

AUA Case Study Awards Program

Lumpkin Street Drainage Improvements

University of Georgia



Submitted by: Danny Sniff, Associate Vice President for Facilities Planning
Office of University Architects for Facilities Planning

Lumpkin Street Drainage Improvements

Vital Statistics



Vital Statistics

Pilot Urban Watershed Quality Project utilizing innovative stormwater design



Similar pilot project in Seattle, WA 2003

Vital Statistics

Located in Tanyard Creek Watershed, Athens, Georgia



Tanyard Creek near Legion Field and Dormitories

Vital Statistics

Lumpkin Street:

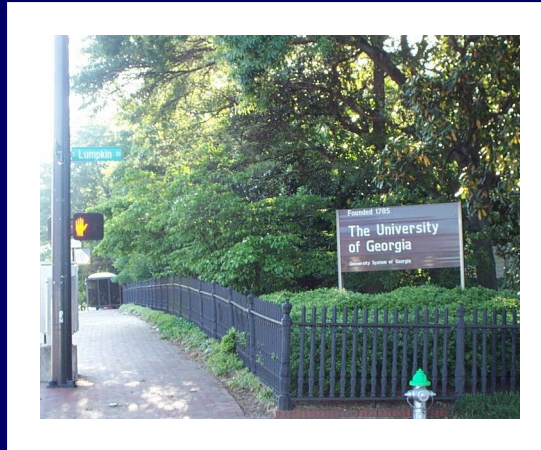
County-owned street and primary vehicular corridor on the western edge of the UGA campus



Lumpkin Street looking North

Vital Statistics

Town and Gown Collaboration between UGA and Athens-Clarke County



Corner of Lumpkin and Broad Streets

Vital Statistics

Construction Estimate \$4,400,000.00

(Phase I : \$2.9 M, Phase II: \$1.5M)



Lumpkin Street Construction, looking North

Lumpkin Street Drainage Improvements

Technical Statistics



Technical Statistics

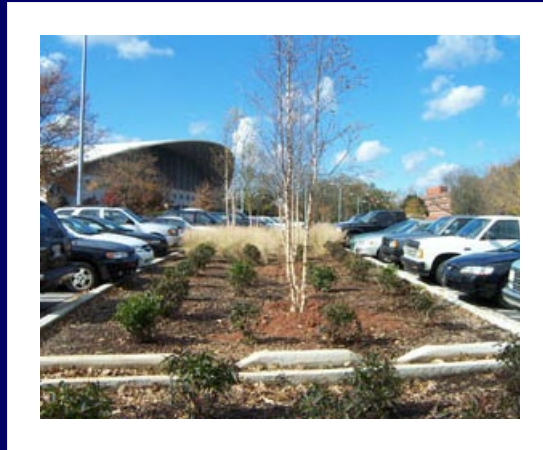
Approximately 75% impervious watershed drains into Tanyard Creek



Tate Student Center Parking at Tanyard Creek

Technical Statistics

Water Quality component designed to treat first-flush
from impervious road surface (1.2" rainfall)



Infiltration Island installed in campus parking lot

Technical Statistics

Project limits extends approximately 1.3 miles and incorporates 15 raingardens



Raingarden at UGA Grounds Department

Technical Statistics

Other BMP's include infiltration trenches and enhanced swales



Grassy swale at UGA Soccer Softball Complex

Lumpkin Street Drainage Improvements

Funding

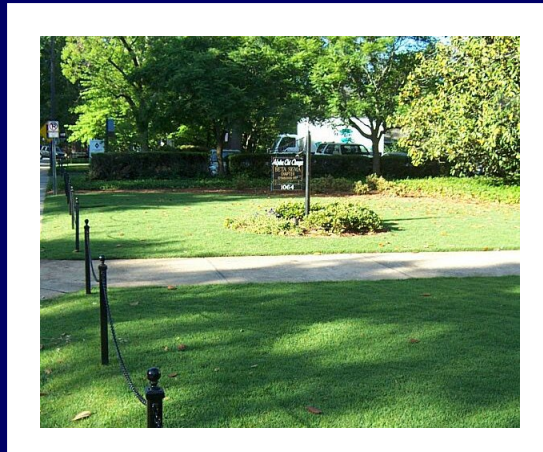


Funding

Athens-Clarke County Special Purpose Local Option Sales Tax (SPLOST)

Property provided by UGA

Future maintenance to be funded / provided by UGA



AXO Sorority House, future Raingarden site

Funding

Will teach for... OOPS!



