South Carolina Nonpoint Source Program - §319 Grant Application
(Due 30 days after invitation to submit)

1. PROJECT INFORMATION:

Project Title: **Huff Creek Fecal Coliform Pollution Reduction**
Length (months): 36 months

Watershed Name(s): Huff Creek
12 Digit HUC(s): 030501090403
County(ies): Greenville
Water Quality Parameter(s): Fecal Coliform, Total Nitrogen, Total Phosphorus
SCDHEC Monitoring Site(s): Primary: S-178; Secondary: S-070, S-311, RL-05403, RL-08047

This watershed: *(check one)*
___ Has a draft or approved TMDL **X** Is impaired (no TMDL)

2. FUNDING REQUEST:

Federal Request: $188,578.00
Non-Federal Match: $161,250.000
Total Amount: $349,828.00

Additional Federal Funding, if applicable: $
Source:

3. LEAD ORGANIZATION INFORMATION:

Lead Organization: Reedy River Water Quality Group
Federal ID Number: Greenville County acting as fiscal agent 57-0639129

Project Manager: Tom Gallo
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Financial Officer: Paula Gucker
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Official project paperwork (e.g. contract) should be sent to the attention of: Reedy River Water Quality Group

4. COOPERATING ORGANIZATIONS:

Renewable Water Resources
City of Greenville
County of Greenville

5. GENERAL PROJECT OVERVIEW (ABSTRACT):

This project will repair or replace failing septic tanks in the Huff Creek subwatershed (12-digit Hydrologic Unit Code [HUC] 030501090403) to reduce loading of fecal coliform, total nitrogen, and total phosphorous to Huff Creek and downstream waters. It is necessary to reduce loads of fecal coliform, total nitrogen, and total phosphorous to address water quality impairments in Huff Creek and downstream waters. This project will implement a portion of the Huff Creek Watershed Plan developed by the Reedy River Water Quality Group and included with this application.

The Huff Creek subwatershed is located in Greenville County, South Carolina, and is one of seven subwatersheds draining to the Reedy River upstream of Lake Greenwood. Figure 1 depicts Huff Creek and downstream waterbodies, subwatersheds, septic tank locations, and surface water monitoring locations relevant to this project. Of the seven subwatersheds, Huff Creek has the highest percentage of population served by septic and the second highest total number of septic systems.

South Carolina Department of Health and Environmental Control (SCDHEC) has determined that several monitoring locations in and downstream of Huff Creek do not meet state water quality standards pursuant to Section 303(d) of the federal Clean Water Act (CWA) and Federal Regulation 40 CFR 130.7. As a result, SCDHEC is scheduled to develop a total maximum daily load (TMDL) for fecal coliform in Huff Creek in 2015.

The water quality impairment in Huff Creek at S-178 is the primary impairment addressed by this project. The water quality impairments downstream of Huff Creek in the Reedy River and Boyd Millpond are secondary impairments that will also be addressed. Additionally, water quality impairments farther downstream in Lake Greenwood will benefit from the load reductions included in this project.

6. PROJECT DESCRIPTION:

A. General Background

The approximately 23,000-acre Huff Creek subwatershed is located in Greenville County, South Carolina, and is one of seven subwatersheds draining to the Reedy River upstream of Lake Greenwood. Figure 1 depicts Huff Creek and downstream waterbodies, subwatersheds, septic tank locations, and surface water monitoring locations relevant to this project. Of the seven subwatersheds, Huff Creek has the highest percentage of population served by septic and the second highest total number of septic systems.

Monitoring station S-178 (Huff Creek at S-23-418) is located 1 mile northwest of Fork Shoals Road. Aquatic life uses are fully supported at this downstream site; however, there is a significant increasing trend in five-day biochemical oxygen demand (BOD). A decreasing trend in total phosphorous concentration suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform levels exceeding the state water quality criteria. As a result, SCDHEC is scheduled to develop a total maximum daily load for fecal coliform in Huff Creek in 2015.

Section 3 and Section 4 of the attached Watershed Plan for Huff Creek contain a complete description of the Huff Creek subwatershed.

