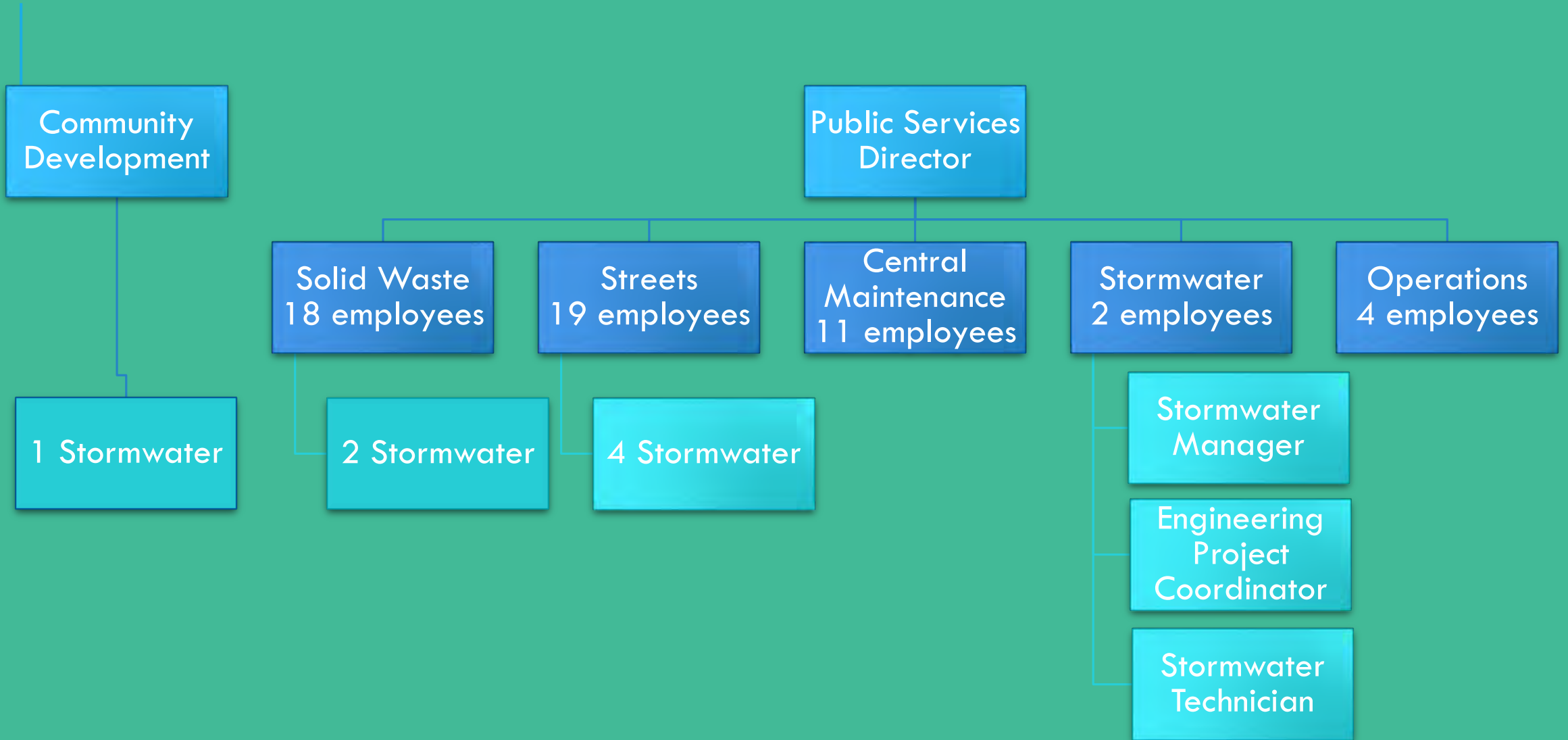


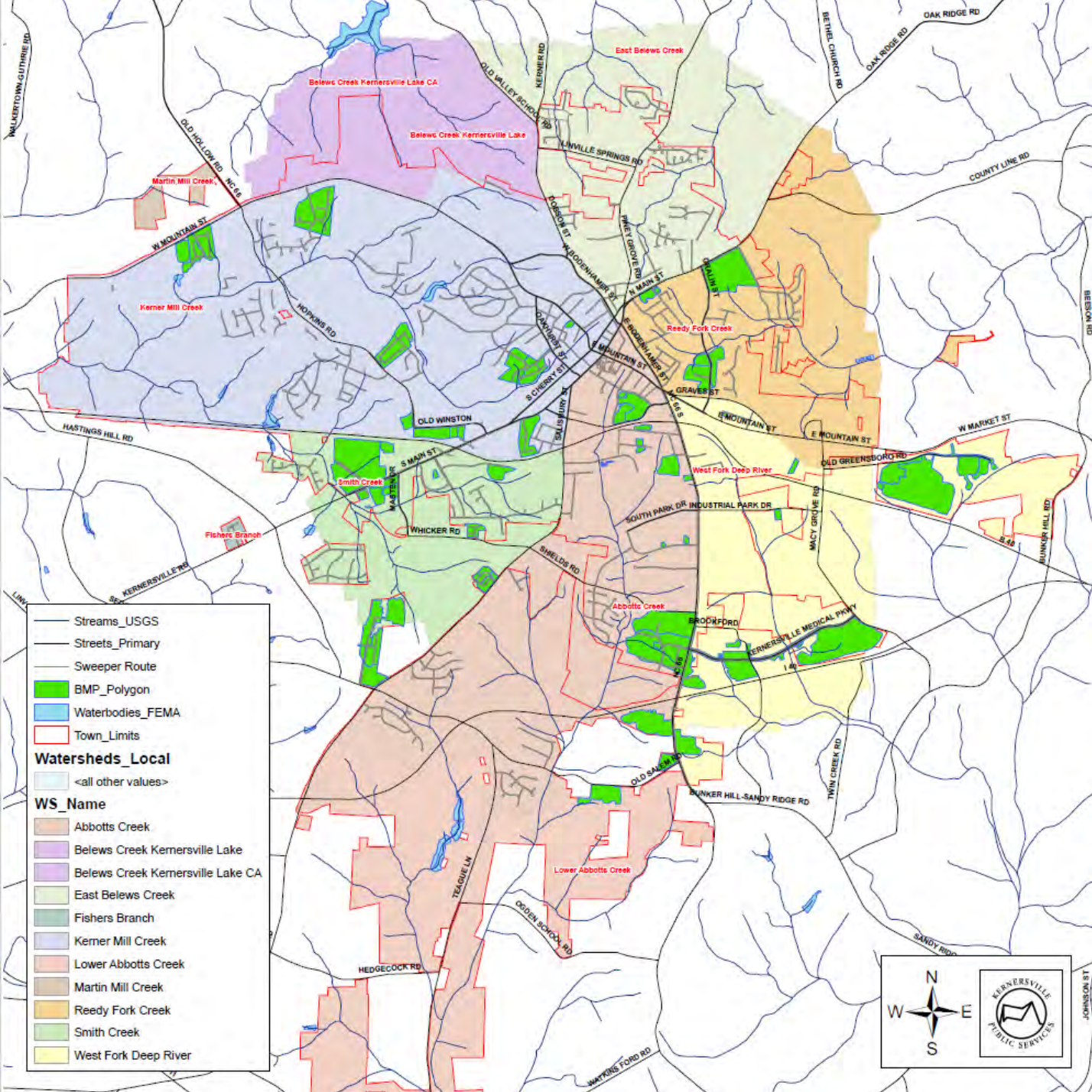


TOWN OF KERNERSVILLE STORMWATER

Wendi Hartup, stormwater
manager

ORGANIZATIONAL CHART





WATERSHEDS WITHIN ETJ

JURISDICTION & ETJ: 25.07 SQ MI

BUDGET: 1.8 MILLION

UTILITY FEE:
2980SF RESIDENTIAL = \$39.51/YR
EACH 1000SF ADDITIONAL = \$13.26

PUBLIC EDUCATION

- Partnerships with
 - N.C. Cooperative Extension
 - NCSU BAE
 - Piedmont Triad Regional Council
 - <https://www.stormwatersmart.org>
 - Forsyth Creek Week Committee



