

MINUTES

STATE OF NORTH CAROLINA
COUNTY OF HENDERSON

BOARD OF COMMISSIONERS
MARCH 30, 2010

The Henderson County Board of Commissioners met for a special called public hearing at 7:00 p.m. in the Commissioners' Meeting Room of the Historic Courthouse on Main Street, Hendersonville.

Those present were: Chairman Bill Moyer, Vice-Chairman Mark Williams, Commissioner Larry Young, Commissioner Chuck McGrady, Commissioner Charlie Messer, County Manager Steve Wyatt, Assistant County Manager Selena Coffey, County Attorney Russ Burrell and Clerk to the Board Teresa L. Wilson

Also present were: Associate County Attorney Sarah Zambon, Public Information Officer Christy DeStefano, County Engineer Marcus Jones, Planning Director Anthony Starr, Planner Autumn Radcliff, Planner Matt Cable, and Assistant Engineer Natalie Berry.

CALL TO ORDER/WELCOME

Chairman Moyer called the meeting to order and welcomed all in attendance. He noted this is a special called public hearing regarding the proposed Storm water Management Regulations & Resultant Chapter 200A, Land Development Code Text Amendments (TX-2009-01).

PUBLIC HEARING – STORM WATER MANAGEMENT REGULATIONS & RESULTANT CHAPTER 200A, LAND DEVELOPMENT CODE TEXT AMENDMENTS (TX-2009-01)

The proposed text amendments allow for the development of a delegated stormwater management program. The Board will consider corresponding changes to the Water Supply Watershed regulations of the Land Development Code.

The public was invited to attend and comment on the proposed amendments. After considering public hearing comments, the Board of Commissioners may discuss other options or make changes to the proposed amendments before taking final action to approve the regulations. The stormwater management program is delegated by the North Carolina Department of Environment and Natural Resources – Division of Water Quality, therefore changes to the proposed amendments following the public hearing may be necessary to ensure compliance with State regulations. Board approval would be contingent upon State review and approval of the regulation amendments. The Henderson County 2020 Comprehensive Plan will be updated and amended, as necessary, to reflect the actions of the Board of Commissioners.

At its meeting on October 5, 2009 the Board of Commissioners directed County staff to draft stormwater management regulations which would allow for development of a countywide delegated stormwater management program. Staff incorporated the required language from the DWQ's Model Storm water Management Ordinance into the County's Land Development Code for consideration as a text amendment. Staff also modified existing water supply watershed protection regulations, consistent with the State Model Water Supply Watershed Ordinance, to remove duplication in standards, reviews, and approvals between water supply watershed protection and stormwater regulations. The Planning Board and Technical Review Committee reviewed the proposed stormwater regulations and provided unanimous favorable recommendations for text amendment (TX-2009-01). Before taking action on the text amendment, the Board of Commissioners must hold a public hearing.

In accordance with §200A-31(B) and 200A-338(A) of the Henderson county Land Development Code and State Law, notices of the March 30, 2010 public hearing regarding the proposed stormwater management regulations (TX-2009-01), were published in the Hendersonville Times-News on March 10, 2010 and March 17, 2010.

DATE APPROVED: April 21, 2010

Planning Staff recommends that the Board of Commissioners approves the proposed stormwater management regulations (TX-2009-01).

Planning Director Anthony Starr provided a power-point presentation including the following information.
Henderson County Delegated Storm water Management Program – Text Amendments TX-2009-01
NCDENR Division of Water Quality Storm water Management Program

- Program administered from Raleigh
- Permit revenues collected by the State
- Developers required to obtain stormwater permits and install stormwater controls for certain development and redevelopment projects
- State stormwater approvals directly impact certain County issued approvals
- Requires Henderson County apply for stormwater permits for its facilities

Delegated Countywide Stormwater Management Program

- Delegation:
 - Supported by the Henderson County 2020 Comprehensive Plan (CCP) and Strategic Plan
 - Reduces reviewing agencies (now at least 4)
 - Puts reviewing agencies here (not in Raleigh)
 - Allows County to collect permit revenue
- Delegated program standards established by State Model Storm water Ordinance

Planner Matt Cable continued the power-point presentation.

What is Stormwater Runoff?

Stormwater Runoff

- Water from rain or melting snow that is not absorbed into the ground and “runoff” across the land.
- May be polluted with pesticides, fertilizers, oil, soap, sediment, pet wastes, grass clippings, leaves, etc.

Stormwater vs. Erosion & Sedimentation Controls

- Erosion & Sedimentation = Soil containment regulations in effect during land-disturbing activity
- Stormwater = Water runoff regulations in effect after construction is complete

Stormwater & Water Supply Watershed Protection Regulations

- Proposed amendments to the water supply watershed regulations:
 - Simplify, clarify & limit duplication in standards
 - Streamline approval processes
 - Prevent additional unnecessary layers of regulations
- Alternative to currently selected option (special intensity allocation) established by State Model Water Supply Watershed Ordinance High-Density Option

Watershed Low-Density Option Amendments

- Lot Size Regulations:
 - Minimum lot size (existing)
 - Average lot size (proposed)
 - Effects of proposed amendment
 - No change to overall density
 - Cluster development provisions removed (proposed)
- No Other Modifications Proposed

Option to Exceed Watershed Low-Density Standards

Special Intensity Allocation Option (existing)

- Available in: WS-II-BW, WS-III-BW, & WS-IV-PA

- Available to: 10% of acreage in each sub district
- Permitted increase: Up to 70% built-upon area
- How Approved: First-come, first serve basis
- Stormwater Controls: Not required-may be necessary
- Perennial Surface Water Buffer Required: 100 feet
- SIA Application Fee: \$250.00
- Issued by: Watershed Administrator or Board of Commissioners

Proposed High Density Options

- Available in: All sub districts
- Available in: All acreage in each sub district
- Permitted increase: Varies by sub district (70% built-upon area maximum)
- Stormwater Controls: Required (Stormwater BMP Manual)
- Perennial Surface Water Buffer Required: 100 feet
- Watershed High-Density Development Permit Application Fee: To Be Determined
- Issued by: Water Quality Administrator

Benefits

- Increased development potential with more effective water quality control

The Effect: WS-II-CA (1000 acres as an example)

- Current Regulations
 - Using no Special Intensity Allocation (SIA not available in critical areas):
 - Maximum built-upon area = 6%
 - 60 acres (1000 x 6%) may be built-upon area
- Text Amendment
 - Using the High-Density Option:
 - Maximum built-upon area for 1000 acres = 24%
 - 240 acres may be built-upon area

The Effect: WS-II-BW (1000 acres as an example)

- Current Regulations
 - Using no Special Intensity Allocation:
 - Maximum built-upon area = 12%
 - 120 acres (1000 x 12%) may be built-upon area
 - Using all allotted Special Intensity Allocation:
 - Maximum built-upon area for 100 acres = 70%
 - Maximum built-upon area for 900 acres = 12%
 - 178 acres (100 x 70%) + (900 x 12%) may be built-upon area
- Text Amendment
 - Using the High-Density Option:
 - Maximum built-upon area for 1000 acres = 30%
 - 300 acres may be built-upon area

Stormwater Regulations

- Stormwater Management Permits
- Stormwater Low-Density and High-Density Projects
- Stormwater Controls
- Structural Stormwater BMPs
- Maintenance of Stormwater Controls
- Inspection of Stormwater Controls

Stormwater Management Permits

Required for development/redevelopment disturbing:

- 1+acres (not part of larger common plan of development/sale)
- <1 acre (part of a larger common plan of development/sale)

Not Required for:

- Agriculture,
- Development in the water supply watershed,
- An individual lot within a subdivision or project operating under a total project stormwater management permit, or
- Projects approved prior to adoption of these regulations.