B. Specific Objectives and Goals of the Project:

The goal of the project is to reduce total phosphorous, total nitrogen, and fecal coliform loading to Huff Creek and downstream waters including the Reedy River, Boyd Millpond, and Lake Greenwood. We anticipate replacing or repairing 60 septic systems, which is approximately 12.6% of the expected failed septic systems in the project subwatershed. The cost of an individual septic system repair/replacement is estimated at $4,000. We will provide cost share assistance at 60%, but anticipate that many participating in the program will require more than the 60% share to participate. We determined the cost of the repairs assuming that residents would need on average 75% cost share assistance. The requested federal budget amount for septic system repair is $180,000. The in-kind match of $60,000 will be provided by homeowners participating in the program.

C. Detailed Project Description:

This project will implement the septic system repair and replacement element of the attached Watershed Plan for Huff Creek. Highest priority will be given to septic system owners who might influence others to accept assistance (churches for example), owners of the oldest (and therefore more likely to be failing) septic systems, and owners with failing septic systems in proximity to Huff Creek and Huff Creek tributaries.

We estimate that septic system failure is the largest contributor to the fecal coliform issue in this Huff Creek, due to the potentially large number of failures. This project will not address other sources. Other sources are discussed in the attached Huff Creek Watershed Based Plan. As outlined above, the project focuses on failing septic systems, which are not included in the current Greenville County MS4 permit. Ali work on this project will be outside the MS4 outfall areas.

D. Information/Education Component:

The stated purpose of the information and education component of all 319 grant projects is to educate the target audience on the importance of the BMP, possible benefits (not just water quality), and how to maintain the BMP. For septic replacement and repair projects, the information and education component is critical in convincing septic tank owners to accept grant assistance and ensuring that once a system is replaced or repaired, the system is properly maintained. The public outreach, information dissemination, and educational component of this project will build on the successes that Greenville County and the Greenville County Soil and Water Conservation District have had with their Middle Saluda Fecal Coliform Pollution Reduction 319 project as well as guidance and advice provided by SCDHEC staff.

The target audience of this project is owners of septic systems in the Huff Creek subwatershed. Within the target audience, the highest priority will be given to septic system owners who might influence others to accept assistance (churches for example), owners of the oldest (and therefore more likely to be failing) septic systems, and owners with failing septic systems in proximity to Huff Creek and Huff Creek tributaries. As stated above, the Greenville County GIS team maintains parcel level information on the existence and age of septic tanks throughout the County. This parcel level information, along with United States census data, was used to develop the following summary of target audience and high priority target audience information:

- Target audience – Septic system owners within Huff Creek watershed: 2,189 (greater the 70% of population)
- Priority target audience – Churches with septic systems: 8
- Priority target audience – Septic systems that are more than 20 years old: 924
- Priority target audience – Septic systems on parcels within 500 feet of a Huff Creek tributary: 643

Our education component will focus on creating interest in the project and encouraging participation among our target audience. All outreach efforts will reinforce that this is a voluntary program, the purpose of which is to help owners, not to enforce, persecute, fine or condemn them. We expect that recruiting the first participant will be the most challenging, but that interest in the project will grow through word-of-mouth, following the first successful project. Census data for Ware Place within the Huff Creek subwatershed was reviewed to gain an understanding of the demographics and how best to tailor outreach materials and processes. A 80% of the population is between the ages of 25 and 50, with the median age being 46.4 years. One hundred percent speak only English at home, which will dictate that our outreach efforts be conducted in English. The population is split with roughly 50% females and 50% males. The educational attainment of this demographic shows that targeted print materials would be appropriate, as 100% are high school graduates or attained a higher level of education. Brochures will be specific and simple, as well as provide graphs and charts to create a visual depiction of any data. However, the data on college education is conflicting in that 62% are report to have some college, but 0% are reported to have a bachelor's degree or higher. This suggests that initial print material may be appropriate, and the project team will need to determine if the physical demonstration of proper maintenance to participants will likely be more effective than a campaign focused solely on providing written literature.

