A-B Tech works to shore up its stormwater infrastructure

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by Greg Parlier May 29, 2024

When it rains on the campus of A-B Tech, stormwater pours off its plethora of parking lots into the neighborhoods, forest and French Broad River below, taking pollutants with it.

If you've ever been on A-B Tech's campus, it's hard not to notice the parking lots. They surround the campus. Some of them seldom get used, instead acting as vacant funnels sending water toward the river at a breakneck speed not possible on unpaved land.

"All of that impervious surface doesn't allow rainwater to soak into the ground. Instead, it gets sent into storm drains, which then get piped directly into the nearest stream — in this case, Haith Branch — and then the French Broad River," says **Renee Fortner**, watershed resources manager for the environmental group RiverLink. "That large volume of stormwater causes multiple issues for our waterways, including just the sheer volume of water itself. It causes stream bank erosion; it can make flooding worse. And you can just imagine the pollutants that the water is picking up along the way as it moves across those parking lots and roads," Fortner says.

Now, the community college, which sits at the headwaters of one of three primary tributaries in the Central Asheville Watershed, is working to reduce the volume of rainwater that flows from its campus.

Dirk Wilmoth, chief financial officer of A-B Tech, says construction could begin next month to restore Haith Branch — a tributary of the French Broad River that runs through campus — and create a stormwater wetland in one of the college's many parking lots.

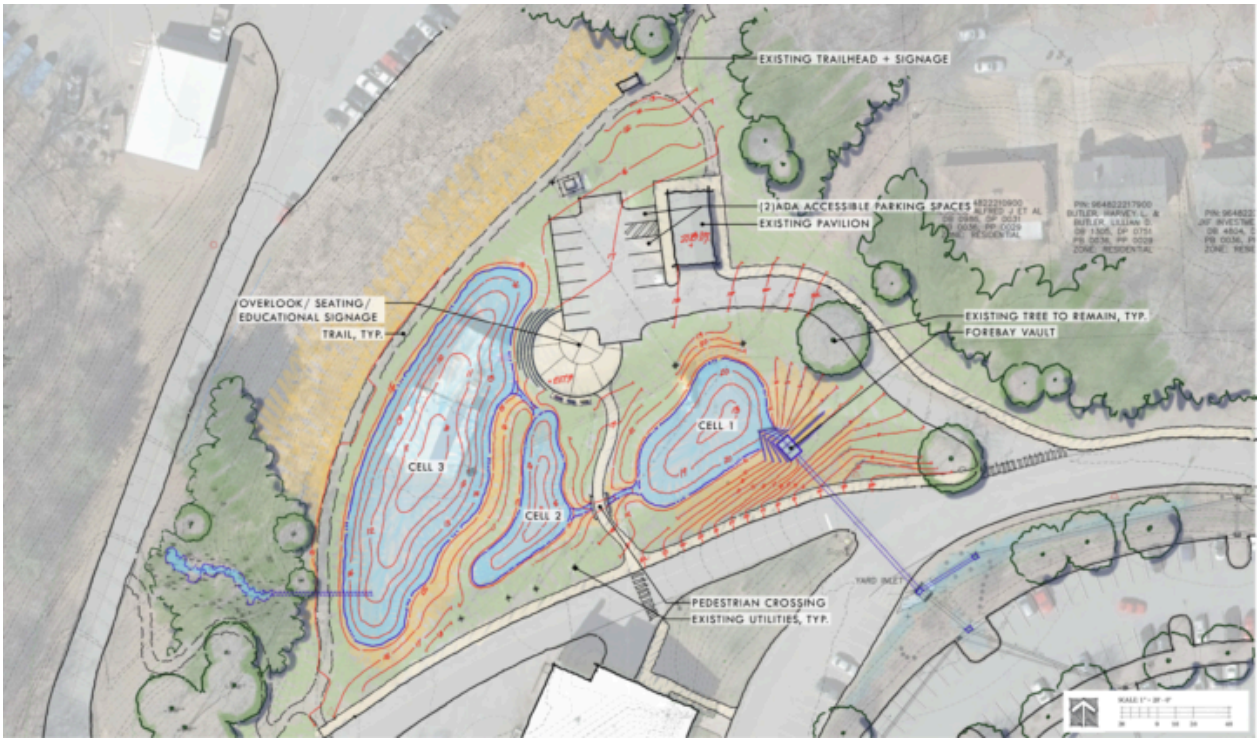
Stormwater management was not on anyone's mind as the campus began building on its Victoria Road site in the 1960s, Wilmoth says.

