# CRAYFISH CREEK

## an alternate future

To **promote** habitat and minimize the effects of sedimentation, an **enhancement** of Crayfish Creek is **mandatory.**

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## INTRO:

- Crayfish Creek, a tributary of the Chattahoochee, is negavtively impacted by the generation of hydropower from Buford Dam.
- With 56% of the watershed developed, and over 11% impervious surfaces, rapidly traveling polluted runoff obscures the natural flow pattern and water composition.
- Current conditions endanger habitat for spawning trout.
- Creek is a highlighted stop along a proposed greenway, and will be a community education model.

## METHODS:

- Participated in field studies to document both existing conditions of longitudinal profile and assessments of pools to riffles.
- Surveyed existing cross sections at the locations for the proposed reconstruction.
- Utilized the Rosgen stream classification process to categorize and propose a possible stream enhancement plan.
- Identified invasive plant species in the floodplain.
- Collaborated with individuals and organizations spanning a broad width of backgrounds to most efficiently reach well rounded conclusions.

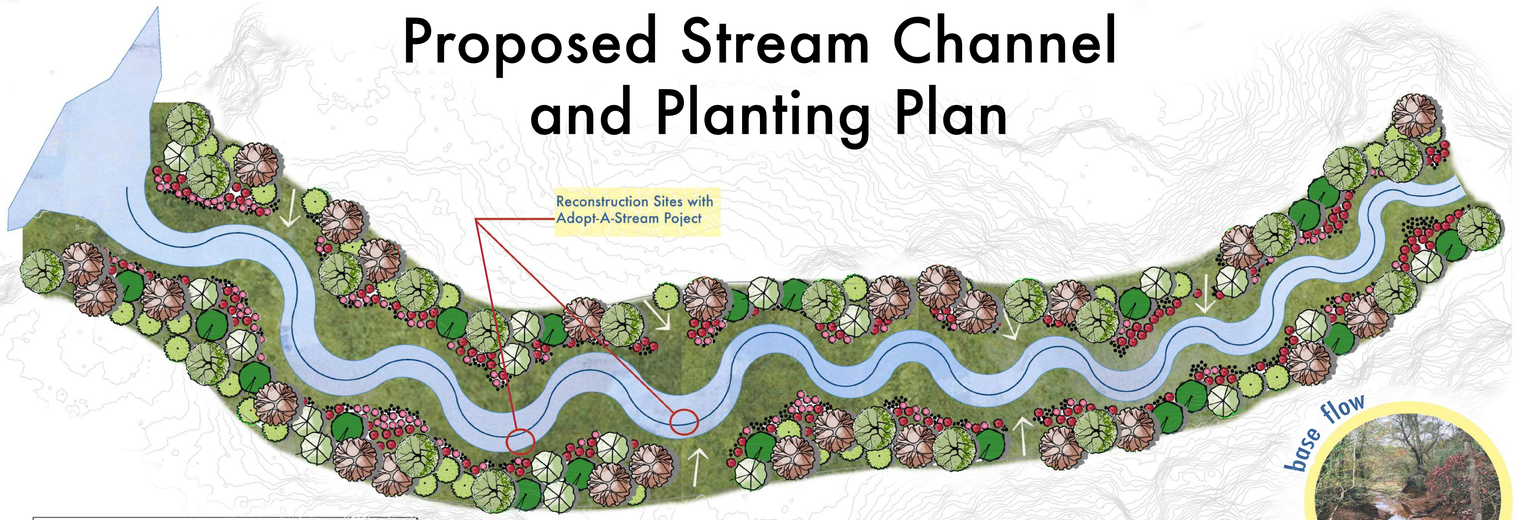
## CONCLUSIONS:

- Re-establish stream access to floodpalin.
- Establish bankfull bench and a meandering channel.
- Eradicate invasive species
- Use native plant community Planting Schedule to be expanded upon, but for simplicity of poster is displayed as illustrated.

**For More Info:**

SCAN ME

## Proposed Stream Channel and Planting Plan




PLANT SCHEDULE

| TREES | CODE | QTY | BOTANICAL NAME | COMMON NAME |
|---|---|---|---|---|
| | AR | 26 | Acer rubrum | Red Maple |
| | CA | 85 | Cornus amomum | Silky Dogwood |
| | FG | 32 | Fraxinus pennsylvanica | Green Ash |
| | PO | 21 | Platanus occidentalis | American Sycamore |
| | QN | 8 | Quercus nigra | Water Oak |
| | SA | 9 | Salix x 'Americana' | Americana Willow |
| SHRUBS | CODE | QTY | BOTANICAL NAME | COMMON NAME |
| | FG2 | 339 | Fothergilla gardenii | Dwarf Fothergilla |
| | RV | 111 | Rhododendron viscosum | Swamp Azalea |