lt is imperative that the BMPs installed during this project be properly maintained over the long term. Therefore, much of our education efforts will focus on teaching project participants the best ways to properly maintain the BMPs we install. We will use surveys to determine audience needs through a pre-test and to gauge information learned, through

a post-test. Septic system education will be provided in many formats, including PowerPoint presentations at meetings and informational pamphlets that will detail proper septic maintenance practices. Homeowners that are unaware of a potential septic issue will learn the possible hazards. To encourage participation in the program, we will stress how maintenance of a system can ultimately save them money, as the potential cost savings of proper maintenance should be a major motivational factor in fostering involvement. Program participants will be shown the proper operation of a septic system as well as learn the potential hazards of failing septic systems for human health and the environment. Additionally, homeowners will be taught that plants with a large root system should not be planted above a septic system and be provided guidelines on how best to landscape a septic drain field. Cost share participants will also learn that vehicles should not be parked on top of the septic system, as the additional force created may break the septic system or cause improper functioning. We will use a septic tank model to demonstrate the proper maintenance of a system and show the cost share recipients how to detect potential future problems. Educational meetings will be held quarterly, or as needed, for those who have received cost share assistance to demonstrate proper care and maintenance.

E. Anticipated Environmental Results:

A TMDL or TMDL alternative will need to be developed to determine the total fecal coliform load reduction necessary for Huff Creek to comply with the state water quality standard. The load-duration method of determining the acceptable fecal coliform load may be suitable for Huff Creek because it is a relatively simple method that provides adequate estimates of fecal coliform bacteria loading over a range of stream flow conditions. In addition, the load-duration method has a successful track record of SCDHEC and USEPA approval for similar fecal coliform bacteria TMDL applications. The final SCDHEC 2012 303(d) list indicates that a TMDL is scheduled to begin in 2015.

To aid the development of a TMDL or TMDL alternative, this Watershed Plan quantifies some of the existing baseline loading and load reductions that will result from planned activities for septic system sources and agricultural sources.

The fecal coliform load and load reduction from failing septic systems can be estimated assuming the following:

No. of Septic Systems: 2,189
Population per Septic System: 2.5 (Swann 2001)
Septic Failure Rate: 12.6% [average of USEPA 6% and percent of systems that are 30+ years old = (0.06 + (421/2189)) / 2) x 100 = 12.6%]
Potentially failed septic systems: 275

If 100% of failing systems were repaired or replaced, the load and load reduction could be estimated based on studies stating that septic systems treat 2.42 E10 colony forming units (cfu)/household/year or 6.63 E7 cfu/household/day, yielding a load and load reduction of 1.82E10.

If funded, a 319 grant submitted to SCDHEC in June 2014 will support 60 repairs, yielding a load reduction of 3.98 E9 cfu/day.

F. Technical And Financial Assistance Needed:

The budgetary estimate for the 60 septic system repairs is approximately $240,000, with funding potentially obtained through a South Carolina Nonpoint Source Program 319 grant. It is anticipated that the projects would be funded with a 75/25 match cost sharing. Both the SCDHEC Onsite Wastewater Permitting Division and the Land Development Division of Greenville County could supply technical assistance for identifying failing septic systems through their illicit discharge reports. Final inspection would be by SCDHEC employees to ensure compliance with existing regulations.

G. Completion of Watershed-Based Plan Implementation:

As stated above, a TMDL or TMDL alternative will need to be developed to determine the total fecal coliform load reduction necessary for Huff Creek to comply with the state water quality standard. It is expected that SCDHEC would lead this development with support from the Reedy River Water Quality Group.

An available funding mechanism for agricultural water quality projects identified in the watershed based plan is grants administered through the USDA NRCS Regional Conservation Partnership Program (RCPP). NRCS is USDA's conservation agency working with farmers, ranchers, and private forest landowners nationwide to identify and address natural resource objectives and implement conservation practices and activities to deliver environmental benefits locally, regionally, and nationally. Through the new Farm Bill, NRCS has been given the authority to enhance regional cooperation to more effectively implement and maintain conservation activities, thereby promoting the restoration and sustainable use of soil, water, wildlife, and related natural resources on regional or watershed scales. Through the RCPP, NRCS will co-invest in mobilizing creative and workable solutions to agricultural production and resource management challenges. These solutions will benefit not only individual farming, ranching, and forest operations, but also local economies and the communities and resource users in a watershed or other geographic area that depend on the quality of the natural resources. Through RCPP, NRCS will increase the opportunity for partners to bring innovative ideas and resources to accelerate conservation on private lands. RCPP partners will have the opportunity to join in this mission by developing project applications to address specific natural resource objectives in a proposed area or region. Partners will commit to activities to promote, implement, and evaluate the outcomes of conservation.