FORSYTH CREEK WEEK

Backyard Stream Lecture



Reedy Fork cleanup = 2680lbs



Fly-tying demo



Greener Car Care at Public Yard

34lbs pills collected



Wetland Walk



Rain Garden class



Planting Party at the Park

Stormwater Solutions Storymap

- Tour Overview
- Rain Gardens
- Cisterns and Rain Barrels
- Bioretention
- Stormwater Wetlands
- Streambank Restoration
- Swales
- Pervious Parking
- Riparian Buffer Zone

Tour Overview

<https://www.forsythcreekweek.org/stormwater-solutions-1>



Oak Forest Rd - Shearforce and Linear Drinking Gardens
26 items - Shared



Buckhurst - ScourStop with sod and plugs (J. tenuis)
2 items - Shared



How to Harvest and Install Livestakes
31 items - Shared



Regents Park & Chesham - Shoremax and Wooden Weir
21 items - Shared



Regents Park Rd and Finborough Ct - ScourStop
6 items - Shared



Mar 27, 2021 at 10:33:46 AM



Mar 27, 2021 at 9:35:00 AM



Mar 27, 2021 at 9:35:00 AM



Mar 27, 2021 at 9:40:58 AM

USE STREAM SIMULATION TRAILER

CALEB'S CREEK KINDERGARTEN (100)
TOK PUBLIC SERVICES DAY



WE USE IT EVERYWHERE!



ADVERTISING

STREET SWEEPERS

479 SWEEPING HOURS IS GREAT FOR EDUCATION BANNER

PIEDMONT TRIAD WATER QUALITY PARTNERSHIP AND
PIEDMONT TRIAD REGIONAL COUNCIL
USED FOR TV, RADIO, FACEBOOK, TWITTER, YOUTUBE
LENNY THE LIFEGUARD



PASSIVE EDUCATION WITH SIGNAGE...



UPPER WETLAND



LOWER WETLAND

COMMON SALAMANDERS of FORSYTH COUNTY



Mole Salamander
Ambystoma talpoideum

Spotted Salamander
Ambystoma maculatum

Marbled Salamander
Ambystoma opacum

Red Spotted Newt
Notophthalmus viridescens

slimy Salamander
Plethodon cythraecus

Red Salamander
Pseudotriton ruber

Mud Salamander
Pseudotriton montanus

Four Toed Salamander
Hemidactylum scutatum

Did you know? North Carolina has the largest abundance of salamanders in the Kerner State area. Our diverse geography from mountains to coastal swamps creates ideal habitats across the state.

Salamanders can live in both terrestrial and aquatic habitats, and their water is essential for their survival.

DRAGONFLIES & DAMSELFLIES of FORSYTH COUNTY



Lancet Clubtail
Gomphus exilis

Ruby Meadowhawk
Sympetrum rubicundulum

Eastern Pondhawk
Erythemis simplicicollis

Blue Dasher
Pachydiplax longipennis

Blue-fronted Dancer
Argia apicalis

Azure Bluets (Mating)
Enallagma aspersum


Familiar Bluet
Enallagma civile

Did you know? Odonates (dragonflies and damselflies) lay their eggs in fresh water where they hatch and spend their first stage of life as aquatic nymphs. When the nymphs become adults they develop wings and take to the skies!

