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<b>To:</b>	Tarboro Riverfront Park Restoration Town of Tarboro 500 N. Main Street PO Box 220 Tarboro, NC 27886	<b>From:</b>	Kaitlyn Woolard, PLA
		<b>CC:</b>	Joshua B. Gilman, PE, D.WRE Melissa Ruiz, PWS Nick Ronan, PE Brian Kvam, PG  Stantec One West Fourth Street Suite 820 Winston-Salem NC 27101-3818
<b>File:</b>	Tarboro Riverfront Park Restoration Conceptual Design - Technical Memorandum (PN 238000650)	<b>Date:</b>	May 5, 2023

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**Reference:** EPA Brownfield Assessment Grant – Riverfront Park Reuse & Restoration

In June of 2022, the Town of Tarboro engaged Stantec in Riverfront Park Reuse and Restoration design project under the EPA Brownfields Assessment Grant. The project site is comprised of 7 parcels fronting the Tar River, totaling approximately 29 acres, and currently used for passive recreation as park space and natural landscape area. The project site's western half includes an area identified as a brownfield due to the perception of contamination, driven from the site's history of illegal landfill activity. The project team conducted a conceptual level study of both ecological and recreational restoration needs to ensure the parks sustainable future use.

Stantec engaged the community to understand park priorities, desired uses, and preferred design aesthetic. Community engagement for this site was conducted concurrently with the Downtown Area Wide Plan project, of which the park is included in the study limits. Findings of the park related community engagement activities were as follows:

- Connect the community to the Tar River via nature trails and downtown greenway connection.
- Park beautification and increase viewshed of the Tar River both in park and at proposed observation points.
- Improved existing recreation facilities and provided new ones including trails, designated fishing areas, picnic areas, hammock stands, and natural play elements.
- Provide a natural aesthetic in restoration through use of large boulders and native plant material.
- Design new event areas including covered shelter, amphitheater, and restroom facilities.
- Encourage ecotourism through guided kayak and canoe tours, gear rentals and outfitters.

In addition to community engagement, Stantec conducted an onsite analysis of existing conditions and park restoration needs. In support of approved scope of services for the above-referenced project, Stantec has completed and presented to the Town (conference call, 01/17/2023) our preliminary park reuse and restoration concepts (refer to Appendix – Riverfront Park Restoration and Concept Design). These ideas were well received through documented approval of submission, with no further changes requested. As a follow-up, Stantec is providing this Conceptual Design Technical Memorandum as a narrative summary comparing 2 options for park and stream improvements presented previously, Alternative A and Alternative B. In general, these 2 options were compiled based on project feasibility and probable cost with Alternative B approximated to be a greater cost than Alternative A (not computed but based solely on the quantity and type of project elements). However, it should be noted that all of the components of the presented options are feasible and could be mixed-and-matched per the desire of the town.

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## ALTERNATIVE A

**Park Improvements** – The improvements to Riverfront Park include the following proposed new or improved park elements:

- Albemarle Ave Park Gathering Space – This hardscape area is designed with a firepit, and river overlook for small to medium size gatherings. The design provides space for site furniture as well as seat walls for additional seating opportunities. The proposed design includes a new main parking lot for +/- 24 spaces and a permanent restroom facility.
- 10' Wide Multi-Use Trail - proposed to parallel the existing road throughout the park, with pavement markings to indicate trail area and vehicular use area.
- Quigless Clinic Pocket Park – proposed to provide river and park overlooks, seating, planting, and signage to serve as the park gateway from downtown. Pocked Park will serve as the grand pedestrian entrance to the park with stair connection (see below).
- Main Street Park Access Stair and Ramp – proposed to connect the Quigless clinic pocket park to downtown through a main staircase and ADA ramp. The proposed ramp will be located on the east side of the Quigless clinic building and traverse the existing slope at a maximum 5% slope for improved accessibility.
- Improved Parking Layout - existing parking areas throughout the park should be formalized with permeable pavers, striping, and curb stops. Parking layout areas provided in the plan show the most optimal parking locations for layout and efficiency. Formalizing parking layout will reduce disturbance of landscape areas and erosion. The proposed parking layout provides +/- 91 total parking spaces, plus additional trailer parking area.
- Designated Fishing Areas- Proposed Fishing areas will be located near existing fishing areas and supported by bank stabilization measures (see Fishing Holes, Stream Experience below)
- New Picnic Areas (East and West)
- Hammock Stand - one four post timber hammock stand is proposed on the east end of the park design.
- Expanded Nature Trails – New nature trails are proposed throughout the park, connecting to the existing nature trail, the proposed multi-use trail, and the ADA ramp adjacent to the Quigless Clinic. Expanded natura trails will provide an expanded trail system for passive recreation use. Trails will not be ADA accessible.
- Natural/ Educational Play Elements - natural play element should be provided throughout nature trail experience. Natural play elements may include climbing bounders, stepping logs, educational signage, and/or scavenger hunt signage to encourage a family friendly trail experience.