Issued by the water Quality Administrator

Storm water Project Types

Low-Density Project

- Up to 1 unit per ½ acre or 24% built-upon area
- Structural stormwater controls not required
- Stormwater runoff transported by vegetated conveyances to the maximum extent possible

High-Density Project

- Anything over 1 unit per ½ acre or 24% built-upon area
- Control & treat runoff from 1st inch of rain over a 24-hour period
- Drawdown time a minimum of 48 hours (not more than 120)
- Remove a minimum of 85% of total suspended solids

Stormwater Controls

- Standards outlined in the State's Storm water BMP Manual (The standards are not included in the text of the Henderson County Ordinance – the text makes reference to the standards)
- Required for Stormwater High-Density Projects
- Not Required for Stormwater Low-Density Projects

Structural Storm water BMPs

Practices meant to:

- Trap, settle out or filter 80% of pollutants from stormwater (State Established goal)
- Alter or reduce stormwater velocity, amount, timing or characteristics, or
- Approximate pre-development hydrology once developed

Maintenance of Stormwater Controls

Operation and Maintenance Agreement

- Binding on current and subsequent owners
- Requires maintenance, repair and reconstruction of Structural BMP
- Recorded with the County Register of Deeds

Annual inspection report must be submitted to County

Inspection of Storm water Controls

Water Quality Administrator authorized by operation and maintenance agreements to:

- Enter the site, and
- Inspect, monitor, maintain, repair or reconstruct the stormwater BMP

County authorized to conduct inspections or establish inspection programs (ex: inspection a minimum of every 5 years)

Next Possible Steps

- Adopt text amendments with effective date (established to allow for DWQ review)
- Submit text for DWQ approval

- BOC approval of County resolution authorizing administration within Henderson County municipalities
- Municipal approval of resolutions authorizing County administration

Commissioner McGrady questioned if the BMPs are incorporated by reference, and the State has new BMPs, would they automatically be referenced by the County?

Mr. Cable stated the County has the option of doing their own, best management practices (BMPs), however each time the State makes a change the County would also have to make the change.

Chairman Moyer noted there is no intent to vote at this meeting. The Commissioners will go over the information received and it will be handled at a regular meeting or workshop at a later date.

Mr. Cable explained that Henderson County has not formally submitted an adopted ordinance to the State so we are not controlled by whatever has already been sent.

Commissioner Williams asked how the proposed plan differed from what is presently in place with the State.

Mr. Cable responded there is no difference in terms of the stormwater regulations. There are two separate sets of classifications that are low-density and high density. The first is the stormwater issue which is established by the State Model Ordinance. It establishes when you must use structural stormwater controls. In terms of the water supply watershed proposed changes, moving from the special intensity allocation (SIA) to the high-density option, which is also a state model ordinance, there are different options available when you administer the water supply watershed. NCDENR believes in terms of when you take on storm controls it is more efficient to have the same classification as you are already evaluating storm water control measures that are engineered.

Commissioner Williams noted that we are dealing with property outside of the watershed as well as within the watershed.

Commissioner Young questioned if there would be any relationship problems with municipalities.

Mr. Cable responded currently Hendersonville, Laurel Park, and Fletcher enforce their own phase II stormwater management requirements. They could come on board with Henderson County. The municipalities do have different thresholds; Hendersonville in terms of when a permit is required and Fletcher has different standards for what amount of rainfall must be controlled.

Commissioner Messer questioned the fees.

Mr. Cable explained the fees would be collected by the County and not through the State.

Chairman Moyer noted that the April 5 agenda includes consideration of a resolution which would authorize staff to talk with the municipalities to see if they would like to join Henderson County.

Stormwater Management Presentation

A power-point presentation was given by Jon Calabria, Landscape Architect and Coordinator for the Upper French Broad Watershed Training Center at the NC Arboretum, and Carter Cone, an assistant of the NC Cooperative Extension. Mr. Calabria works with NC State University and is a biological and agriculture engineer. A copy of the power-point is hereby attached as part of the minutes.

Chairman Moyer explained that each person signed up to speak would be allowed 3 minutes.

Public Input

1. Richard Desimone – “Incorporation of a delegated stormwater management program, thus bring administration and control closer to home has, as you are aware, obvious advantages. I need not enumerate these. You have also heard or will hear technical experts testify on the scientific issues which I also need not reiterate. The proposal to adopt the state ordinance as-is, allowing time to become familiar with its implementation then pursuing changes at a later date, seems on the face of it, reasonable. However, while the bulk of the state law is admirable and would serve us well, the concern I wish to share with you is that one size does not necessarily fit all. As proposed, there is one glaring flaw which needs to be corrected before adoption as part of the Land Development Code. I refer to Section 200A-208.4, the so-called ‘low-density option’ (LDO). The state law, insofar as it neglects consideration of the geology and geography of our region, cannot hope to deal adequately with our terrain, our highly fractured rock underpinnings and our relatively porous and often unstable soils. Large volumes of stormwater rushing downhill in this region are capable of dislodging huge quantities of sediment, as recent landslides and rockslides have adequately shown which ultimately winds up in and clogs our already frequently impaired streams. Our streams are the arteries of our environment and clogged arteries are bad news whether in our bodies or our environment. In what is described as Standards for Low-Density Projects, allowing sites with up to 24% impervious surfaces to fall within this category all but guarantees excessive and uncontrolled stormwater flow, and in the absence of mitigation via the required Best Management Practices (BMP) of the ‘high-density option’ will certainly lead to trouble. Trouble the citizens of Henderson County will ultimately pay for, either directly or indirectly should the county incur costs to clean up the damage. The assumption that such situations can be dealt with via the permitting process is flawed. Where are the guidelines for the permittees? Do we fall back on the BMPs of the High-Density Option? If so, we don’t need the LDO, That is my recommendation – and the simplest solution I see; namely that the LDO be scrapped. It is not necessary. Hendersonville has none, other mountain counties have either strengthened or done away with it. This straightforward and simple change will go a long way toward giving the people of Henderson County the quality ordinance we deserve and that our streams need. Such a change should not be viewed as anti-development. By far most of our contractors and developers are honorable folks who want to do the right thing. I believe they would be comfortable living with a strengthened ordinance – which in fact would add only marginally to costs. But leaving it to them to act individually under the weak proposal before you, puts them at a competitive disadvantage to those less scrupulous who would take the shortcuts and often then get out of town. This is not fair to the good guys, their reputations or the people of Henderson County. Let’s not take the expedient route. It’s always better and cheaper to do it right the first time. I ask that you send this proposed document back to staff for incorporation of the suggested change.”
2. Ned Coyle – “We have one billion people on the planet earth that have no access to clean water while we have some of the best water quality in the world. So, we all in this county and especially our leaders, you guys, have a responsibility to protect this critical resource into the future. While I am not suggesting that passing of a strict ordinance and eliminating the LDO and so forth is going to help those billion people but I think we do have the responsibility to do the very best we can to protect this incredible vital resource that we have in the area. We have recently gone through a drought and now winter where river levels are virtually at flood stage all winter long, which is not normal. The good news is the drought is broken but the bad news is that it takes a long time to recharge the wells and although I think they are stabilizing, they are certainly not filling up. We may not be down as fast as they were before but a strict, tight stormwater regulation to the best of our ability will help maintain the wells in our community and at the very worst at least slow the decline as the waters being drawn up. The environmental health of our streams and rivers is a legitimate community issue and an opportunity for this commission to show some leadership and enact very stringent stormwater guidelines in this matter. You have a wonderful opportunity here to do something for all of us. Enacting the best stormwater rules is also based on gravity and politics, the looser guidelines in the LDO that a number of people are supporting were basically written in Raleigh for the flatlanders. Water runs downhill faster in the mountains than it does in a plain and this basic rule of physics means that we are going to need to look more closely at the impacts from what’s so called low-density development. I don’t think that any of you think that Raleigh knows best when it comes to Western North Carolina and I certainly don’t. In this case they are simply clueless as to the legitimate gravity of the situation, literally; we’ve got hills and mountains. So we need