"We have a lot of parking lots and a lot of buildings. And so back when many of them were built, there wasn't a concern about where the stormwater would go other than just dumping it off campus," he acknowledges.

Off campus, it turns out, included residences in the adjacent Oakland Road neighborhood, leaving some complaining about flooded backyards and basements after

heavy storms.

While the issues in that neighborhood have been corrected through smaller projects, the college is drafting a stormwater master plan to comprehensively address the stormwater that inevitably runs off its many buildings and parking lots. It is partnering with RiverLink, which is helping A-B Tech restore Haith Branch and design mitigation features that divert water from the forest and river below.



WETLAND: RiverLink is working with an engineering firm to design and construct a wetland area where a parking lot currently exists on the campus of A-B Tech. Photo courtesy of RiverLink

Design and construction are funded partially by the college's capital projects budget and grants from the federal Environmental Protection Agency, the N.C. Land and Water Fund and the Community Foundation of WNC's Pigeon River Fund. Collectively, the project costs about $850,000, Fortner says.

"We've tried to take a better, more sensitive approach to what is happening to the water when it leaves the campus both in terms of its impact environmentally as well as socially," Wilmoth says.

Haith Branch

For RiverLink, this work goes back to its 2019 watershed restoration plan for the central Asheville watershed, which includes three tributaries — Town Branch, which flows off

Beaucatcher Mountain and picks up runoff from most of downtown and the Southside neighborhood; Bacoate Branch, which flows south from Aston Park; and Haith Branch off the campus of A-B Tech.

RiverLink studied the watershed for a year, and despite the then-unnamed Haith Branch being the cleanest of the three tributaries, it had its own issues that could be traced directly to A-B Tech's impervious surfaces.

"We saw that there were a lot of parking lots on their campus that didn't have any stormwater treatment at all. And that's because the parking lots were constructed prior to the City of Asheville having any kind of a stormwater ordinance that requires post-construction stormwater control measures. So we saw an opportunity there," says Fortner.

Black Mountain to clean a creek along the golf course

There's not often overlap between the worlds of golf and improving water quality. Establishing and maintaining large expanses of fertilized grass usually runs counter to stream restoration, but a new project in Black Mountain could do both.

In the Fairway Drive Project, the Town of Black Mountain will use a $75,000 grant from Buncombe County's Clean Water Fund next fiscal year to clean up Tomahawk Branch, a tributary of the Swannanoa River, on the Black Mountain Municipal Golf Course.

The project will fix a blocked ditch near the intersection of Fairway Drive, Tomahawk Avenue and Hiwassee Avenue. During rain events, the ditch tends to overflow, resulting in flooding and erosion issues on both the golf course and Tomahawk Avenue, according to town documents.

The town will install a diversion pipe, rework the existing ditch and rehabilitate stormwater management features to allow more water to soak in the ground on the golf course and improve water flow in Tomahawk Branch, says **Anne Phillip**, a stormwater technician for the town.

The project is one of several outlined in the town's 2022 stormwater master plan, which guides how the town should use the $350,000 it collects from residents in a stormwater utility fee. The fee primarily helps the town fulfill the requirements of its N.C. Department of Environmental Quality stormwater permit, but also funds other improvement projects such as the Fairway Drive project.

“The town is identifying all these small projects to improve water quality by either reducing sediment or allowing infiltration to get rid of the pollutants that stormwater can carry before it enters an adjacent water body. And by doing these small projects throughout town, we’re going to have a larger cumulative effect,” Phillip says.