Examples of eligible RCPP grant applicants include county governments and special district government entities. There is a cost sharing (matching) requirement and the award ceiling for individual applicants is $20 million. It is estimated that funding in the amount of $500,000 would cover the implementation of agricultural BMPs at 20 farms within the Huff Creek watershed.

H. Measurable Milestones:

#	Month	Milestone
1	Quarterly	• Submit progress reports, invoices, MBE/WBE forms, and BMP information per schedule outlined in grant agreement.
2	30 days after project completion	• Submit final invoice and final technical closeout report to SCDHEC. Submit Final Budget Report within 45 days of project close.
3	1-3	• Identify key owners to help organize initial outreach group meeting. • Organize and hold first outreach group meeting. • Grow outreach group to at least 7 members
4	4-6	• Outreach group members will contact at least 5 priority owners to grow steering group and to identify potential project participants. • Send mailing about septic system BMP opportunities to all eligible owners.
5	7-9	• Host first workshop organized by outreach group. Provide evaluations to attendees. Target attendance of 50 individuals. • Follow up with meeting attendees. Identify potential participants.
6	10-12	• Implement septic system BMPs – goal of 10 systems.
7	13-15	• Evaluate progress and identify any needed changes to programmatic structure. • Hold second outreach meeting that is also a septic system maintenance workshop. Target attendance of 25 new individuals. • Send second mailing about septic system BMP opportunities to all eligible owners.
8	16-18	• Follow up with meeting attendees. Identify potential participants. • Continue to implement septic system BMPs – goal of 10 systems.
9	19-21	• Continue to implement septic system BMPs – goal of 10 systems.
10	22-24	• Continue to implement septic system BMPs – goal of 10 systems.
11	25-27	• Evaluate progress and identify any needed changes to programmatic structure. • Hold third outreach meeting that is also a septic system maintenance workshop. Target attendance of 25 new individuals. • Send third mailing about septic system BMP opportunities to all eligible owners.

12	28-30	• Continue to implement septic system BMPs – goal of 10 systems.
13	31-33	• Continue to implement septic system BMPs – goal of 5 systems. • Evaluate program and provide report to SCDHEC.

I. Measures Of Project Success:

1.Participation in outreach meetings
2. Participation in cost share program
3.Number of BMPs installed
4. Pre-test and post-test survey results from participants
5. Decrease in fecal coliform (or E Coli) concentrations in the Huff Creek as identified through SCDHEC monitoring at station S-178

7. PROPOSED BUDGET

A. Overall Project Budget

	Federal	Non-Federal	Total
Personnel - Salary	**$0.00**	**$81,000.00**	**$81,000.00**
Personnel - Fringe	**$0.00**	**$20,250.00**	**$20,250.00**
Travel	**$3,556.00**	**$0.00**	**$3,556.00**
Equipment	**$0.00**	**$0.00**	**$0.00**
Supplies	**$4,518.00**	**$0.00**	**$4,518.00**
Contractual	**$504.00**	**$0.00**	**$504.00**
Construction	**$180,000.00**	**$60,000.00**	**$240,000.00**
Other	**$0.00**	**$0.00**	**$0.00**
Indirect *(Requires additional documentation)*	**$0.00**	**$0.00**	**$0.00**
TOTAL	**$ 188,578.00**	**$ 161,250.00**	**$349,828.00**

B. Budget Narrative:

Attachment 1 contains the full project budget detail. The budget is summarized as follows:

Personnel - Salary: A professional engineer and outreach coordinator will provide staff support on the 319 grant project. The professional engineer's personnel costs were determined by assuming that the professional engineer would work on the project for approximately 10 hours a week for 50 weeks a year. The outreach coordinator's personnel costs were determined based on assuming approximately 10 days (80 hours) of contributed time per project year. Both of these are low estimates and actual contributions may be much greater.