a strong local controlled stormwater regulation. We have a responsibility to do so and best of all it's the least expensive way to protect so many vital interests all at once. I urge you to do the right thing and enact a very stringent stormwater regulation for Henderson County."

3. Linda Bruton – "I am a native of South Carolina and have a bachelor's degree in biology and a master's degree in botany. First I would like to commend the Board of Commissioners for proposing an ordinance to address water run-off issues in Henderson County. This is such a timely issue in all of our minds after the winter that we have just been through. Water is our most precious natural resource. It is both aesthetic and an economically beneficial when managed wisely. I see a need in the county to develop an ordinance more stringent than the least ordinance allowed by our State in Raleigh. We need our own individual plan crafted for our own needs. First the state plan is mainly for the coastal and piedmont regions. Being in the mountain of North Carolina we have a unique set of circumstances and problems with run-off. The slope and gravity pulling water from the highest point to the lowest point equals high energy bringing mudslides. This is simple physics for $velocity = mass \times the\ acceleration$ or my older, native friends might say common sense. Buffers or riparian forest can be used but they have little effect when impervious surfaces as paved roads climb beyond ten percent. Research indicates between 7-14% causes serious problems with water quality. We all know the steeper the mountain, the worse the problem. That is why our forefathers built their roads around the mountains. They put their homes and their farms in the valleys not on the mountain tops. Secondly, the current proposed ordinance, as I see it, creates a giant hole for so-called low-density development. That's been explained – development deals with no more than two dwelling per acres or 24% built out. Low density may comprise a good proportion of our county with no major requirements other than to build a swale. A swale by definition is something you find in Northeast US which is a low place in a tract of land with ranker vegetation. According to studies a swale offers little protection. A low density option should require post development peak rate of run-off for one year, twenty-four hour storm event shall not exceed the pre-development rate. What do we gain by making it more stringent? No ugly silt fences with oozing mud and runoff would be taking place. The development would be placed around manmade lakes, ponds or wetlands created to control flooding and reduce the impacts of urban runoff. Bio-retention cells or rain gardens would be placed at the start around the curbs and ten feet from a house foundation and at least 25 feet from a septic system. Plant based filtration removes pollutants through biological, physical and chemical treatment processes. They filter out the heavy chemicals, metal such as copper, iron and zinc. The cost to developers would be negligible as they would not have the cost of the silt fences, their damage, replacement and new landscaping. The savings to the taxpayer would be substantial as the taxpayer would not have to later deal with stream bank restorations and later cost of pollution and erosion from a development site. We need our rainfall to soak into the ground. We need vegetation not drain pipes. And most importantly, we need to improve our quality of our life for ourselves."
4. John Dadswell – Mr. Dadswell provided three (3) photos to the Commission. "I am a Henderson County resident and a licensed building contractor since 1996. I formally worked for Biltmore Farms Homes and developed and started their stormwater and erosion control program there. I handled all the sites that Biltmore Farms built including three (3) in Henderson County. I have firsthand experience with putting in site specific erosion control and stormwater measures. During the construction process the first thing the EPA recommends you do is contain the site. My proposal would be, on a site specific situation, is to put in ditches with retention ponds used as silt ponds throughout construction on low density. The vegetative swales, due to our topography, are unsuitable for the land because of the valleys, gulleys, hills, ridges, so on and so forth. You cannot connect one lot to the next with a swale for runoff; it's impossible in the mountains. As others folks have said, in the eastern part of the state that's easy to do, in the mountains it's impossible. These areas then, at the end of construction completion, for the stormwater runoff, could be vegetated swales into their own retention ponds, rain gardens or French drain systems. (Referring to a picture) On picture #1 that you see, that is deflecting water from an impervious area in front of the house from an asphalt driveway. It goes around on the stone then goes into a basin under the ground so on the front of a house where some people might not like the look of a rain garden or whatever this water could be detained underneath the ground in a French drain system and slowly saturate back into the ground and help clean the water. Picture #2 that you have is a retention

pond that's behind another structure and on that same walkway you see there are ten houses on that road. Each individual house has its own system. It doesn't cost anymore than putting up silt fence which are basically about \$8 per linear foot to install and remove. But in the silt fence you have shipping of the silt fence which is a petroleum product and it then ends up in the dump. We don't need any more of that, of course, and then you have the maintenance. By putting in a drainage ditch and a silt pond at the beginning of the process, and at the end converting it over to a vegetated swale; a French drain, a rain garden, or retention area, I think this would suit this county and the people in it quite well. Like I said the cost would wash with silt fences and we wouldn't have the pollutants in the dump."