Steve, what are you doing here?

Lumpkin Street Drainage Improvements

The Story



The Story (A-CC)

Summer of 2002 - Athens Clarke County Stormwater Master Plan

Mitigation of flooding on Lumpkin Street was listed among the six highest priority projects in the county.



View of Lumpkin Street, looking North

The Story (UGA)

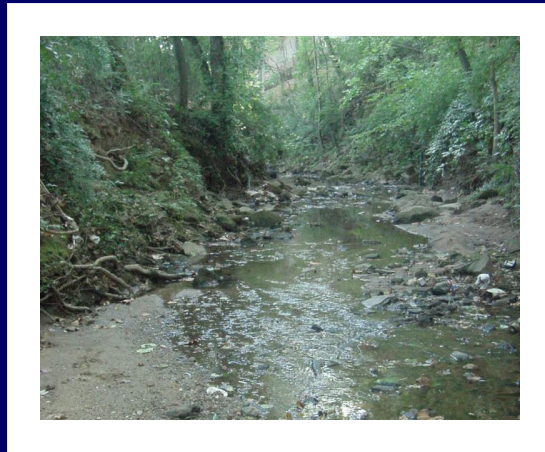
Also that summer... A multi-disciplinary Stream Restoration Studio course offered by the College of the Environment and Design - in association with the Office of University Architects (OUA), the College of Engineering and the Institute of Ecology - studied Tanyard Creek.



Tanyard Summer Studio, Illustrative Plan

The Story (Tanyard)

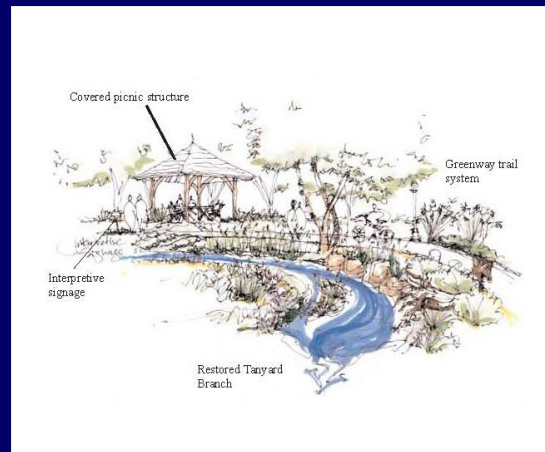
Flowing through the heart of campus and draining nearly one square mile of Athens and UGA, Tanyard represents the quintessential urban stream. Drainage from Lumpkin Street is currently discharged directly into the creek causing severe erosion and degradation.



Tanyard Creek, near Sanford Stadium

The Story (Tanyard)

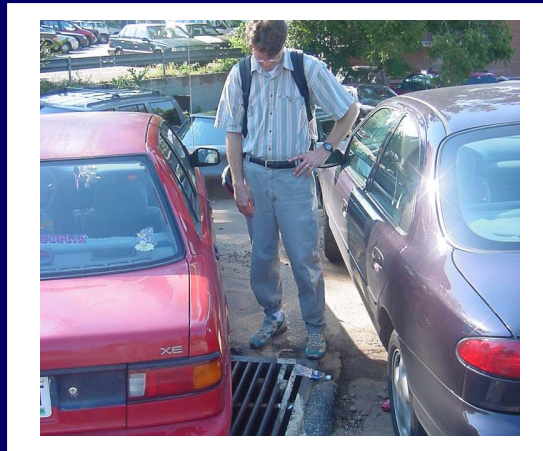
The Tanyard Stream Restoration Studio identified strategies for the restoration of Tanyard Creek, including restorative stormwater management.



Sketch of restored flood plain and stream channel

The Story continues...