**Stream and Wetland Improvements** – In general, stream improvements focused on both human use and natural resource needs.

From the standpoint of **natural resource needs**, Stantec had identified specific areas of erosion requiring maintenance and care. Various treatments were considered, and those which offered natural protection with

Reference: EPA Brownfield Assessment Grant – Riverfront Park Reuse & Restoration

minimal maintenance were presented. Additionally, Stantec realized several opportunities to actively sustain or improve existing and/or potential aquatic habitat improvement.

- **Naturalized Wetland** – Located between the park road and Albemarle Avenue, this existing area demonstrates potential (hydrology, soils and vegetation) to foster a greater functioning wetland feature (reference Appendix page 3, item D) and corresponding overflow weir outlet (reference Appendix page 3, item H). By connecting runoff contributions from Albemarle Avenue through a proposed Step Pool (reference Appendix page 3, item C), this option proposes to improve influent water quality (increased dissolved oxygen and reduced total suspended solids). Additionally, this proposed wetland includes a storage overflow to the east into an adjacent (existing) riparian floodplain as a means to reduce park roadway overtopping. This wetland would be designed so that stored water could percolate, thereby recharging local hyporheic exchange at and around the adjacent fishing area. The proposed outlet to this naturalized wetland also incorporates an additional stable Step Pool, referred to as Boulder Water Access, that serves to deliver flows from the wetland during discharge events.
- **Stormwater BMP (Best Management Practice)** – Located at the southern end of the East Granville Street parking lot, this underutilized area currently serves as additional car parking owned by the Town. Preliminary runoff calculations support the idea that this parking area could be converted into some form of an infiltration basin (reference Appendix page 3, item G). Like the Naturalized Wetland, this Stormwater BMP would offer a minimum of flood storage, as well as probable water quality improvements (biofiltration and reduced total suspended solids). Direct effects of this treatment would not likely be as prominent to the receiving stream, as would the proposed Naturalized Wetland (above), but still meaningful to the overall cause.
- **Upper Bench and Lower Bench Protection** – Aggregate areas of erosion along this stream bank were addressed in this alternative through incorporation of natural channel process and consideration of a range of channel maintenance flows. For this reason, a nested channel is proposed (reference Appendix page 3, items A and B). Proposed boulder toe material for the lower banks serve to armor against erosion, while also offering foot access during low flows. Upper bank treatments include soil lifts and joint planting and enable natural stream function, provide soft armor, and access for park users. While this treatment serves primarily as a measure for stability, it also supports human use, as noted below.
- **Boulder Spurs** – Identified areas of severe erosion (outside bank of stream meander) were addressed through introduction of Boulder Spurs (Appendix page 3, item F). These instream structures consist of specifically sized/shaped boulders placed in accordance with horizontal and vertical design alignments (upstream sloped downward). These structures aid in increasing bank roughness as well as redirecting flow energies away from the bank, thereby reducing near bank shear stress and promote deposition toward natural recovery of the outside meander bank toe of slope suitable for natural vegetative recovery and/or human access.
- **Invasive Plant Material Restoration & River View** – In the interest of promoting ecosystem stewardship and public values, management of invasive and exotic plant species may involve chemical and mechanical measures paired with active revegetation of native species (Appendix page 3, item I). Native revegetation efforts range from seeding to live plantings (seedlings and containerized materials) applied consistent with seasonality of work. In addition to offering improved stream experience (noted below), establishment of a viable riparian area promotes further adjacent

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riparian/upland volunteer colonization supportive of native ecosystem function (in general: carbon sequestration, avian/macrofauna habitat, source of future in-stream woody debris among others).

