

Little Chucky Creek TDA-NPS FY-2009 Work Plan

NAME OF PROJECT. Little Chucky Creek Restoration Plan

LEAD ORGANIZATION. Greene County Soil Conservation District, 214 N College Street, Greeneville, TN 37745 will be the Lead Organization. The person who will sign the contract is Johnny Ottinger, District Board Chairman. The Project Manager will be Paul Hayden, Soil Conservationist for Greene County. The Office phone number is 423-638-4771 ext. 3. Paul Hayden can also be contacted by cell phone at 423-552-0774 or via email at paul.hayden@tn.nacdnet.net.

FEDERAL EMPLOYER IDENTIFICATION NUMBER (FEIN) 62-1235912

COOPERATING ORGANIZATIONS. Partners involved in this project include:

1. USDA Natural Resource Conservation Service (NRCS), providing technical assistance with design and design review as well as onsite installation quality control.
2. Middle Nolichucky Watershed Alliance (MNWA), assisting with community outreach and involvement.
3. Tusculum College, providing student volunteers for sedimentation monitoring.
4. Tennessee Department of Environment and Conservation (TDEC), providing periodic stream monitoring to determine when the stream can be removed from 303d listing. Also, monitoring permit requirements for planned activities.
5. US Fish and Wildlife Service (USFWS), providing review of plans and designs associated with stream bank stabilization and in-stream structures.
6. Conservation Fisheries, Inc., providing input for monitoring sediment sensitive aquatic species.
7. Tennessee Valley Authority (TVA), monitoring, providing permits for and review of stream activities.
8. Tennessee Wildlife Resource Agency (TWRA), providing input for monitoring endangered species of plants and animals.

PROJECT LEADER. Paul Hayden, the Greene County Soil Conservationist has been at his present job for 5 years. During that time, the number of NPS BMPs installed by the district has increased 10 fold. Also during that period, funding has been sought and secured through TDA-ARCF/303d, TWRA-LIP, USFWS-Partners, TVA and MNWA. Mr. Hayden holds an MBA as well as a BS in Engineering. He has managed budgets for industry in excess of 1.5 million dollars per year for a number of years before coming to the GCSCD.

PROJECT OBJECTIVES. This project will remediate Nonpoint Source impairments in the Little Chucky Creek Watershed, through reductions in sediment loads and nutrients, in order to restore it to the condition of fully supporting its' aquatic life and sensitive/endangered species.

The threats to water quality in Little Chucky Creek stem mainly from Non-Point Source Pollution that is driven by agriculture practices (nutrients/sediment) and bank erosion (sediment) within the watershed. It is also reasonable to expect that past chemicals from pesticide runoff, from row crop agriculture, may be trapped in the substrate sediments.

Little Chucky Creek TDA-NPS FY-2009 Work Plan

This Work Plan will strive to meet the following three long term goals.

1. Long Term Goal 1. In cooperation with the MNWA the GCSCD will hold regularly scheduled meetings with stakeholders in the Little Chucky Creek watershed. These meetings help to create new partnerships, strengthen existing partnerships and foster greater trust, commitment and accountability with the stakeholders in the community.
2. Long Term Goal 4. Beginning in 2008, through regulatory and non-regulatory means, prevent previously unlisted waters from being included on the 303 (d) List because of Nonpoint Source impairments.
3. Long Term Goal 5. Improve the knowledge of stakeholders and citizens concerning the origins, magnitude, and prevention of Nonpoint Source pollution. Through the use of stakeholder meetings, printed material, newspaper articles and involvement of students within the educational systems in the area of Little Chucky Creek and across the county, the awareness of non-point sources of pollution and the BMPs to mitigate those sources will be increased.

PROJECT LOCATION.

Little Chucky Creek Watershed Map (See Figures 1 and 2)

Little Chucky Creek is located in Greene County, TN within the communities of Warrensburg and Mosheim. Little Chucky Creek's watershed drainage area covers 32 square miles. The elevation of the watershed ranges from 1487 ft. in the headwaters to 1070 ft. at the mouth. The main stem of the creek extends nearly 21 miles from the headwaters to the mouth, with approximately 20 named and unnamed tributaries completing the watershed. The main stem runs along Hwy 349 (Warrensburg Rd) from the outskirts of Greeneville, TN to Warrensburg, TN where it empties into the Nolichucky River at river mile 23.5. It is located on topographic quad map 172-SE and 181-NW and has been assigned the hydrologic unit number TN 06010108-210. The creek has been classified as a warm water stream and is placed in the ecoregion of Central Appalachian Ridges and Valleys.

