

South Royalton News
 Print (/news/8350356-95/riverbank-restoration-project-complete-at-s-royalton-farm?print=true)
 Share
 A non-profit group has completed the final phase of a restoration project along a section of the White River in South Royalton.

White River Partnership Project Manager Greg Russ said Vermont Youth Conservation Corps members and an area contractor joined him over four days to build a fort-like structure that will capture sediment over time and provide long-term stabilization for 150 feet of riverbank behind Hurricane Flats Farm, which was eroding.

"We are trying to mimic what would naturally happen," Russ said.

The design utilized natural materials — multiple layers of trees, coconut fabric, compacted soil and willow stakes, known as toe wood.

Dan McKinley, fisheries program manager with the Green Mountain National Forest, helped facilitate the project with Bob Gubernick of the U.S. Forest Service.



The toe wood design for the project, thought to be the first of its kind in the state, was selected instead of the typical alternative, riprap, which relies on large chunks of rock.

"Riprap is a traditional approach to armoring a bank and is sort of a Band-Aid as in it doesn't really address what's going on," Russ, the project manager, said. "It speeds up the water, deflects the energy and causes more erosion down stream."

Hurricane Flats Farm owner Geo Honigford said when Tropical Storm Irene blew through in 2011, the subsequent flooding carved out two massive holes in the back of his field, near the river's edge. The silt and sand left behind by the storm quickly began to erode.

Knowing he needed a more permanent solution, Honigford turned to White River Partnership for answers.

"I was looking for something besides rock to hold the bank because I knew that wasn't ultimately the best for the river," Honigford said.

Last October, the first toe wood structure was built near the one that was completed last week.

"It's a unique design," McKinley said, "one that I haven't used and seen in Vermont."

In total, 300 feet of riverbank was restored.

inion/FeaturedVoices/Mackie/)OVER EASY
 NION/FEATUREDVOICES/MACKIE/)
 i Mackie: When Supermarket Self-
 Service Goes Bad
 p://www.vnews.com/opinion/featuredv
 -95/dan-mackie-when-supermarket-self-
 service-goes-bad)
 Sep 9, 2013 11:05AM

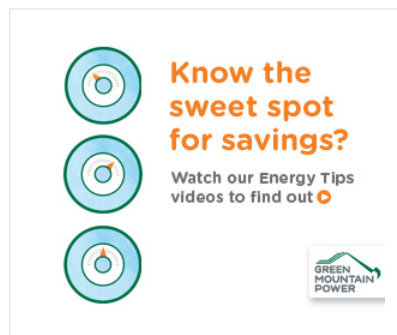


Live News
 (http://www.vnews.com/news/livene)

- JUST IN Vermont towns to host independent TV and f (http://hosted2.ap.org/NHNLV/280158b974a-09-09-Travel-Brief-ITVFest-Vermont/id-3206)
- 10:48AM UNH starts school of marine science (http://hosted2.ap.org/NHNLV/43dda9ff6c43-09-09-UNH-Marine%20Science/id-d3fddb10)
- 10:08AM Vt. town considers building offers (http://hosted2.ap.org/NHNLV/280158b974a-09-09-Town%20Buildings/id-6add990450b2)
- 10:06AM (http://twitter.com/nhdoti93) nhdoti93 (http://twitter.com/nhdoti93): NH TRAFFIC northbound off ramp is closed for construction det
- 09:51AM (http://twitter.com/nhdoti93) nhdoti93 (http://twitter.com/nhdoti93): NH Traffic , area of mile marker 95.6 the right lane is closed for
- 09:32AM Man found stabbed in Cambridge park (http://hosted2.ap.org/NHNLV/280158b974a-09-09-Park%20Stabbing/id-4f1984b0b82a4e)
- 09:22AM Letter: Seeking Supplies for the Homeless (http://www.vnews.com/news/townbytown/er-supplies-for-the-homeless)
- 09:21AM Letter: Masque's Message Still Relevant (http://www.vnews.com/news/letter-masques-message-still-relevant)
- 08:24AM

"I am extremely pleased," Honigford said. "I think it is doing exactly what it is supposed to do. It's slowing the river down and it is trapping sediment and building out the bank. ... It's visually appealing when you are on the river and it came in at a reasonable cost."

Many of the materials needed for the projects were found along the riverbank. The total project cost was estimated at \$20,000, 30 percent less than using rip rap on the same square footage, Russ said.



The Design

A base layer of 150 trees with the roots still attached were laid perpendicular to the riverbank. Two other logs were added for support — one on top of the layer of trees and one below — and run parallel to the river, Russ explained.

Workers then filled in the gaps with pieces of wood to add support.

Atop the trees, coconut fiber fabric was layered with soil. And next month when willow stakes are dormant, volunteers will drive the tow wood stakes into the coconut fiber, which will help hold the soil lifts in place until vegetation becomes established. In the spring, Russ said volunteers will add plants to the top of the bank.

The logs that are visible from Route 14 are meant to act as "ice fenders," which will deflect ice away from the structure in the winter months, Russ explained.

Because the toe wood structure is made of natural materials, it will eventually break down, but not before the bank has a chance to strengthen.

"We are not saying that the river can't erode," Russ said. "All we are doing is trying to give that toe of the bottom of the bank a chance to stabilize so that the vegetation can grow and allow the river to erode at a more natural rate."

An added benefit to the toe wood system, Russ said, is the roots of the trees that lay flush to the riverbank provide habitat for aquatic life.