5. Jerry David – "Having retired from the field of Civil Engineering after working 40 years in both the Private and Public sectors I feel I can address the issue of stormwater management with some expertise. The treatment of the first one inch of rainfall came into effect some twenty-five or thirty years ago. Any development including commercial was subject to treat the first one inch of stormwater runoff. Why is this so important? It is this no point source pollution that contains the most concentrated deleterious materials such as pesticides, fertilizers, greases and oil, animal wastes, organic and inorganic matter that are so detrimental to our creeks, streams, rivers and drinking water shed areas. The more polluted our water supply areas become the more difficult it is to treat raw water supply to drinking water standards. Obviously the residents pay for these costs. For a moment let's discuss the costs for treating the first one inch of runoff for all projects that disturb one or more acres of property regardless of their type of construction or location. The actual cost to the developers or the future purchasers is relatively small. If these measures are designed from the get go and constructed as part of the overall development, the construction costs are truly insignificant, regardless of what any developers may say to the contrary. The actual cost analyses which I performed during my career for the treatment of the first one inch did not materially affect or increase the overall project costs. It should be noted that you have in fact savings to the taxpayers or homeowners association or businesses because of less maintenance related to soil erosion and sedimentation. If we were talking about holding back or retaining water of a particular storm event, such as the one year twenty-four storm, then I would concede there would be substantial costs involved. The detention of this first one inch of water is the most important runoff to control. Buncombe County has this type of water quality rule in their stormwater management ordinance section 26-301. It is my hope that the Commission approves adopting the one inch water quality rule to all new construction projects which disturb one or more acres of land regardless of the density or location. Just a simple statement that all proposed construction which disturbs one or more acres of developable land is required to provide water quality for the first one inch of rainfall."
6. Stehanie Lowder – "I am a citizen of the county. I love it as you all do. The counties of Western North Carolina are unique and extraordinary. So don't we deserve some special rules to protect our uniqueness? Why would we adopt a stormwater ordinance written for the people back east? It makes no sense. Let's respect our sacred mountains by going the extra mile and believe me I serve on boards and I know how hard they work. I've never served on a county commission and I can't imagine how hard you work. So I know it is going the extra mile. I'm asking you to do that and protect this place so that it doesn't become just any place or just like every other place. I would not want that and I do not think you would want that. Let's put our rules and our ordinances where our mountains are and where our water ways are and let's write a stormwater ordinance that protects our uniqueness and our precious water ways because its water, clean healthy, abundant water that will sustain our mountains, our cultural heritage, our green industry. It's water that sustains the very economic engine of Henderson County, our natural beauty, our recreation. And it's water, clean, healthy water that sustains the things that live in the water ways that we eat and drink. And it's water that will sustain our very lives; not only our lively hoods but our very lives. I ask you to write an ordinance that will protect the uniqueness of Henderson County."
7. Richard Freudenger – "I've been monitoring the Mud Creek for about sixteen years with the Water Information Network so I know what suspended solids and silt looks like. I support the Staff's decision to recommend locally delegated authority for stormwater regulations. This resolution will allow the county to maintain local control and funding of an issue that is vital to beneficial growth in our region. However, I believe to allow a two tiered system would be unfortunate. Specifically a separate set of high density and low density regulations would be detrimental to the long term economic welfare of the county. The proposed regulation calls for less stringent requirements for low density developments

which in themselves can still have serious consequences for our streams and tributaries. Even relatively small areas have a cumulative effect on the whole. Applying the same engineering controls across the board regardless of density will moderate runoff problems at the source and at a far more feasible cost than dealing with the sedimentation, residue, toxins, and the fertilizer nutrients once they have reached our water ways. Properly managing the first inch of rainfall, what is known as the first flush, is enough to control approximately 90% of the runoff. Why should we care about stormwater management? Because Henderson County has 5 regulated watersheds with the City of Hendersonville now seeking funds to build a surface water intake on the French Broad River. From an economic standpoint, it makes little sense to differ relatively inexpensive controls now while we are in the planning stage in comparison to the cost of treatment and fixing the results later on. Sedimentation is an unavoidable consequence of development. Stormwater runoff that occurs through land clearing and the construction of impervious surfaces results in stream widening, bank erosion and channel scouring. While that is bad enough for an aquatic wildlife, what is worse is that water that would normally infiltrate the soil to recharge our ground supplies becomes a carrier for heavy metals and pathogens that eventually find their way to our surface water supplies. Let's not be penny wise and pound foolish on this point. Let's see to it that the BMPs are applied consistently to all future development.

8. James Monahan – “I’ve lived here in the mountains for ten years and I’m glad to learn that the County is considering adopting a long-needed stormwater runoff ordinance to provide local control over the problem. The shortcoming of the proposed ordinance however, is that while it is one that may be suitable for relatively flat terrain, it would not be effective in this area is an exception is made for projects having densities under 24%. For such lesser density projects the ordinance only requires the provision of ineffective swales for runoff protection. Water quality professionals generally agree that all projects disturbing an acre or more should be required to retain the first one inch of rainfall on the property by using much more effective runoff control measures such a bio-retention cells before new development starts. Such would involve little or no additional cost beyond that now expended in the form of silt fencing and swales that fail to offer the needed protection against runoff. Comparing the front-end cost to a developer versus the many times greater potential after costs for remediation of adjacent properties and water ways to then be borne by tax payers and property owners (not to mention the cost of possible lawsuits) leads to what is in my view a no-brainer conclusion; not to provide an exception for project densities up to 24% with its weak swale only requirement. The availability of quality water resources is both an essential asset in term of quality of life for those living here and a selling point as well for attracting new residents to the area. We must not kill the goose that laid the golden egg by allowing our water to become degraded through ineffective controls over runoff. Everyone knows that unchecked runoffs can spread a variety of pollutants such a petroleum products, heavy metals, fertilizers and pesticides, on to neighboring properties, streams and other bodies of water; including underground aquifers, thereby imperiling drinking water and fish and wildlife habitats. The city of Hendersonville and numerous nearby counties and towns here in the mountains have not included the loophole being proposed here for Henderson County, and we need to go along with these other jurisdictions to assure the highest quality of water for our present and future population.”
9. Marijane Pell - “What a wonderful opportunity you have right now to not only take control of our water situation but to become leaders in this field. As you know these regulations are necessary because unfortunately the amount of open land and forest land are shrinking. We need the land to drink up our rains and snows and runoffs so that we have good, safe water. I believe the more stringent the regulations the better; better for everyone. I know the builders are going to say we can’t afford it – it’s nobody will buy this house. First of all I’m glad to hear from Mr. Dadswell that we can control this situation very inexpensively. I believe that people today are more aware of the environment and its problems. So if you say to them – we build it this way in Henderson County because we love this county, we love this country and we want it to be the best place for you to live. We want you to have water in the times when there is adequate rain and we want you to have water in the times of drought; and you will because we are building the right way. As we talked to the builders, make sure they are up on the latest inventions. I know I walked along a sidewalk not too long ago and it was not solid but it gave you support. It allowed the water to get through it. Probably there are similar road construction techniques, I don’t know. Several years ago we went from a privately owned road to a county road. It

required that a runoff buffer be put into place and it was. It ran across our driveway into a drain. Too bad it didn't runoff into my yard. Maybe inserting more buffers in driveways would be another way to address water runoff. In fact I think that I've been places where they have drains. Why couldn't we just have drains going across our driveways with covers that would help the water be disbursed? Let's eliminate the loophole for low density projects and require that any development that disturbs one acre of land or less be required to withhold that first inch of rain. I have stream tested for about eight years. During that time I have seen all my streams deteriorate. The amount of invertebrates has dwindled down to just a few where we used to get a lot. One stream had a small sandbar in the middle of the stream; now the sandbar goes almost completely across the stream. A little bit of water gets by. The sedimentation, of course, has washed downstream burying the invertebrates and impairing the stream. This situation was caused by stormwater runoff."