They are common in all stages of life and have several useful adaptations such as raptorial legs for catching prey.

dragonfly nymph

COMMON SNAKES of FORSYTH COUNTY



Eastern Garter Snake
Thamnophis sirtalis

Racer
Coluber constrictor

Eastern Hognose Snake
Heterodon platirhina

Eastern Milksnake
Lampropeltis triangulum

Rough Green Snake
Dipsosaurus dorsalis

Black Rat Snake
Pantherophis obsoletus

Northern Water Snake
Nerodia sipedon

Eastern Ribbon Snake
Thamnophis sirtalis

Eastern King Snake
Lampropeltis getula

Did you know that most snakes found in North Carolina are non-venomous?

In the Spring and Summer you may see a snake on a road or searching for food and water, but the snake you see is not a threat. Use the appropriate path of the road to please give us our space.



**NATURAL HABITAT IN PROGRESS
NO MOW, NO TRIM ZONE**



EMPEROR LANE VEGETATED STREAMBANK

Completed Spring 2020



SEASONAL COLORS

SLOPE

STREAMBANK

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Spotted Salamander
Ambystoma maculatum

Red Spotted Newt
Notophthalmus viridescens

Spotted Salamander
Ambystoma maculatum

Red Spotted Newt
Notophthalmus viridescens

Spotted Salamander
Ambystoma maculatum

Red Spotted Newt
Notophthalmus viridescens

Spotted Salamander
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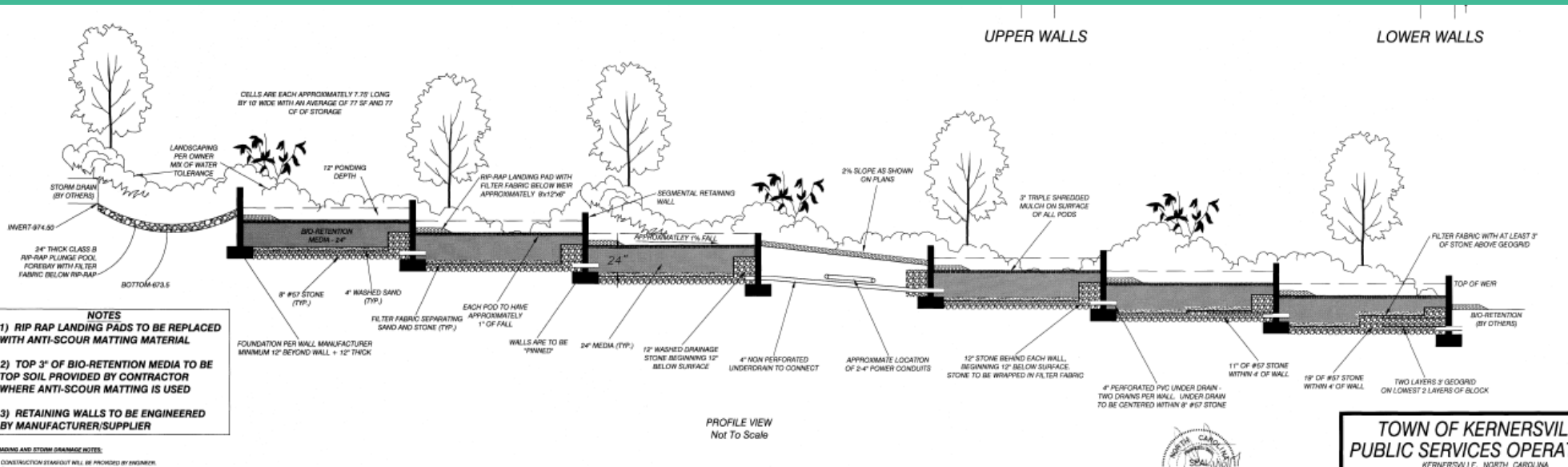
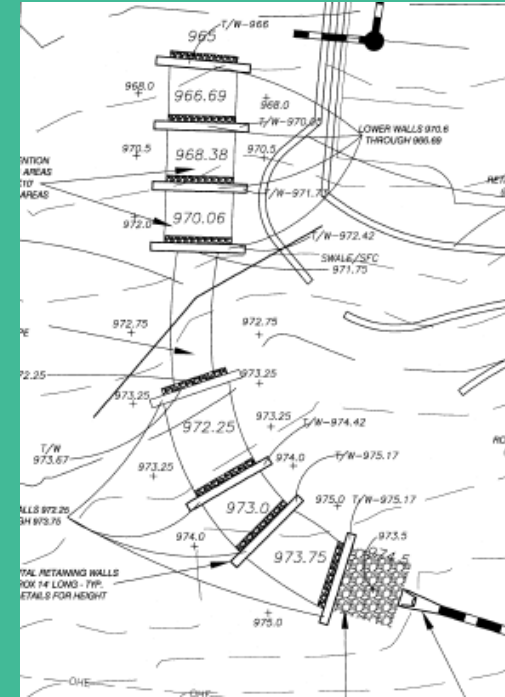


