimental Biology, 1965, Cambridge, pp: 205-234.
- Thornthwaite, C.W., 1948, An approach toward a rational classification of climate: The Geographical Review, 38(1), p. 55-94.



**ATTACHMENT**

**From:** Ahern, Daniel [mailto:dahern@bcgov.net]  
**Sent:** Monday, June 21, 2010 4:53 PM  
**To:** Bud Badr  
**Cc:** Bellamy, Eddie; Klink, Robert; McFee, Robert  
**Subject:** DNR Hydrology Assistance

Dr Badr,

This is to confirm our request for DNR assistance in developing a hydrologic study on two watersheds to determine the impact of development on stormwater runoff.

The county has identified two similar watersheds where one is developed and the other is undeveloped. They both are about 1,000 acres and have similar percentages of wetland and upland (60% upland and 40% wetland).

One is in the upper reaches of the Okatie River and is fully developed in Sun City

The other is in Palmetto Bluff and is a currently undeveloped watershed draining into the New River. They are within about 10 miles of each other and both exit through a pipe.

Stormwater runoff volume is a current concern in Beaufort County and is being controlled in new development. The watershed in Sun City may be a factor in the fecal coliform impairments in the Okatie River that is closed to shellfish harvesting.

Retrofits may involve reducing total volume from this watershed. Having a study allowing a determination of excess stormwater flow will be very helpful in determining needed reduction.

Therefore we are requesting assistance to help the Stormwater Utility to

1. Develop a plan to monitor each watershed with recommendation on what/where and how to monitor.
2. Evaluate data collected by the Utility.

The Utility is willing to fund this assistance on an annual basis of \$25,000.

Funds are available to fund this study and funding for this assistance can be authorized based on a proposal from DNR to provide this assistance.

Thanks for your willingness to help.

*Dan Ahern*, PE BCEE  
Stormwater Manager  
Beaufort County Stormwater Utility  
120 Shanklin Road  
Beaufort, SC 29906  
Phone 843 255-2805  
Fax 843 470-6437