Personnel – Fringe: Fringe benefits will be at a rate of 25 percent of salary, per staff member.

Travel: It is estimated that the professional engineer would travel on average three times to each of the 60 septic locations (once to determine if the project is eligible; once to meet with the contractor; and a last trip to check the completed work). Additionally, we anticipate that not everyone who is interested in the program will qualify, so we are also anticipating 15 trips (a quarter of the total number of qualifying projects) to non-qualifying homes. Assuming that the distance would be on average 30 miles roundtrip (Greenville, South Carolina to the Huff Creek watershed), we estimate the professional engineer would travel approximately 5,850 miles over the course of the project. It is estimated that

the outreach coordinator would travel on average 500 miles per project year; the outreach coordinator will be responsible for the initial information/educational component and pre-test/post-test surveys, but site visits will be limited.

Equipment: N/A

Supplies: We anticipate using a septic model to provide education to those receiving cost share assistance. The cost of the septic model system, including tax and shipping charges, is $1,200. To provide printed educational/marketing materials to every septic system owner in the Huff Creek subwatershed, we assume distributing 1,500 literature pieces (500 prior to each outreach meeting) on the project. Assuming that each unit costs $1 to print, printed materials would cost $1,500. To provide printed materials to every qualified participant, we will distribute 300 literature pieces detailing the program participation requirements. Assuming that each unit costs $1 to print, these printed materials would cost $300. Additional printed materials will be used to provide education to the 60 participants in the program, with an estimated cost of $300. It is assumed that we would spend $300 on envelopes and paper to administer these communication activities. Postage for each of the 1,800 literature pieces along with four mailings to each of the 60 anticipated program participants was determined to be $0.45 per piece of mail, for a total of $918.

Contractual: We estimate that Greenville County Land Development will drive 300 miles per project year, resulting in 900 miles over the course of the program.

Construction: We anticipate replacing or repairing 60 septic systems, which is approximately 12.6 percent of the failed septic systems in the project subwatershed. The cost of an individual septic system repair/replacement is estimated at $4,000. We will provide cost share assistance at 60 percent, but anticipate that many participating in the program will require more than the 60 percent share to participate. We determined the cost of the repairs assuming that residents would need on average 75 percent cost share assistance. The requested federal budget amount for septic system repair is $180,000. The in-kind match of $60,000 will be provided by homeowners participating in the program. The 319 grant funds would be allocated to a separate account to manage cash flow. Greenville County Soil and Water Conservation District (SWCD) will handle reimbursements through the District's annual budget. SWCD's Secretary/Treasurer and District Manager will manage the program finances. We will have funds available to cover costs each quarter to provide reimbursement to the owners while waiting for reimbursement from SCDHEC.

Other: N/A

Indirect : N/A

Required Attachments:

1. Completed watershed-based plan
2. Commitment letters from all cooperating organizations (not support letters)
3. Attachment 1 - Budget Chart (Excel document)
4. Required map
5. Additional Information for Indirect Billing -

References

Greenville County. 2014. Geographic Information System (GIS) septic system shapefile "SepticParcel_Centroids.shp."

Greenville County Soil and Water Conservation District. Undated. Watershed-Based Plan for Middle Saluda Fecal Coliform Pollution Reduction.

South Carolina Department of Health and Environmental Control (SCDHEC). https://www.scdhec.gov/HomeAndEnvironment/Docs/03050109-04.pdf.

South Carolina Department of Health and Environmental Control. 2006. Fecal Coliform TMDL and Load Reductions Management Plan, Big Swamp, South Carolina.

South Carolina Department of Health and Environmental Control. 2012. R. 61-68, Water Classifications & Standards. Bureau of Water. June 22.

Swann, C. 2001. The influence of septic systems at the watershed level. Urban Lake Management, 3(4): 821-834.