Little Chucky Creek TDA-NPS FY-2009 Work Plan

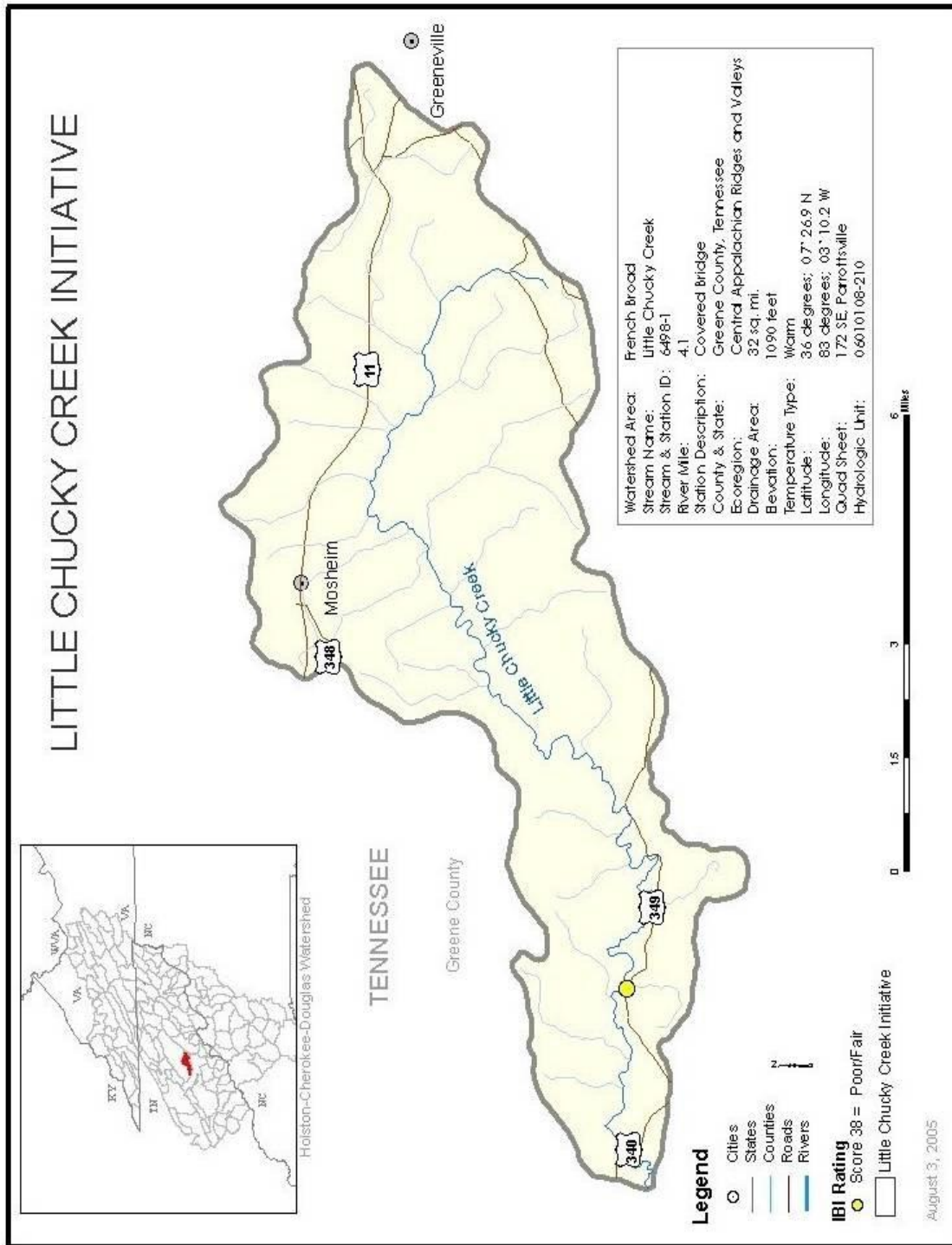


Figure 1. Watershed map of Little Chucky Creek

Little Chucky Creek TDA-NPS FY-2009 Work Plan

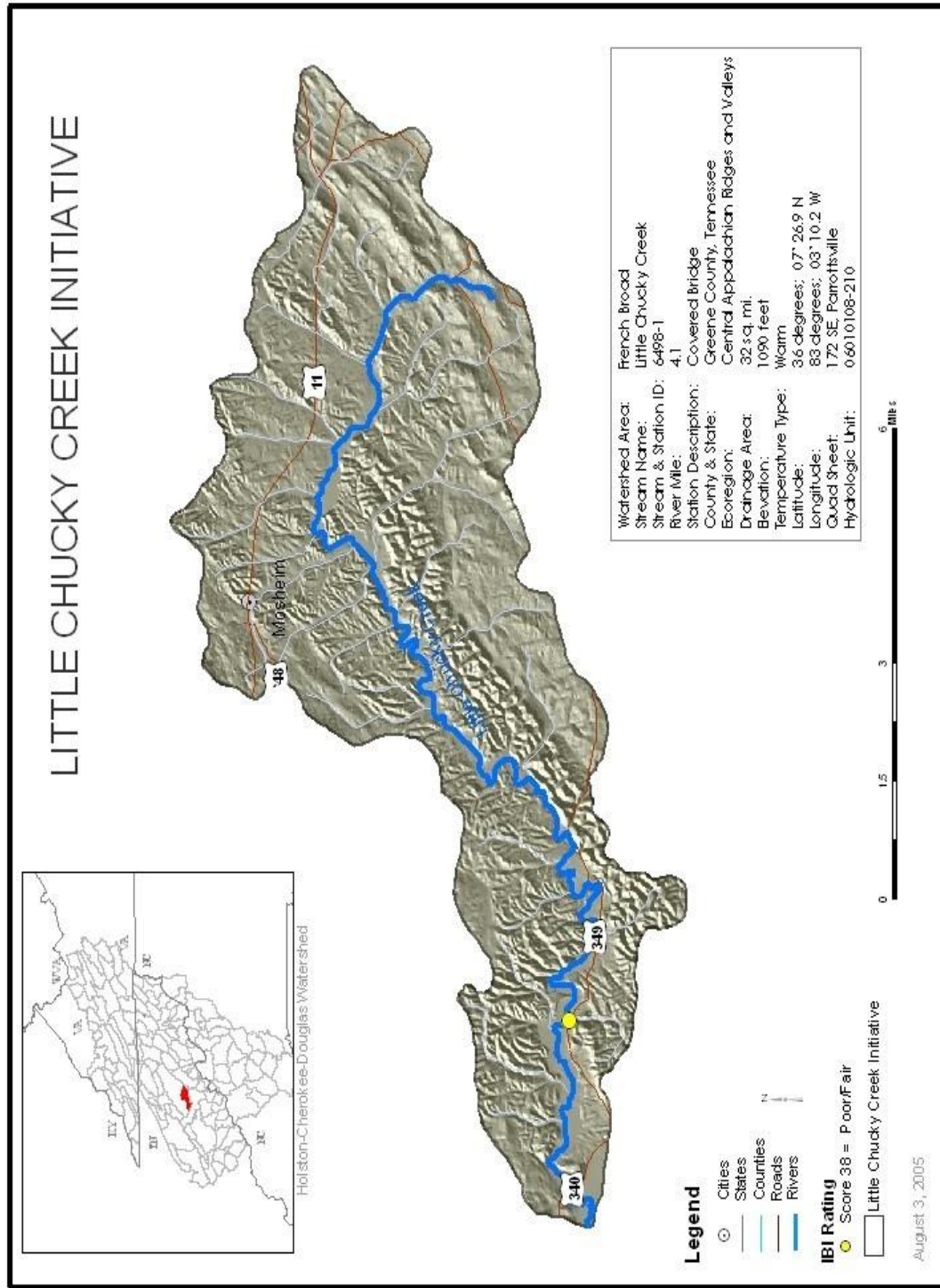


Figure 2. Relief map of Little Chucky Creek Watershed

Little Chucky Creek TDA-NPS FY-2009 Work Plan

PROJECT BACKGROUND Restoring the Little Chucky Creek Watershed has been a cooperative effort with the listed partners for the past four years. To date the group has spent approximately \$400,000.00 at a 75% cost share to landowners. In 2006, a Watershed Action Plan following EPA's nine elements was completed and approved by the Little Chucky Creek Technical Advisory Committee.

This watershed has not yet been listed on TDEC's 303 (d) List and this effort is to have it remain unlisted. In Little Chucky Creek, there are two aquatic species that need protection from the NPS sources which affect habitat and existence. A federally listed endangered species of mussel, the Cumberland Bean (*Villosa trabilis*) exists in the creek. Also, the rarest fish in the Southeastern U.S., the Chucky Madtom (*Noturus crypticus*) resides in the creek and is a top candidate to be listed as endangered.