NCDEQ WATER RESOURCES DEVELOPMENT GRANT

<https://deq.nc.gov/about/divisions/water-resources/water-resources-grants/financial-assistance>

Use conversion of sediment pond to regulated BMP as match

Use Cooperative Extension rain garden workshop as match



SWALE — USED PYRAMAT AND STAFF WORKSHOP

- Rake and seed
- Mat with Pyramat and use duckbill anchors
- Cover with some soil and seed
- Cover mat with Excelsior matting and more seed
- *Juncus effusus* and *Carex lurida* = seed mix



1ST CELL NOT PLANTED — REVETMAX'S SHOREMAX

- Rake and seed
- Mat with Landlok TRM
- Seed
- Mat with ShoreMax and more seed



- *Juncus effusus* and *Carex lurida* = seed mix

NC COOPERATIVE EXTENSION RAIN GARDEN WORKSHOP

DEAD SOD



POLY-FLO FILTER MEDIA



SOIL LIFT



BURLAP, CARDBOARD FRAME





The Town of Kernersville's elected officials were invited to tour the project during construction. Here is (R to L) Stormwater Manager Wendi Hartup, Aldermen Bruce Boyer, Mayor Dawn H. Morgan, Riley Lecka with North State Environmental, and Project Engineer Greg Jennings.

Greg and Wendi on a tour of the stream restoration with some members of the public.


Participants: How they helped the process

- Town of Kernersville: Town-owned property. Support and approval from the Board of Aldermen. As much work done by Public Services as possible. Assistance and cooperation with Parks and Recreation.
- NC Land & Water Fund: Provided funding for the project
- North State Environmental (N.S.E.): Stream restoration construction.
- Jennings Environmental: Stream restoration design.
- Withers Ravenel: Development of design-build contract.
- Freese and Nichols: Bank Erosion and Hazard Index (BEHI) reports. Volunteer monitoring program. Design-build contract assistance.
- LDSI: Surveying contractor and workshop partner.
- Forsyth Creek Week: The restoration is used for education during the week's events.
- Cooperative Extension: Workshop partner.
- NCSU BAE: Hosted construction workshops.



DURING COVID...


PTRC – MASS MEDIA AND ACTIVITIES



WFMY CBS NEWS 2

Line No	Daypart Program	Daypart Code	STN Gross	Dur	Wks 11/20	12/7
18	MTuWThF 7:00p-8:00p JEOPARDY! WHEEL Nov/20-19LP (pav)	RT	\$245.00	15	0	1
19	MTuWThF 7:00p-8:00p JEOPARDY! WHEEL Nov/20-19LP (pav)	RT	\$375.00	30	0	1
20	MTuWThFSaSu 11:00p-11:35p LATE NEWS M-SU Nov/20-19LP (pav)	RT	\$195.00	15	0	1
21	MTuWThFSaSu 11:00p-11:35p LATE NEWS M-SU Nov/20-19LP (pav)	RT	\$300.00	30	1	0
22	Su 8:00a-9:00a GOOD MORNING WKNL SUN 8-9A Nov/20-19LP (pav)	RT	\$105.00	15	0	1
23	Su 8:00a-9:00a GOOD MORNING WKNL SUN 8-9A Nov/20-19LP (pav)	RT	\$165.00	30	0	1
24-1	Su 8:00a-9:00a	RT	\$180.00	15	0	1
25	Su 9:00a-10:30a CBS SUNDAY MORNING Nov/20-19LP (pav)	RT	\$275.00	30	0	1

Animated Videos about litter and pet waste showed in 15-second and 30-second spots, reaching approx. 21.5% of coverage area. The average viewer likely saw 3.7 Stormwater SMART ads on CBS in FY21.