FLOODPLAIN MIX 1 LB/20 ACRES $40.50 SOURCE: ERNST

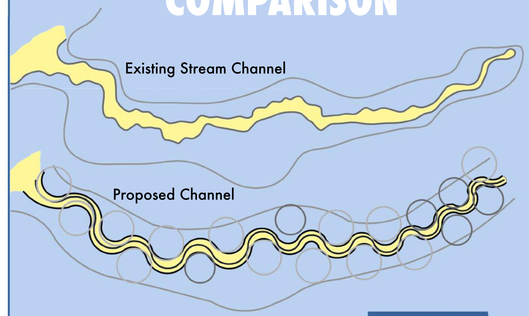
TRAIL ENTRANCE TO FLOODPLAIN

PROPOSED THALWEG

NORTH

0 400 800

## BANKFULL WIDTH COMPARISON




Radius of Curvature measurements

46 ft center to Thalweg

76ft center to Thalweg

Bankfull Width measurements

downstream: 152 ft.

upstream: 122 ft.

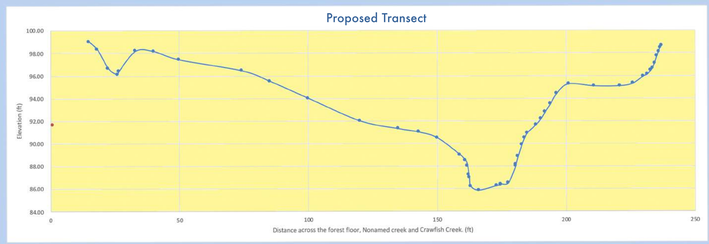
**Channel Template**

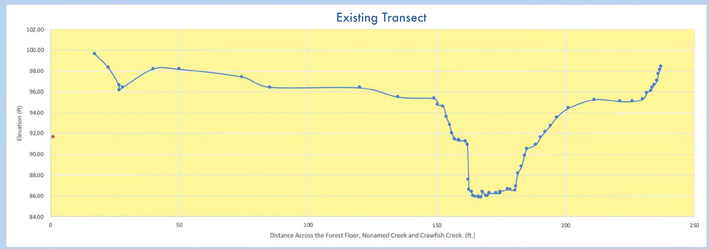
Not To Scale

## BASE VS. RELEASE FLOW PHOTO COMPARISON


Mouth of Tributary Photos


Transect Location Photos




PROPOSED

| NCD Parameters | 0.60 |
|---|---|
| | |
| Area | 132.1 |
| Width | 51.0 |
| Mean Depth | 2.6 |
| Max Depth | 5.8 |
| W/D Ratio | 19.7 |
| Entrenchment Ratio* | 3.6 |
| Sinuosity | 1.28 |
| Stream slope | 0.012159278 |
| Entrenchment Category | |
| Stream Type (Letter) | C |

*manual formula

| Entrenchment Ratio* 2 *MaxD | 11.52 |
|---|---|
| Locate stations at this elev (cell M17) | 97.38 |
| Width at this elevation (subtract STATIONS | 184.40 |
| Enhanced Stream Floodprone Ratio: | 3.431239389 |
| Bankfull Elev XS 1 | 91.62 |

EXISTING

| NCD Parameters | 0.60 |
|---|---|
| | |
| Area | 123.8 |
| Width | 35.0 |
| Mean Depth | 3.5 |
| Max Depth | 5.8 |
| W/D Ratio | 9.9 |
| Entrenchment Ratio* | 5.2 |
| Sinuosity | 1.28 |
| Stream slope | 0.012159278 |
| Entrenchment Category | |
| Stream Type (Letter) | |

*manual formula

| Entrenchment Ratio* 2 *MaxD | 11.52 |
|---|---|
| Locate stations at this elev (cell M17) | 97.38 |
| Width at this elevation (subtract STATIONS | 183.00 |

### Transect Data Collection, Interpretation, and Application

(using Rosgen Scale)

**Enhanced Transect**

To properly assess the stream, transects (cross sections) were taken in the field. This data spans an area close to stormwater drainage pipe. The chart to the left is the proposed compilation of data expressed in the Enhanced Transect Graph directly below. The Current Conditions Transect data is expressed in the graph on the bottom right. In reconstruction, a cross-sectional area of 260 ft^2. of dirt will be removed and repurposed in the construction of bankfull benches and lowering bank angles.

Crayfish Creek lacks a well-established bankfull for the channel to respond in a healthy fashion when Buford Dam generates hydropower. The creek's slope is within .01% to .02%. At 1.2, the creek's sinuosity is classified moderate to high. However, these findings only express the creek's ability to hold a sinuous profile. Site visits found the stream's width to depth ratio prohibited healthy flow. Because in current condition, the stream's width to depth ratio is 9.9. With the enhanced transect, the ratio is raised to 12.8, well within a healthy shape and form. This allows the stream to respond and adjust to the already healthy sinuosity level of 1.28. In addition, the flood prone ratio increases 1.75 to approximately 3.43. These adjustments will enable Crayfish Creek to exhibit a healthy sequence of riffles to pools as can be observed in the Proposed Stream Profile and Planting Plan.

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