PROJECT IMPLEMENTATION.

In order to reduce the nutrient and sediment load of Little Chucky Creek, the restoration will be addressed by implementing selected BMPs and stream bank stabilization techniques. In addition to installing BMPs on the cattle farms, the Greene County Soil Conservation Office will provide the opportunity for all landowners on the stream to participate in stabilizing the streambanks adjoining their property. Bioengineering techniques will be used to stabilize and replant the riparian area. In some cases the stream banks will need to be reshaped in order to reduce the slope of the bank.

The following Best Management Practices will be used on project farms to reduce the sediment/nutrient loading into Little Chucky Creek: installing gravel/concrete pads; alternate watering sources; cattle exclusion techniques; and riparian zone enhancements. Installation of Heavy Use Areas (HUAs) such as gravel or concrete feeding pads will reduce runoff and the clean up of solid waste will be easier. Materials for the feeding pads can be concrete, which is durable and low maintenance or an all-weather surface, such as rock and a geotextile fabric. In addition, alternate watering sources, such as tanks or nose pumps, will be used to attract animals away from the creek; thus reducing erosion and solid waste impacts. Cattle exclusion fencing will be installed and riparian vegetation restoration (native grasses, shrubs, and trees) will assist in reducing erosion. Where appropriate and feasible, bank stabilization projects using bio-stabilization techniques, riprap toes and other techniques (cedar tree revetment, etc) will be implemented. This plan is a five-year program designed to address water quality issues in the Little Chucky Creek watershed.

The Greene County Soil Conservation Office will facilitate all projects. Project plans, costs, and descriptions will be given for each project. The number of projects for each fiscal year will be based on the funding cycle and added accordingly. The Greene County Soil Conservation Office will conduct quality assessments on all projects. Each project will be evaluated for appropriate design, installation, and effectiveness over time. Photographs will be maintained on the "before" and "after" status of BMP. Based on this information and the actual accomplishments each fiscal year, the Little Chucky Creek Watershed Restoration Plan will be revised annually.

Little Chucky Creek TDA-NPS FY-2009 Work Plan

The following table details the projects planned during the **Year One** of the project:

Land Owners	BMPs	COMPLETION DATE (FY)
Fichgerald	4 Richie Troughs & HUAs 1435 ft. Pipeline 1420 ft. Exclusion Fence Riparian Buffers 1.2 ac	2009
Shideler	1 Richie Trough & HUA 660 ft. Pipeline 500 ft. Exclusion Fence Riparian Buffers 0.5 ac	2009
Snipes	2 Richie Troughs & HUAs 759 ft. Pipeline 780 ft. Exclusion Fence Riparian Buffers 0.6 ac	2009
Gilley	4 Richie Troughs & HUAs 2400 ft. Exclusion Fence 1046 ft. Pipeline Riparian Buffers 1.7 ac	2009
Cobble	1 Richie Trough & HUA 600 ft. Pipeline Spring Development	2009

Table 1. EPA 319 (h) FY 2009 Grant Workplan

MILESTONES

Table 2. Little Chucky Creek Project Milestones

PROJECT NAME	ACTIVITIES	COMPLETION DATE (FY)
Water Troughs & HUAs	Install 10 water systems where cattle are excluded from stream	2010
Pipeline	Install 4000 ft of pipeline	2010
Exclusion Fencing	Install 6000 ft. exclusion fence to prevent cattle from accessing the stream	2010
Spring Development	Design and Install 1 spring development	2010
Riparian Buffer	Install 3 acres of riparian area	2010
Greeneville & Greene County Schools Tusculum College Education Element	Classroom and field experience for college and school students	2010