PICK UP LITTER!



SCOOP POOP!

CBS Fall 2020
= \$1,840/8 spots
302,000 Impressions

CBS Spring 2021
= \$2,495/15 spots
643,000 Impressions

LoLey 101.0 WYMY-FM - Mexican Regional



Line No	Daypart Program	Daypart Code	STN Gross	Rate	Dur	Wks
18	MTuWThF 7:00p-8:00p	RT	\$40.00	\$3.20	30	4
19	MTuWThF 7:00p-8:00p	RT	\$100.00	\$3.33	30	3
20	MTuWThF 7:00p-8:00p	RT	\$60.00	\$2.00	30	5
21	Sa 10a-11a	RT	\$45.00	\$4.50	30	2
22	Su 7:00p-8:00p	RT	\$30.00	\$3.00	30	3
23	MTuWThF 7:00p-8:00p	RT	\$20.00	\$2.00	30	5
24	MTuWThF 7:00p-8:00p	RT	\$20.00	\$2.00	30	5

97.1 Spring 2021
\$740/10 spots
12,000 Impressions



A nadie le gusta hacer una piscina... anáhhhh...

FY21 MASS MEDIA SUMMARY



ACTIVITY BY MEMBER COMMUNITY

MEMBER COMMUNITY	TELEVISION AD IMPRESSIONS	RADIO AD IMPRESSIONS	ONLINE AD IMPRESSIONS	TWITTER PAID PLACEMENT
FORSYTH*	232826.00	135123.00	573795	31340
GUILFORD*	284774.00	165271.00	512367	27985
RANDOLPH*	276116.00	160247.00	495893	27085
ARCHDALE	86301.00	50085.00	163902	8952
BURLINGTON	219332.00	127292.00	388115	21199
CLEMMONS	82156.00	47680.00	155804	8510
GREENSBORO	733913.00	425934.00	1314285	71785
JAMESTOWN	73932.00	42907.00	140447	7671
KERNERSVILLE	108824.00	63157.00	206622	11286
MEBANE	88985.00	51643.00	168928	9227
RANDLEMAN	73525.00	42671.00	251297	13726
TRINITY	60694.00	35224.00	115318	6299
WINSTON-SALEM	621622.00	360766.00	1097611	59951

* Media totals are based on unincorporated areas using 2018 population estimates.



STORMWATER SMART REEDY FORK WATERSHED

WHAT TO KNOW

Reedy Fork is a vital water source that flows through numerous communities in the Piedmont Triad region of North Carolina. Stewards of the watershed need to know:

- How Reedy Fork connects to other watersheds downstream.
- Which pollutants affect its water quality.
- What a healthy riparian buffer looks like, and how activities in these buffer zones are regulated and permitted.

QUICK INFO

Area (sq miles).....255
Miles of Streams.....339
of Impaired Streams.....17
Dominant Land Use.....Dilapid Land
Counties: Alamance, Forsyth, Guilford.

WHERE IS IT?

The Reedy Fork watershed is located in the heart of the Piedmont Triad and is a part of the Cape Fear River Basin. Reedy Fork begins in Kernersville, where it flows east towards Greensboro, continuing on into Alamance county. Along the way, it flows through Lake Townsend and Lake Brandt. It is also joined by tributaries such as Buffalo Creek, Richland Creek, and Moores Creek, before it eventually joins the Haw River. The Haw River later transitions to the Cape Fear River, before ending at the Atlantic Ocean. Also, the Cape Fear river is one of only 4 river basins to be contained entirely within the borders of the state. Reedy Fork occupies land in 3 counties and numerous municipalities in the Triad. The map to the left illustrates the watershed area and the communities it impacts.