The project is slated to be completed by June 2025.

Fortner found that much of the campus’s runoff was piped into a forested area on the west side of the campus, wreaking havoc on the forest floor.

“All of the water and the erosive force behind that water, had over many years created this big gully that just cuts through the forest. It enters that small stream that’s now called Haith Branch. And then all of that sediment has been going from there into the French Broad River,” she notes.

Before A-B Tech’s runoff enters Haith Branch in the forest, it is the cleanest of central Asheville’s three tributaries. Below that point is a different story, Fortner says.

The gully and streambank erosion along Haith Branch contributes 311 tons of sediment a year to the French Broad River, she says.

After RiverLink completes its project, that will be reduced to zero, according to an engineer’s estimate, Fortner adds.

Stormwater wetland

In one of those seldom-used parking lots, RiverLink is working with A-B Tech to replace the asphalt with a “regenerative stormwater conveyance,” more commonly referred to as a stormwater wetland.

All water coming from parking lots and buildings above the site will now drain into a three-tiered stormwater wetland where it will soak into the ground, reducing the amount of runoff coming from the campus.

That — simply reducing the amount of runoff — will have the largest positive effect on the stream and river below, Fortner says.

Plus, engineers will add trails around the wetland, creating what Fortner says will be a beautiful amenity for the campus.

Additionally, rain gardens with plants to help encourage water to soak into the ground will be added on the green parking lot islands between spaces, complete with picnic

tables for students to enjoy, according to the project plans.

The green infrastructure of plants and soils is much more effective at reducing stormwater issues than the gray infrastructure of pipes and drains that the campus and many cities used in the past, Fortner adds.

Workforce development

RiverLink will also work to clean up the gully in the forest and restore Haith Branch in the forest below, and students at A-B Tech will pitch in to help document the impact all the work has on the campus's creek.

While instructor **Helen Burrell** and her biology students have been testing Haith Branch's water quality for 10 years, this year she will lead more formalized sampling above and below the restoration site, Burrell says.

"This will allow us to get a picture of the fauna before the stormwater wetland installation work occurs, and in subsequent years we will sample the same location to see if there are any changes in fauna due to the action of the stormwater wetland," she says.

Burrell is excited about being able to incorporate sampling at a real-world stream restoration site to show her students how their field collections can contribute to the body of knowledge for the project's overall success.

"Often my students' primary experience with water quality is hearing about the swim guide alerts for the French Broad during the summer. While this stormwater project is focused primarily on sediment reduction, it will raise students' awareness of other water quality issues and allow them to feel connected to making a difference to the water quality of the French Broad watershed," she says.

Reduce rain runoff

Stormwater runoff is the No. 1 threat to the health of the French Broad River, causing increasing flooding events, erosion, sedimentation and pollution in the river and its tributaries, says **Renee Fortner**, watershed resources manager at RiverLink.

"To improve the water quality in the French Broad … it's going to take more than just A-B Tech," she says.

That's why the environmental nonprofit is in the midst of a campaign to help residents reduce stormwater runoff from their homes and businesses with its Reduce Rain Runoff

campaign in the eight counties of the French Broad watershed — Transylvania, Henderson, Buncombe, Madison, Haywood, Yancey, Avery and Mitchell.

The campaign encourages and instructs residents on how to install more green infrastructure like rain gardens, rain barrels, swales, trees, green roofs and permeable paving at their homes to reduce their footprint.

RiverLink is funding the campaign with support from the Community Foundation of Western North Carolina, Duke Energy Foundation, McClure Foundation and Land of Sky Regional Council, according to its website. Buncombe County is also contributing a $25,000 grant to the effort next fiscal year through its Clean Water Fund.

“It’s incredibly important; if we’re going to protect the French Broad River and protect water quality in our urban streams, we’ve got to do a better job of managing our stormwater runoff,” Fortner says.

Learn more about RiverLink’s reduce rain runoff campaign at avl.mx/dqi.