Little Chucky Creek TDA-NPS FY-2009 Work Plan

PROJECT NAME	ACTIVITIES	COMPLETION DATE (FY)
Stream Monitoring Tusculum College	Quarterly sedimentation monitoring	2010
Public Meeting	Two public meetings will be held during year one of the contract for watershed residents/landowners	2010
Stream Cleanup	A minimum of one stream cleanup will be conducted along the stream	2010
Kids in the Creek	A Minimum of one class session with Jr. High students	2010
Annual Report	Activities completed during the current year	9/15/2010
Water Troughs & HUAs	Install 12 water systems where cattle are excluded from stream	2011
Pipeline	Install 3200 ft of pipeline	2011
Exclusion Fencing	Install 3700 ft. exclusion fence to prevent cattle from accessing the stream	2011
Spring Development	Design and Install 1 spring development	2011
Riparian Buffer	Install 3 acres of riparian area	2011
Greeneville & Greene County Schools Tusculum College Education Element	Classroom and field experience for college and school students	2011
Stream Monitoring Tusculum College	Quarterly sedimentation monitoring	2011
Public Meeting	Two public meetings will be held during year one of the contract for watershed residents/landowners	2011
Stream Cleanup	A minimum of one stream cleanup will be conducted along the stream	2011
Farm Tour	A Farm Tour of installed BMPs in the watershed	2011
Annual Report	Activities completed during the current year	9/15/2011

Little Chucky Creek TDA-NPS FY-2009 Work Plan

PROJECT NAME	ACTIVITIES	COMPLETION DATE (FY)
Water Troughs & HUAs	Install 9 water systems where cattle are excluded from stream	2012
Pipeline	Install 3150 ft of pipeline	2012
Exclusion Fencing	Install 3900 ft. exclusion fence to prevent cattle from accessing the stream	2012
Spring Development	Design and Install 1 spring development	2012
Riparian Buffer	Install 3 acres of riparian area	2012
Greeneville & Greene County Schools Tusculum College Education Element	Classroom and field experience for college and school students	2012
Stream Monitoring Tusculum College	Quarterly sedimentation monitoring	2012
Public Meeting	Two public meetings will be held during year one of the contract for watershed residents/landowners	2012
Stream Cleanup	A minimum of one stream cleanup will be conducted along the stream	2012
Annual Report	Activities completed during the current year	9/15/2012
Water Troughs & HUAs	Install 5 water systems where cattle are excluded from stream	2013
Pipeline	Install 3150 ft of pipeline	2013
Exclusion Fencing	Install 3500 ft. exclusion fence to prevent cattle from accessing the stream	2013
Riparian Buffer	Install 3 acres of riparian area	2013
Greeneville & Greene County Schools Tusculum College Education Element	Classroom and field experience for college and school students	2013
Stream Monitoring Tusculum College	Quarterly sedimentation monitoring	2013

Little Chucky Creek TDA-NPS FY-2009 Work Plan

PROJECT NAME	ACTIVITIES	COMPLETION DATE (FY)
Public Meeting	Two public meetings will be held during year one of the contract for watershed residents/landowners	2013
Stream Cleanup	A minimum of one stream cleanup will be conducted along the stream	2013
Annual Report	Activities completed during the current year	9/15/2013
Water Troughs & HUAs	Install 5 water systems where cattle are excluded from stream	2013
Pipeline	Install 3150 ft of pipeline	2013
Exclusion Fencing	Install 3500 ft. exclusion fence to prevent cattle from accessing the stream	2013
Riparian Buffer	Install 3 acres of riparian area	2013
Farm Tour	Conduct a tour of existing BMP for education of adult and FFA members	2013
Greeneville & Greene County Schools Tusculum College Education Element	Classroom and field experience for college and school students	2013
Stream Monitoring Tusculum College	Quarterly sedimentation monitoring	2013
Public Meeting	Two public meetings will be held during year one of the contract for watershed residents/landowners	2013
Stream Cleanup	A minimum of one stream cleanup will be conducted along the stream	2013
Annual Report	Activities completed during the current year	2013
Contract Final Report	Summarize the accomplishments from the previous 5 years	10/15/2013

Duration of Project as proposed (years) Five (5)

Little Chucky Creek TDA-NPS FY-2009 Work Plan

MEASURE OF SUCCESS. The goal of this restoration plan is to keep Little Chucky Creek from being listed on TDEC's 303 (d) list and to protect important habitat for the Chucky madtom (*N. crypticus*) and the Cumberland bean mussel (*V. trabilis*). Since Little Chucky Creek is not listed on the 303 (d) list, no data is routinely collected on the nutrient loading or sedimentation of the stream. TDEC's water quality data are available from EPA's STORET database (<http://www.epa.gov/storet/>) and will be used as a baseline against which to monitor changes or trends in the water quality of Little Chucky Creek.