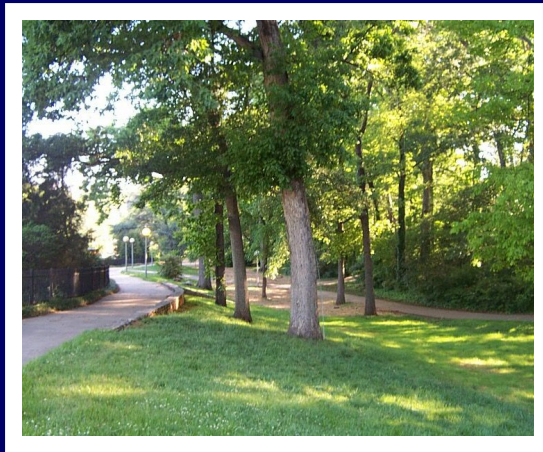
Once the A-CC Commission approved commencement of the initial design phase for the Lumpkin Street Drainage Improvements project, the Office of University Architects began educating UGA's administration on the harmful effects of urban runoff on water quality and stream system health.



Tate Center Parking Lot, conventional
stormwater management

The Story continues...

UGA and A-CC agreed to partner together to implement Lumpkin Street Drainage Improvements, a pilot water-quality project using city funds and campus property.



Lumpkin Woods, portion of R.O.W. agreement

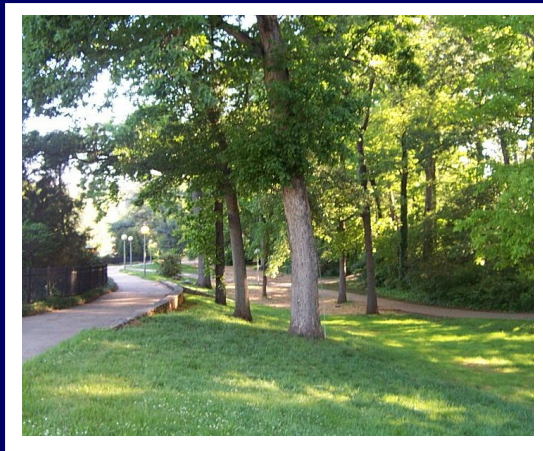
Lumpkin Street Drainage Improvements

The Design



The Design

With the ultimate goal of providing a model for watershed planning - including an ecologic and cultural restoration of Tanyard Creek - the University approached county officials regarding collaboration.



The Design

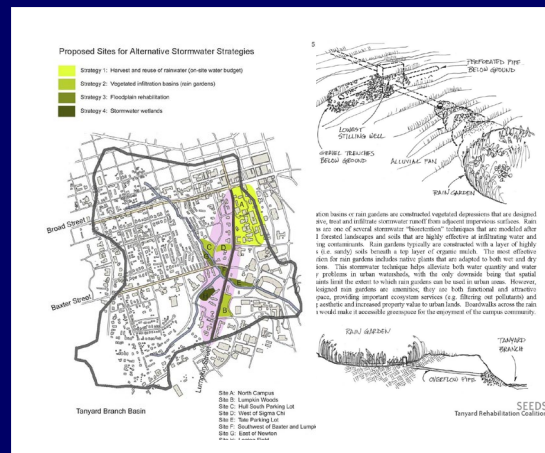
OUA suggested revisions to the preliminary design proposed by the county's consultant, Arcadis, which was confined by existing right-of-way easements and was based on conventional stormwater management methods.

The new concept proposed by OUA incorporated bioretention areas on University property designed to slow down and cleanse polluted runoff before it enters the creek.



The Design

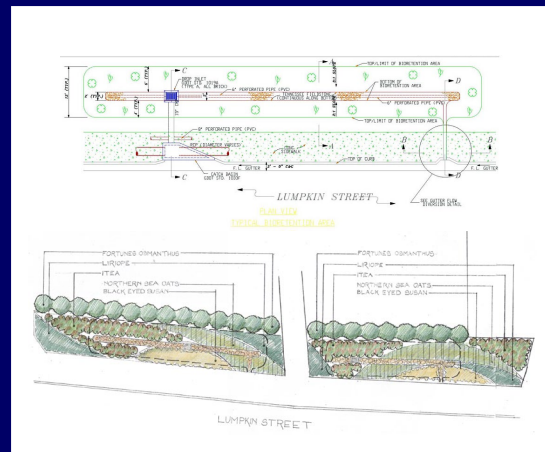
In the fall of 2002, UGA Students and Educators for Ecological Design and Sustainability (SEEDS) in association with OUA, developed a schematic plan for the incorporation of raingardens in a vegetated area of campus to treat runoff from Lumpkin Street. This plan became the basis for the current design.