Mischa Tourin, one of eight Vermont Youth Conservation Corps members who worked on the toe wood structures, said building them was educational.

"It was great to learn about the river flow and how the river works and see the effects from Tropical Storm Irene, and how we could build something to mitigate those effects," Tourin said.

A picnic and tour of the site is scheduled for Sunday at 3:30 p.m.

Jordan Cuddemi can be reached at jcuddemi@vnews.com or 603-727-3248.

Share: Email

Print (/news/8350356-95/riverbank-restoration-project-complete-at-s-royaltown-farm?print=true)

Share

Share http://www.addthis.com/bookmark.php?v=300&winname=addthis&pub=ra-501ac4ee6a1b5542&source=tbx-300&lng=en&s=gmail&url=http%3A%2F%2Fwww.vnews.com%2Fnews%2F8350356-95%2Friverbank-restoration-project-complete-at-s-royaltown-farm&title=Riverbank%20Restoration%20Project%20Complete%20at%20S.%20Royaltown%20Farm%20%20%20%20Valley%20News&ate=AT-ra-501ac4ee6a1b5542/-/522de88eaf9bbf83/3&frommenu=1&uid=522de88e2afb3365&ct=1&tt=0&capcha_provider=recaptcha

More 1

Contribute: Suggest a correction (<http://drupal.vnews.com/forms/correction>)

Send a photo (<http://drupal.vnews.com/forms/photo>)

Suggest a link (<http://drupal.vnews.com/forms/link>)

Send a news tip (http://drupal.vnews.com/forms/news_tip)

Letter to the Editor (<http://drupal.vnews.com/forms/letter-to-the-editor>)

Prices at NH gas pumps fall 2 cents in last w
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-NH%20Gas%20Prices/id-4affbea7ce9-08:08AM>)

Union, Vt. transportation authority at impass
(<http://hosted2.ap.org/NH/WL/280158b974a-09-09-Transportation%20Contract/id-4d449-07:26AM>)

Vt. town to use solar power for buildings
(<http://hosted2.ap.org/NH/WL/280158b974a-09-09-Putney-Solar%20Project/id-7aa369d21-07:14AM>)

Vt. state police seek help in finding missing w
(<http://hosted2.ap.org/NH/WL/280158b974a-09-09-Missing%20Woman-Vermont/id-8ac2f6-06:54AM>)

NH police, military, addressing suicide preve
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Preventing%20Suicide/id-72ca5b5d19-06:42AM>)

NH-Vt. covered bridge undergoing repairs
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Cornish-Windsor%20Covered%20Brid-99335811334a45f8b456e2887-06:36AM>)

Shaheen's daughter running for City Council
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Shaheen%20Daughter-City%20Cour-78e3bd11a53429d88d6e4ef9d811db5-06:24AM>)

NH woman struck by police cruiser
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Struck%20By%20Police%20Cruiser/id-737c192d2a9a406f8c40732d37fba880-06:12AM>)

11-year-old NH girl found safe, was missing 7
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Missing%20Girl%20Found/id-c0fd53f-04:05AM>)

Vt. museum to feature botanical illustrations
(<http://hosted2.ap.org/NH/WL/280158b974a-09-09-Plant%20Art/id-3a7b2610340f474d8f-04:48AM>)

Bridge work resuming in Hampton, NH
(<http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Bridge%20Work-Resumes/id-878575e-04:44AM>)

Public hearing on Vt. wildlife management ar
([http://www.vnews.com/news/8036675-95/making-an-armed-vehicle-up-for-debate-again-in-concord-09-09-health-exchanges/27reads](http://hosted2.ap.org/NH/WL/280158b974a-09-09-Health%20Change-bd536f9f0a954acc-04:30AM))

Armored vehicle up for debate again in Con
([http://www.vnews.com/news/8036675-95/making-an-armed-vehicle-up-for-debate-again-in-concord-09-09-health-exchanges/27reads](http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Health-Exchanges/27reads))

Couple Who Nearly Drowned in Car Credits
Strangers With Saving Their Lives
(<http://www.vnews.com/news/8379218-95/couple-who-nearly-drowned-in-car-credits-strangers-with-saving-their-lives>)

WWII vets hop to take in Italy yields GI's rema
([http://www.vnews.com/news/8382033-95/norwich-gets-into-solar-power-09-09-whales-get-suntans-too](http://hosted2.ap.org/NH/WL/43dda9ff6c43-09-09-Vets-Home-From-Italy-Remains/id-b3e59d7-12:08AM))

Norwich Gets Into Solar Power
(<http://www.vnews.com/news/8382033-95/norwich-gets-into-solar-power-09-09-whales-get-suntans-too>)

Whales Get Suntans, Too
(<http://www.vnews.com/news/8382033-95/norwich-gets-into-solar-power-09-09-whales-get-suntans-too>)

D-H CEO: N.H. Lags Behind Vt.
(<http://www.vnews.com/opinion/columns/8367686-95/d-h-ceo-n-h-lags-behind-vt>)

Column: State Defiance Could Allow for Poli
(<http://www.vnews.com/opinion/columns/8367686-95/d-h-ceo-n-h-lags-behind-vt>)

Hut ... Hut ... Drink! Football Coaches Make
the Call to Climb to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

Climbing to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

They Drink to the Roof of Africa
(<http://www.vnews.com/sports/8155833-95/hut-hut-drink-to-the-roof-of-africa>)

But