The aquatic health of Little Chucky Creek will be assessed to evaluate success through an Index of Biotic Integrity (IBI). This methodology rates the health of a stream through a matrix of 12 metrics. The rating is a score, which ranges from 12 (very, very poor) to 60 (excellent). The 12 metrics are: total number of native fish species, number of darter species, number of sunfish species (less *Micropterus* spp.), number of sucker species, number of intolerant species, percent of individuals as tolerant species, percent of individuals as omnivores and stoneroller species, percent of individuals as specialized insectivores, percent of individuals as piscivores, catch rate (average number of fish per 300 sq. ft. sampling unit), percent of individuals as hybrids, and percent of individuals with disease, tumors, fin damage, and other anomalies. We will be looking for an increase in the overall catch rate per 300 square feet sample. During the IBI, we will also be monitoring for sediment sensitive species (e.g. Stripetail darter and Chucky madtom).

In addition to evaluating success through IBI monitoring, Conservation Fisheries, Inc. will monitor for individuals and potential habitat sites in Little Chucky, in order to show improvements. Both the Chucky madtom (*N. crypticus*) and the Cumberland bean mussel (*V. trabilis*) share similar habitat niches which are gravel runs/riffles with slab rock (for madtom).

Little Chucky Creek TDA-NPS FY-2009 Work Plan

PROJECT BUDGET TABLES

Total estimated cost for project is **\$339,160.00** with **\$203,496.00** in Grant Funds and **\$203,496.00** in Matching Funds.

TDA-NPS 319 60 % **MATCH** 40 %

Total 319(h) money for Salaries and Benefits & Taxes: \$0.00

Total 319(h) money for Project Tasks (i.e. BMP implementation, education/training events, publications produced, etc.): **\$201,291.00**

SOURCES OF MATCHING FUNDS. Matching funds are coming from three (3) sources:

1. Participant's 25 % cost of projects.
2. TDA-ARCF, TWRA-LIP and MNWA Program Funds (10%)
3. In-Kind labor from GCSCD employees, MNWA members, Tusculum College Students, high school FFA and project participants.

Line-Item Category:	Source:	Type:	Amount:
4&15	TDA-ARCF, TWRA-LIP and MNWA Program Funds	Cash	\$33,485.00
4&15	Participants	Cash	\$83,872.00
4&15	GCSCD employees, MNWA members, Tusculum College Students, high school FFA and project participants	In-Kind	\$4,837.00
5 thru 12	GCSCD employees, MNWA members, Tusculum College Students, high school FFA and project participants	In-Kind	1470.00

Little Chucky Creek TDA-NPS FY-2009 Work Plan

GRANTEE: Greene County Soil Conservation District

PROGRAM AREA: Nonpoint Source Program – 319(h)

APPLICABLE PERIOD: The grant budget line-item amounts shall be applicable only to expense incurred during the period beginning Sep. 1, 2009 and ending August 31 2014.

POLICY 03 Object Line-Item Reference	EXPENSE OBJECT LINE-ITEM CATEGORY ¹ (detail schedule(s) attached as applicable)	GRANT CONTRACT	GRANTEE PARTICIPATION	TOTAL PROJECT
1 & 2	Salaries and Benefits & Taxes ²			
4, 15	Professional Fee/Grant & Award ²	201291.00	122,194.00	335,485.00
5, 6,7,8 9, 10, 11, & 12	Supplies, Telephone, Postage & Shipping, Occupancy, Equipment Rental & Maintenance, Printing & Publications, Travel/ Conferences & Meetings	2205.00	1470.00	3675.00
13	Interest ²	0.00	0.00	0.00
14	Insurance	0.00	0.00	0.00
16	Specific Assistance To Individuals	0.00	0.00	0.00
17	Depreciation ²	0.00	0.00	0.00
18	Other Non-Personnel ²	0.00	0.00	0.00
20	Capital Purchase ²	0.00	0.00	0.00
22	Indirect Cost (20% 319h max.)	0.00	0.00	0.00
24	In-Kind Expense	0.00	0.00	0.00
25	GRAND TOTAL	203496.00	123,664.00	339,160.00

Richland Creek TDA-NPS FY-2009 Workplan

SALARIES AND BENEFITS & TAXES	AMOUNT
TOTAL	

PROFESSIONAL FEE/GRANT & AWARD	AMOUNT
BMP Design and Installation & Education	201291.00
TOTAL	201291.00

OTHER NON-PERSONNEL	AMOUNT
Travel, Supplies etc.	2205.00
TOTAL	2205.00

CAPITAL PURCHASES	AMOUNT
	0.00
TOTAL	0.00