From the standpoint of **human use**, activities including fishing, walking, and overall promotion of passive recreation served as drivers for improvement.

- **Fishing Holes** - Two specific human use areas of interest include two upstream and downstream fishing “holes”. Important to design was that these were accessible by foot (non-ADA), and that the associated habitat was maintained or improved. As such, Boulder Water Access (Appendix page 3, item E) was proposed. This type of access also supports stable conveyance for local drainage noted (< 1,000 SF).
- **Stream Experience** - In addition to the two prominently noted fishing holes, the concept incorporates other treatments supportive of park visitors’ other passive use stream experience. Upper Bench & Lower Bench Protection (noted above) serve primarily as bank stabilization but also support passive recreation (walking, fishing, sitting, etc.) for a range of flows. The Invasive Plant Material Restoration & River View (noted in above) enables visitors a more private experience in the natural environment where quiet, reflective time amongst native plants can be enjoyed while watching/listening to the adjacent Tar River.

## ALTERNATIVE B

**Park Improvements** – The proposed park improvement of Alternative B includes all elements outlined in Alternative A, with the exception of the Albemarle Ave Park improvements. This concept alternative explores a future development scenario where the town is able to acquire parcels 473843138800 and 473843038200. These parcels are currently not owned by the town and prevent the town from controlling and maintaining the full extent of the Riverfront Park riverbank. The acquisition of these properties would allow the town to provide a contiguous park site and provide additional developable space for an event area. The proposed elements in this design alternative include:

- Design elements outlined in Alternative A (with the below changes to the Albemarle Ave Park Gathering Space)
- **Albemarle Ave Park Gathering Space** – The proposed gathering space should be expanded with the acquisition of the above-mentioned parcels, to include an event building, expanded restroom facility, event patio, river overlook, and additional 10’ wide multi-use trail connection. The proposed parking lot will include an additional +/-36 parking spaces.
- **Small Amphitheater** – a small amphitheater should be constructed on parcel ID: 473843138800, design with the existing topography. The proposed amphitheater should be a mix of turf and hardscape material and overlook the river. The amphitheater space should also connect to the multi-use trail.
- **Mixed-use/ Residential Development opportunity** along Albemarle Ave. frontage.

**Stream and Wetland Improvements** – In general, stream improvements remained the same for Alternative B as for Alternative A.

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## RECOMMENDATIONS

**Design Development** – This design and restoration project is conceptual in nature and subject to change per site survey and further study of existing conditions. It is recommended to conduct a boundary and topographic survey to fully understand existing site condition implications to design recommendations.

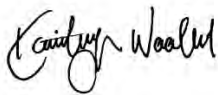
**Cost Estimate** – To fully understand appropriate funding sources for project implementation, the town should proceed with an opinion of probable cost for the proposed park improvements and restoration elements for each, both or other desired alternatives.

**Project Funding** – Pursue grant funding per the recommendations of the Town of Tarboro Downtown Area Wide Plan report, Goal 4.3.5. Potential funding opportunities include the following sources and require further exploration to determine eligibility:

- NC Division of Parks & Recreation – Parks & Recreation Trust Fund
  - [Parks and Recreation Trust Fund | NC State Parks \(ncparks.gov\)](https://www.ncparks.gov/parks-and-recreation-trust-fund)
- NC Division of Parks & Recreation – Land & Water Conservation Fund
  - [Land and Water Conservation Fund | NC State Parks \(ncparks.gov\)](https://www.ncparks.gov/land-and-water-conservation-fund)
- NC Land & Water Fund
  - [North Carolina Land and Water Fund | North Carolina Land and Water Fund \(nc.gov\)](https://www.nc.gov/nclandwaterfund)
- NC Trails – Recreational Trails Program Grant
  - [Apply for a Grant | North Carolina Trails \(nc.gov\)](https://www.nc.gov/nc-trails)