10. Martha Sachs – "I think that to any intelligent person to adopt minimum state regulations for this area would be obviously inadequate. Things are different here in the mountains and this whole question of water runoff affects the water quality of our drinking water, the water around us and everything else. There are places in this world now suffering from severe water shortages. In many cases it is because of the way water has been diverted or the way building has taken place without any regard for this. There are people who are suffering because of lack of decent water. Here in Henderson County we had 5 years of hearings and study that lead to our comprehensive land use plan. I attended a lot of these hearings over those 5 years and overwhelmingly at every single one of them everybody wanted to preserve the beauty, the rural nature, and the agriculture of Henderson County. I think that the impact on our economy here, of the kind of growth that has been taking place, in some cases it may be good, in some cases we have to think a little differently about it. Considering that new residents, tourism, and the things that bring in the most revenues to this county are things that depend on the beauty of this county. I'm asking you essentially – don't make exceptions. Minimum state regulations are not adequate for our mountains. We deserve better than that and to do otherwise is to spit in the face of Henderson County residents who have stated very clearly the way that they want this county to be maintained."
11. Jeri Peterson – "I was a member of the Etowah/Horseshoe Community Planning committee. I commend you for considering the adoption of a local stormwater ordinance. This was a recommendation of our committee also. An ordinance that would be tailored to the unique needs of our steeper mountain slopes and greater rainfall. Please enact an ordinance that meets these needs. Also please consider the wise advice of the professional builders who go beyond what is required by the state to maintain and manage rainfall on their sites because it is the right thing to do. Even when building only 1 house they do this at little or no added expense. All developments, low and high density should meet the same requirements. That is not a hardship but a responsibility."
12. Larry Rogers – "I represent Partners for Economic Progress which is about seventy small businesses in our community. I can't believe "the sky is falling", "the sky is falling", just by shifting responsibility from the state to the county all these bad things are going to happen. And another thing that I heard 2 or 3 times was the minimal cost. There is a project going on within the city limits of Hendersonville right now, 2 acres, that is going to require a program, an apparatus costing \$45,000 to implement that program for stormwater runoff. The block that Hendersonville repaved in serpentine about 3 years ago had to put the storm system in and it cost over \$100,000; so this new system is not cheap. I talked to the engineer in charge of the project so this is not a fairytale."
13. Angela Fernandini – "I think that we do need to have more strict regulations and with a consistent density requirement versus having a high density requirement and a low density requirement. My number one question would be though - Mr. Cable had said that the state currently had three permits I believe for Henderson County right now at \$505 a piece, I wonder why we are using all this staff time to figure out adopting a county ordinance from the state at \$1500, that's how much its cost so far if I heard correctly from Matt. If we are going to adopt the ordinance from the state then it should be more strict. 2009 was one of our wettest years that we've had in a very long time and I grew up here my entire life and I have seen more than 1 inch of rainfall in a twenty-four hour period. The presentation that Jon Calabria gave to us showed a red truck going down the street with this big huge puddle of water. We see that all the time in our county area. Not just in the municipalities of Hendersonville but in our rural communities; Dana, Edneyville, Etowah, Horseshoe. Those are common practices and I urge you folks

to act now to have more stringent regulations to protect a necessity that we all need in the county. If we are not going to make it more strict then why do we want to take it over from the state.”

14. Frances Jones – “I want to make a brief economic argument for going the extra mile to protect our streams and rivers from erosion, pollution and pathogens. Did you know that 3 out of every 4 Americans participate in active outdoor recreation each year, spending money and generating jobs. In North Carolina, they contribute over 7.5 billion annually to our economy, support 95,000 jobs across the state, and generate 430 million in annual state tax revenue. Summer camps also make an economic impact and Western North Carolina has one of the highest concentrations of organized camps in the United States generating millions of dollars for communities. All of these activities need healthy streams. The economy of our country benefits greatly, the economy of our county benefits greatly from recreational activities. We rely on people to come here to fish, kayak, camp, bike and hike. If we mismanage stormwater runoff, we not only waste a valuable resource, we damage a vital element in our outdoor recreation and an important source of our economic welfare.”
15. Jan Allen – “I’m here tonight speaking as a representative of the League of Women Voters of Henderson County of which I am a member. The League of Voters of the United States has an official position of supporting water resource programs and policies that reflect the interrelationships of water quality, water quantity, ground water and surface water. The League supports measures to reduce water pollution and to achieve acceptable water quality. We support stringent controls to protect the quality of current and potential drinking waters supplies as well as protection of watersheds for surface supplies and recharge areas for ground water. Here in Henderson County the League has a long history of involvement in environmental issues including the founding of the Carolina Mountain Land Conservancy as well as the study and involvement with the Soil Erosion Plan and the Land Development Plan. The League of Women Voters of Henderson County is pleased that the Commissioners are taking up the issue of controlling stormwater runoff. We’re familiar with ECO’s well documented statements as to why this topic is so important, what the problem really is and the negative effects of uncontrolled stormwater runoff and we concur. We concur also with their bottom line points; uncontrolled stormwater runoff makes flooding more prevalent, makes ground water less available in times of drought, and causes major problems with water quality. As land development in our county continues to increase, both the concentration and the types of pollutants carried by runoff will increase as well if changes are not made to reduce the amount of stormwater runoff. We urge Henderson County to support a local delegated authority for stormwater runoff. The County needs to take direct responsibility for oversight, permitting, reviewing of plans, and following up on problems. This can be a win, win situation for county government, for developers, and for the environment by bringing in revenue, by streamlining and speeding up the permit process and by giving us greater local accountability of stormwater projects. However, in spite of all the positive steps being considered, we in League are concerned that Henderson County might possibly select the least stringent stormwater ordinance allowed by the State. We urge the Commissioners not to do the bare minimum but rather to consider the technical explanations about low density projects presented in this public hearing and to eliminate any exceptions for low density projects. Currently Hendersonville, Brevard, Black Mountain and Buncombe County all have more stringent stormwater controls in place than this proposed ordinance would provide. We would very much prefer to see Henderson County set an example for effective stormwater management in the mountains rather than adopt a bare minimum plan.”
16. Richard Naylor – “I’ve watched these developments proliferated, bringing new homes, new tax resources, and new consumers of local commerce. Along with this growth there has been a proportional increase in environmental degradation all along the streams and our watershed and the cost for repair of which we pay with our tax dollars. I’m no economist but this seems to me to be a highly questionable way for the county to manage our natural resources and our tax dollars. Our current stormwater regulations are essentially a rubber stamp of the state regulations designed in Raleigh for Raleigh. Therefore, they are inadequate to our mountains. If the first inch of runoff is not captured, it is through natural means and allowed to recharge our ground waters. If instead it is allowed to sheet off of concrete and asphalt picking up the surface pollutants along the way it ends up directly into the drains and into our streams unchecked and unfiltered. As a result streams like Mud Creek, my favorite creek, is the third most polluted creek in our state and suffers serious sedimentation, pollution, and disruption of aquatic

life. Can we remediate stormwater damage in our streams? Of course we can. Of course we can stabilize and sometimes even restore them. However, such remediation costs taxpayer dollars that could have been saved had effective stormwater management practices been in place. In 2007-2008 there were eleven stream restoration projects implemented under the Mud Creek Water Restoration Projects Stream Doctor Program. These projects cost the total of \$38,000, part of that cost shared by landowners along the streams involved. The projects however prevented 97 tons of sediment from being dumped into those streams. Another Mud Creek project recently completed, stream bank stabilization on agriculture property in Edneyville, 3,424 linear feet of eroding stream banks were stabilized saving 1300 tons of soil per year from entering the streams through erosion, total cost \$148,000 and this was just stabilization, not full scale restoration which is even more expensive. What's worst news for us is the multiplier affecting all this. There are literally hundreds of sites like this that need to be repaired at an estimated \$5,000 a project there is easily \$500,000 to several million dollars worth of small backyard projects currently in need of work. We are talking taxpayer money here. Scientist at North Carolina State estimate that it is three times more costly to remove sediment from streams than remediate the impact of sedimentation than it is to prevent sedimentation in the first place. I urge you to seriously consider stringent local regulations for stormwater runoff."