Excerpts from Flooding on Lumpkin Street: A Systematic Approach

The Design

The official design team included members from the UGA Office of University Architects, UGA Physical Plant Division Grounds Department, A-CC Transportation & Public Works and consulting engineers, Arcadis.



Typical Raingarden design

The Design

The final design incorporates 15 raingardens over 1.3 miles of Lumpkin Street. These bioretention areas will filter the first-flush of runoff from the roadway. Exfiltration Trenches provide a final effort to return stormwater to the ground before entering the conventional piped system.



Example roadside raingarden

Lumpkin Street Drainage Improvements

Construction



Construction

Construction began on April 15, 2004.

The project is divided into two phases: areas south of Tanyard Creek and areas north of Tanyard Creek, respectively. The first phase will end before UGA's 2004 Fall Semester. The subsequent phase will commence in January 2005.



Lumpkin Street Drainage Improvements Construction

Lumpkin Street Drainage Improvements

Lessons Learned



Lessons Learned

I. Sustainable Design can be applied on Campus!

Keep talking about sustainability issues with administration - intelligent people will eventually understand its value environmentally, educationally, financially and/or politically.

Sustainable campus projects offer opportunities for research, transforming physical grounds into living laboratories.

The University campus can be a canvas for practicing what its departments preach .

Lessons Learned

II. Student projects can have an impact (It pays to send employees to school!)

Well-thought student work can provide a great foundation for real projects.

Integrative Faculty-Student-Staff design can be productive and garner good press.

Having an OUA employee directly involved as both student and advisor benefited the project.

Lessons Learned

III. Campus and County Governments can work together!

Watershed boundaries cross political boundaries - improvements benefit all.

Sharing of land area for appropriate design is an option.

Lessons Learned

IV. Everyone's Sustainable!

Just like the inundation of sustainable product claims, many like to claim credit for "good" sustainable projects.

Lumpkin Street Drainage Improvements

Lessons to be Learned...



Lessons to be Learned

I. Sustainable Design can be applied on Campus?

We haven't seen it yet - we expect aesthetics will affect individual's acceptance.

Will raingardens really work and how long will they remain effective?

Will faculty and students follow up with actual monitoring / data collection?

What will be the survivability rate of installed plant materials and how intensive will the maintenance requirements be?

Will OUA and Physical Plant Grounds Department be able to utilize raingarden planting areas as test plots for UGA's cutting edge phytoremediation research?

Lessons to be Learned

II. Campus and County Governments can work together?

Once started, the design process was fairly smooth - what will happen if bioretention costs, including campus vegetation standards, exceed those acceptable to the county?

(**Note:** This concern was realized since this presentation was submitted. A-CC found an additional \$310,000 from a different source to cover initial bioretention costs.)

Lessons to be Learned

III. Did We Save the Day?

To be determined...

We think we've saved the day for Tanyard Creek and improved the quality of life for the community that will benefit from cleaner water and a healthier stream. Solely getting to the point of implementation of the Lumpkin Street Stormwater Improvements is a success- representing over 24 months of specific effort by OUA and others. Implementation will offer its own challenges, as will maintenance. The Physical Plant Division Grounds Department will provide the heroism of day-to-day maintenance required to keep the raingardens functional and aesthetically pleasing. This collaborative effort has been rewarding to date, and we are hopeful of positive outcome.

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Lumpkin Street Drainage Improvements

Application



Other Campus Applications

Approaches to stormwater management generated in the Lumpkin Street project have “spilled” over into other areas of campus...



Infiltration Island at Carlton Street Lot



Raingarden at UGA Grounds Department



Proposed stream restoration on East Campus

Lumpkin Street Drainage Improvements

Questions?



Office of University Architects for Facilities Planning
University of Georgia