NCDEQ STREAM BUFFER ZONES

Regulations are set by the North Carolina Department of Environment and Quality (NCDEQ). Permitting rules vary slightly depending on the watershed, but the general rule has the riparian buffer divided into Zone 1 and Zone 2, together totaling 50' of protective vegetation.

******* ZONE 1 *******

Zone 1 extends from the top of the bank landward for 30 feet on all sides of the stream. Zone 1 has the stronger protections of the two zones, and should have a variety of native grasses, shrubs, and trees.

NO clearing, grading or development should take place here. No mowing, tree removal, or pesticide and fertilizer use.

NO direct deposit of concentrated water runoff flow, such as downspouts from rooftops and paved areas.

******* ZONE 2 *******

Zone 2 continues landward another 20 feet, creating a 50-foot buffer in total. Grading & revegetation are allowed if:

- If no impervious surfaces are added (i.e. paved walkways or slabs)
- If no trees are removed.

Some stormwater runoff is allowed to enter Zone 2, but the flow must be diffused and traveling at slower speeds. A rock pile or rain garden can help!

HOW DO I KNOW IF A WATERWAY IS REGULATED?

What may look like a dry ditch during part of the year may be a protected stream that requires a permit for any kind of development. Before doing anything within the 50' buffer that affects stream health (clearing trees and shrubs, adding walkways and structures, applying fertilizer and pesticides, redirecting water flow, etc.) check with your local government for assistance in determining if you are dealing with a protected stream, even if water rarely flows. See the next page for local contact information.

PROTECTING THE 50' BUFFER ZONE PRESERVES WATER QUALITY AND ALLOWS OUR NATURAL LANDSCAPE AND ITS WILDLIFE TO THRIVE.



BINGO BY THE CREEK

July 22 - Sept 22, 2020

FIRST 2 PARTICIPANTS IN EACH REGION TO OBSERVE ALL 16 WIN A PRIZE!

STORMWATER SMART Naturalist

ALAMANCE | DAVIDSON | FORSYTH | GUILFORD
RANDOLPH | ROCKINGHAM | GREATER NC

SALAMANDERS AND NEWTS	PUTTYROOT (Aplectrum hyemale)	CRANEFLEES	BLACK WILLOW (Salix nigra)
BUTTON BUSH (C. occidentalis)	DRAGONFLIES	SILVER MAPLE (Acer saccharinum)	MAYFLIES
TURTLES	ELDERBERRY (S. canadensis)	SWAMP MILKWEED (Asclepias incarnata)	FROGS AND TOADS
PICKEREL WEED (Pontederia cordata)	SNAILS	BELTED KINGFISHER	SNEEZEWEED (Helenium)

→ ALL LIFE STAGES ACCEPTED! SEE REVERSE FOR MORE INFORMATION. →

ORDINANCE CHANGES

Native plant incentives and look at spacing of bufferyards
Plant updates

Make new developments have stormwater easements as common area (no more question of who is responsible for a private drainage easement)

-have a list of don't do this in an easement



SINK HOLE MODEL

Material	Cost
Caulk	\$6.38
2-in PVC T	\$2.18
2-in PVC Cleanout Cap	\$1.08
2-in PVC Drain w/ Grate	\$5.38
2-in PVC 90 Deg Elbow	\$3.58
2-in PVC 3-ft length.	Had on hand.
6-in PVC 4-ft length.	Had on hand.
6-in PVC Coupler x2.	Had on hand.
PVC Cement.	Had on hand.
32-Quart Tote w/ Lid	\$10.78
16-lbs Ground Walnut Shell Media 12-20 Grit x2	\$39.95x2= \$79.90
Pool Skimmer Basket Pre-filter.	\$5.33
TOTAL	\$114.61