17. David Weintraub – "I'm the executive director of ECO. As experience shows, when we adopted a local erosion and sedimentation ordinance we made important strives to ensure that our most precious resource is protected. Being able to call our local inspector whenever there is a problem and having someone responsive to our local concerns has made a world of difference. I must confess I'm no expert in stormwater issues. I needed to take time to study the issue, read the research, consult with engineers, stormwater and erosion experts, and planners who could walk me through the particular concerns the mountain community might have that people in Raleigh and Charlotte might not have to deal with. The issue that rose up again and again among the all the people in the know is that having a local ordinance was an important step forward but having the right ordinance was just as important. I want reiterate all the problems that untreated or poorly treated stormwater creates to water quality, to recreational tourism, to our economy, and to taxpayers to remediate the problems that could have been dealt with on the front end except to say this; as leaders of this county, you set the rules of the game. If builders and developers can travel on one or two paths, your rules will strongly influence which path that they will take. You have already heard from stormwater experts, some of which work for development communities that containing stormwater on low density developments will not cost anymore than what they need to pay any way to control sediment during construction. By setting stronger standards for low density projects, all you are requiring is a little advanced planning. Most good builders will do it anyway. But, unless we set the bar higher than the lowest common denominator there will always be some out of town developer willing to undercut everyone else by doing things the least expensive way. As you've already heard, what looks cheaper on the front end could cost taxpayers and landowners dearly later when they will veer the costs of poorly done stormwater techniques. As my grandmother used to say, if you're in for a penny you're in for a pound, or on the long term picture an ounce of prevention is worth a pound of cure. If we're going to development local stormwater rules, why not do it right the first time. And, if we do the county taxpayers and landowners will all save countless dollars that otherwise will be needed to be expended to repair the damage later. Being physically responsible and environmentally responsible are concepts that go hand in hand."
18. Hartwell Carson – "I'm representing the Western North Carolina Alliance. Stormwater is a critical concern when you are looking at water quality. The reason that this is such an important concern for Henderson County and the French Broad Watershed is that Henderson County is the fastest growing in the French Broad Watershed. I know it doesn't seem like that right now but over the course of time it has been and probably will continue to be. The impact of that we've seen as several people said, Mud Creek which drains the densest part of the county, Hendersonville, is severely impacted from stormwater runoff. Getting control of stormwater is the only way that we are protect Mud Creek and the French Broad River to meet the goals of the clean water act which is to be fishable and swimmable. This is not just a water quality issue, it's also water quantity issue and controlling flooding and preventing drought are critical as we all know. We've just got out of a long drought and we've just been dealing with a lot of flooding. Controlling stormwater is the most important way to do that to insure property security, not

just to protect the river. I know of dozens of people who have been severely impacted by upstream development and their property being flooded where it used to not be flooded prior to the development being implemented. The reason it is so important to have local enforcement is the state, despite their good intentions, is woefully understaffed to take this challenge on and enforce stormwater and erosion control in Henderson County. Last time I checked there were 6 state employees to enforce stormwater and erosion control in the 19 western counties in North Carolina. So really your complaints are largely going to fall on deaf ears, which is why it is critical that Henderson County take this step. Also the EPA recently did a study that showed that by implementing stormwater measures upfront developments not only were not more expensive they could actually save money. They showed in this study over numerous developments there was a 15 – 80% savings because you are no longer having to put in expensive under drains that are piping the water away from the site and expensive curb and gutter. You are putting in rain gardens and swales and you are treating that water on site. So now is the time to get this right while there is a lull in development to make sure that when we do start developing again we can develop in a sustainable way. My opinion is if folks like Jon Calabria and John Dadswell think it's a good idea, it's a good idea."

19. Travis Maxwell – "I think that one point that is missed in terms of the low density option is that the low density option was put into place to promote low density development. The whole idea of having a low option is to have less dense developments. I think if you take the low density option out and I was a developer and I had no incentive to develop at a low density, I'm just going to develop at the highest density I can and rely on these rain gardens which are actually bio filters. I designed the first bio filter in North Carolina and unfortunately they are a filter and they work great for the first 5 or 10 years but all the heavy metals that we are filtering out are in the rain garden. All the pollutants are they on site; all the sediment that is collected is there and eventually they stop infiltrating water and become large ponds during rain events. There is a lot of resistance to low density and I've seen a lot of low density developments where the ditches can't be stabilized because of the slope. There are a lot of technologies now that we use that are producing ditches that don't have the runoff and the sedimentation and don't rely on a rain garden to improve the water quality. The other advantage of a low density option is part of that low density option is a deed restriction that you put on the property that doesn't allow more than 24% of development to occur and is very difficult to ever go back and increase the density of that development. I see that as an advantage of taking land and not developing it at a high density rate keeping the low density larger yards and improving the techniques of a low density option."
20. David Weintraub (follow-up) – "I think that what a lot of people are saying is not to eliminate the low density option per say and not to have an ordinance burden the large density option has about engineering controls. We just need to hold back that 1 inch of rain on low density. So they still have the credits, they don't have to put in all that money and cost. But, they should hold back that 1 inch of rain because when you start getting to the 5-10% impervious surfaces, low density is as much as 24%, you start in the costs and some real damage to the streams. Low density still has benefits."

Chairman Moyer stated the Board would not take action during this meeting but would be looking at the information given for at least a couple of week. He recommended if anyone had additional thoughts they should send in correspondence or emails to the Commissioners.

Commissioner McGrady noted that many people referenced how our ordinance from different from other mountain counties and he requested that staff get broad information from other mountainous counties who made significant changes.

Adjourn

There being no further business Commissioner McGrady made the motion that the Board adjourn at 8:30 p.m. All voted in favor and the motion carried.

Attest:



Installation and Maintenance

- Calculations available with easy sizing and construction guidelines
- Maintain plants, mulch, and remove trash



Baker Center Rain Garden, The NC Arboretum



Grocery Store Median Rain Garden, Transylvania County



Bonsai Garden, The NC Arboretum



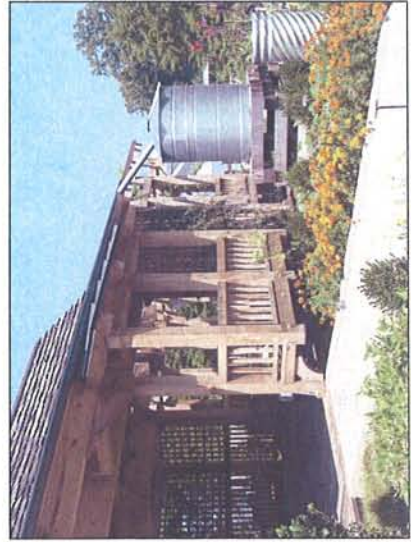
Water Harvesting Benefits

- Irrigate during drought restrictions
- Protect our natural resource
 - Finite supply
 - Replenish groundwater



Protect Water Quality (*cisterns primarily*)

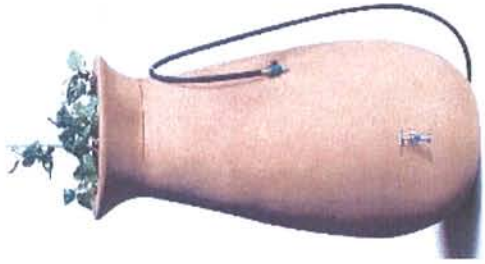
- Captures nutrients and other pollutants
- Prevents source water contamination
- Reduces flooding potential
- Reduces channel erosion



Natural Heritage Garden Cistern, The NC Arboretum

Water Harvesting Benefits

- Save Money
- Numerous uses for captured water (non-potable)



THANK YOU!



Photo Courtesy of Eric Caldwell,
Pennsylvania County Extension

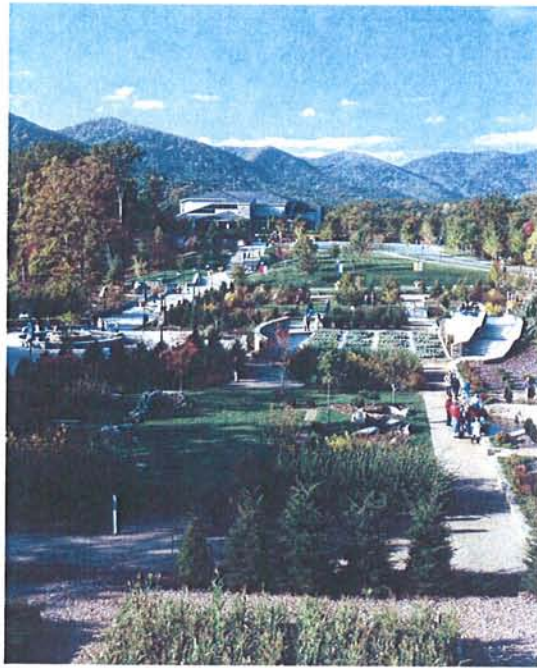
STORMWATER MANAGEMENT PRESENTATION

HENDERSON COUNTY, NC

French Broad Watershed
Training Center
Water Quality Group, NCSU

Jon Calabria
Landscape Architect and Coordinator

Carter Cone
Extension Assistant



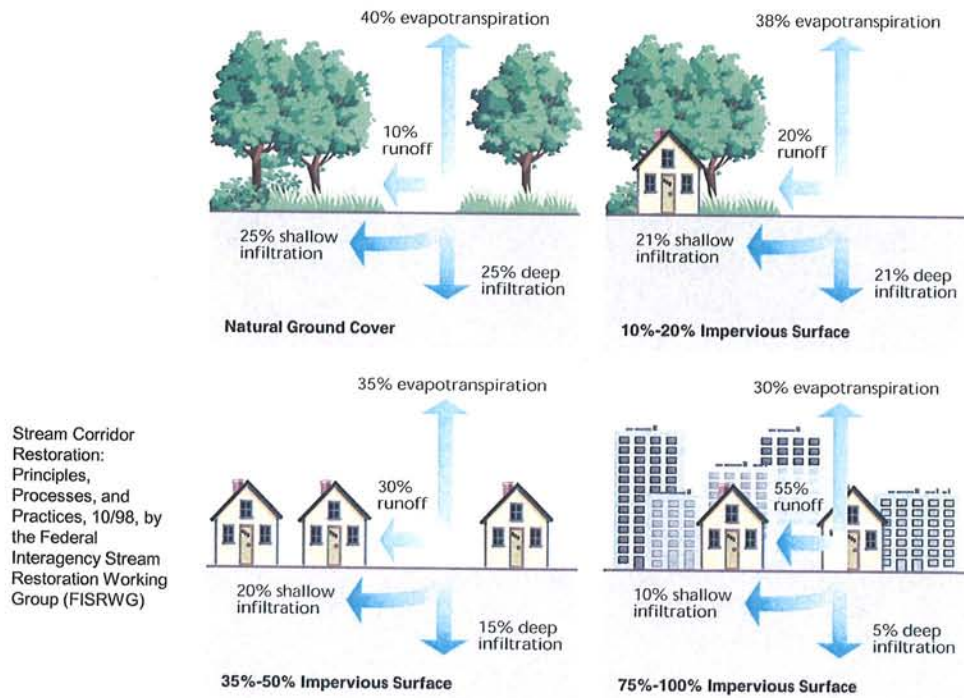
Land Uses and Water Quality



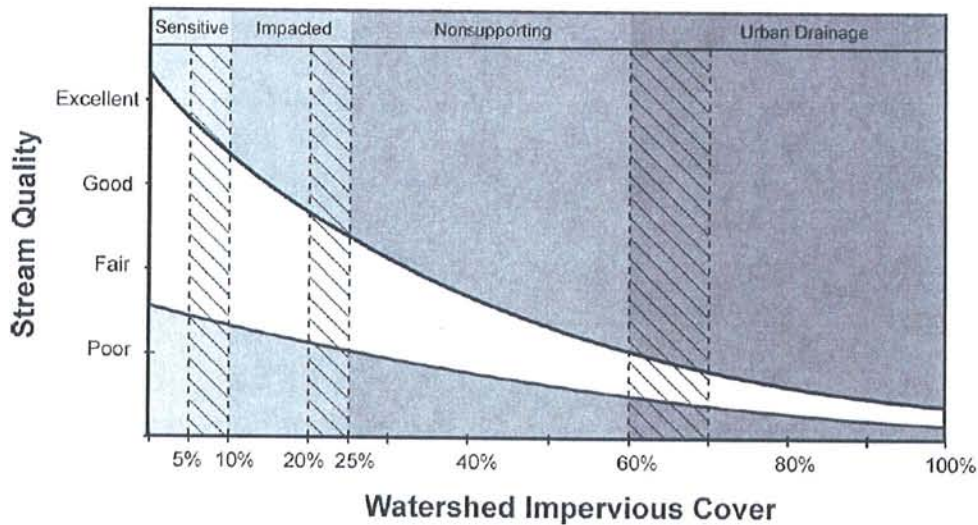
Courtesy of BC Ministry of Forests and Range

Courtesy of The VanNatta Forestry and Logging

Urbanization Impacts to Water Quantity and Quality

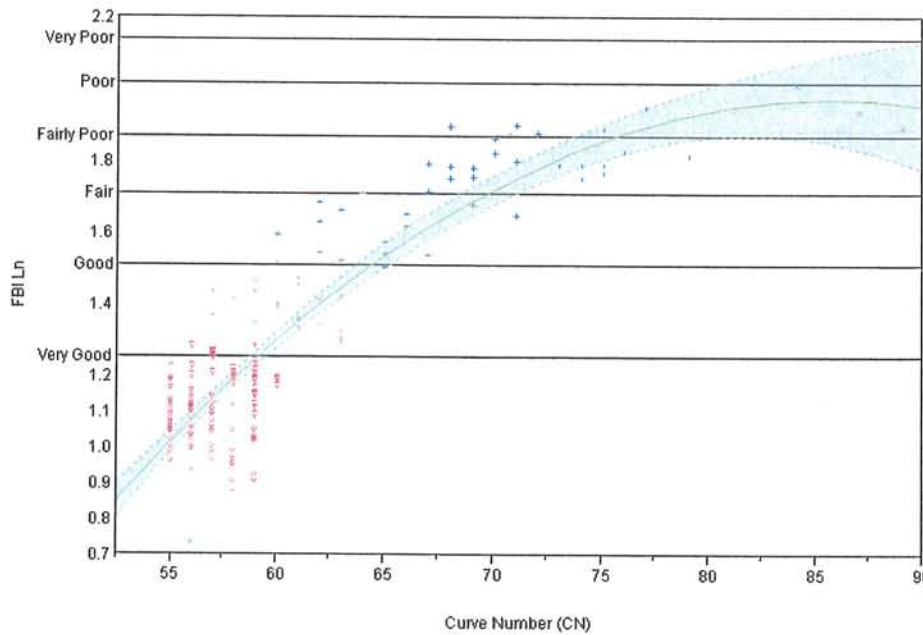


Reformulated Impervious Cover Model



Schueler, T. R., L. Fraley-McNeal, et al. (2009). "Is Impervious Cover Still Important? Review of Recent Research." *Journal of Hydrologic Engineering* 14(4): 309-315.

Regression



Quadratic regression analysis indicated a highly correlated response between increasing imperviousness and degraded water quality ($r^2=.74$, $p<.0001$) using the following model:

$$(FBI)_{ln} = -5.45067 + (0.17317 * CN) + (-0.00101 * (CN^2))$$

Where:
FBI=Family Benthic Index; CN=Curve Number

Stormwater Runoff Picks Up:

- Excess fertilizers
- Oil and grease
- Litter
- Sediment
- Salt
- Bacteria
- Nutrients
- Phosphorous
- Pesticides
- Atmospheric deposition
- Herbicides
- Insecticides
- Nitrogen
- Total suspended solids
- Heavy metals
- Pathogens



Stormwater Runoff (nonpoint source)



- Picks up pollutants
- Often flows right into streams
- Increases flooding and erosion



Different Approaches are Beneficial

- Treat water at the source
- Mindset shift
- More sustainable approach
- Better wildlife habitat



Photo: American Concrete Industries

Best Management Practices (BMPs):

- *Rain Gardens*
- *Water Harvesting*
(*Cisterns/ Rain Barrels*)
- Permeable Pavement
- Pocket Wetlands
- Swales
- Green Roofs
- Level Spreaders



Rain Garden Benefits

- Adds value and beauty to your property
- Provides wildlife habitat



Bullington Center Rain Garden, Henderson County



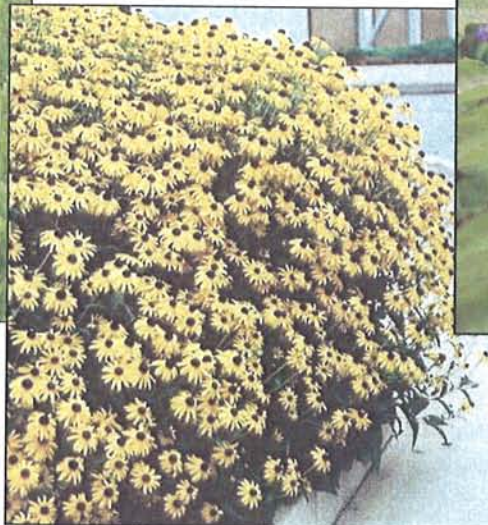
Hazelwood Elementary Rain Garden, Haywood County

Rain Garden Benefits

- Restores infiltration/
groundwater
- Slows, cools, and treats
stormwater runoff



Swamp Hibiscus
Hibiscus moscheutos



Orange Coneflower
Rudbeckia fulgida



Beautyberry
Callicarpa americana

Installation and Maintenance

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Grocery Store Median Rain Garden, Transylvania County



Baker Center Rain Garden, The NC Arboretum

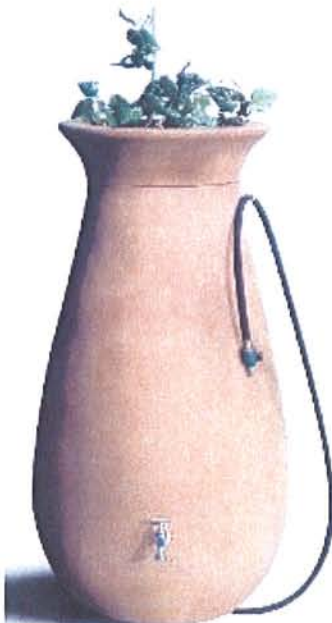
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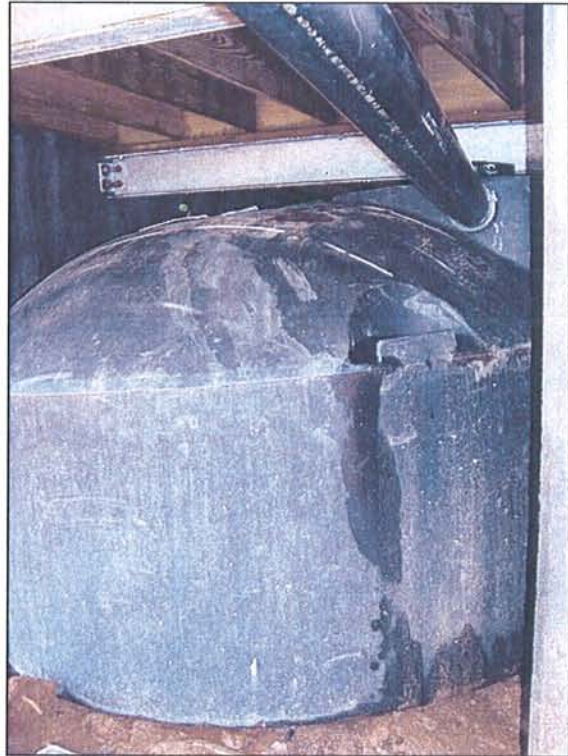
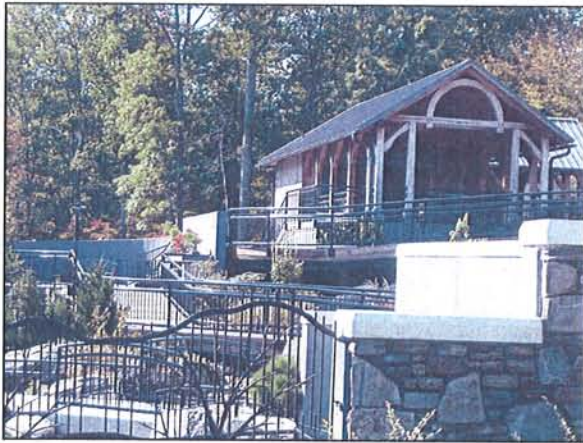
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THANK YOU!



*Photo Courtesy of Eric Caldwell,
Transylvania County Extension*