Regards,

**Stantec Consulting Services Inc.**



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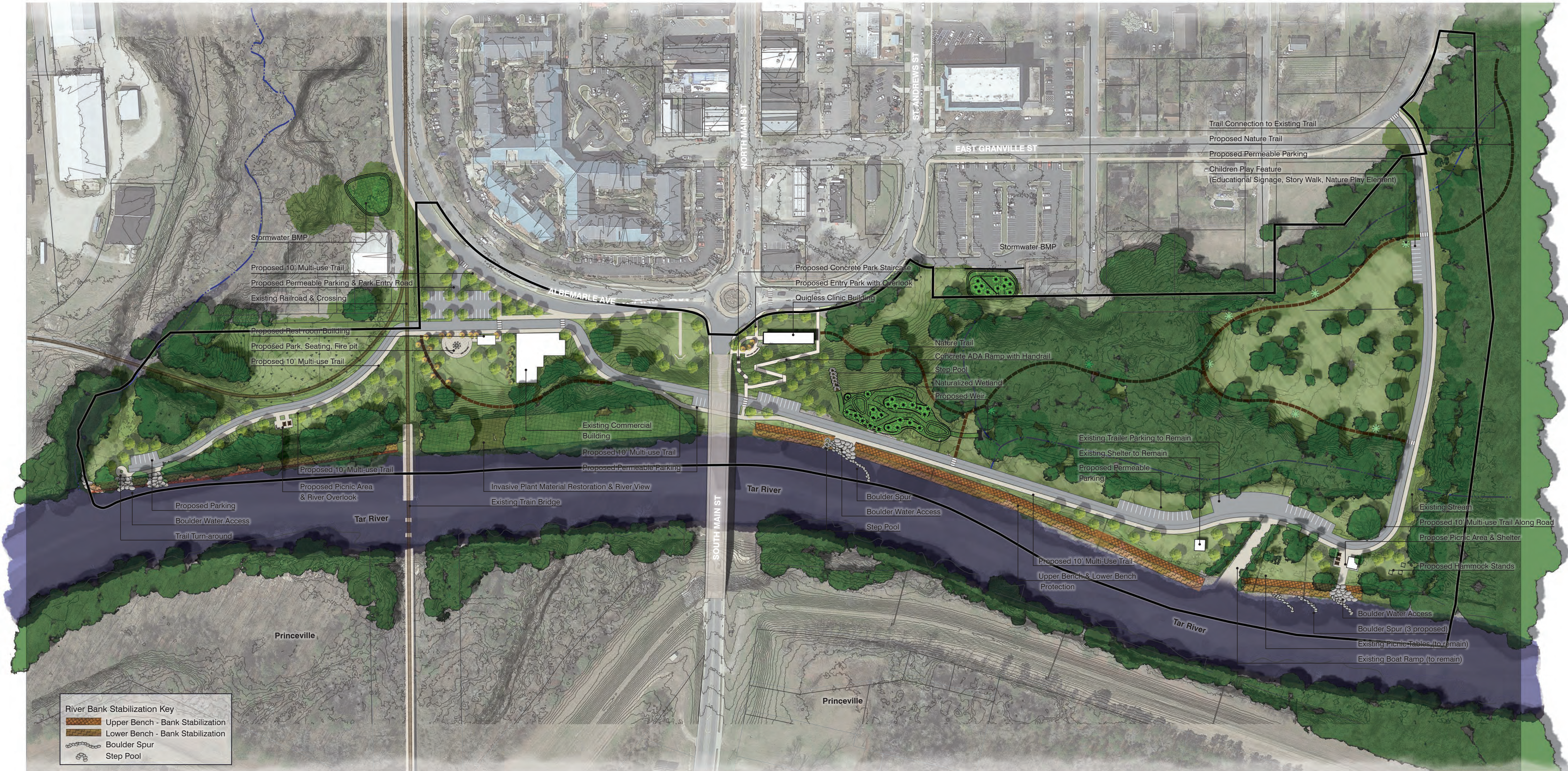
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Attachment: Appendix – Riverfront Park Restoration and Concept Design

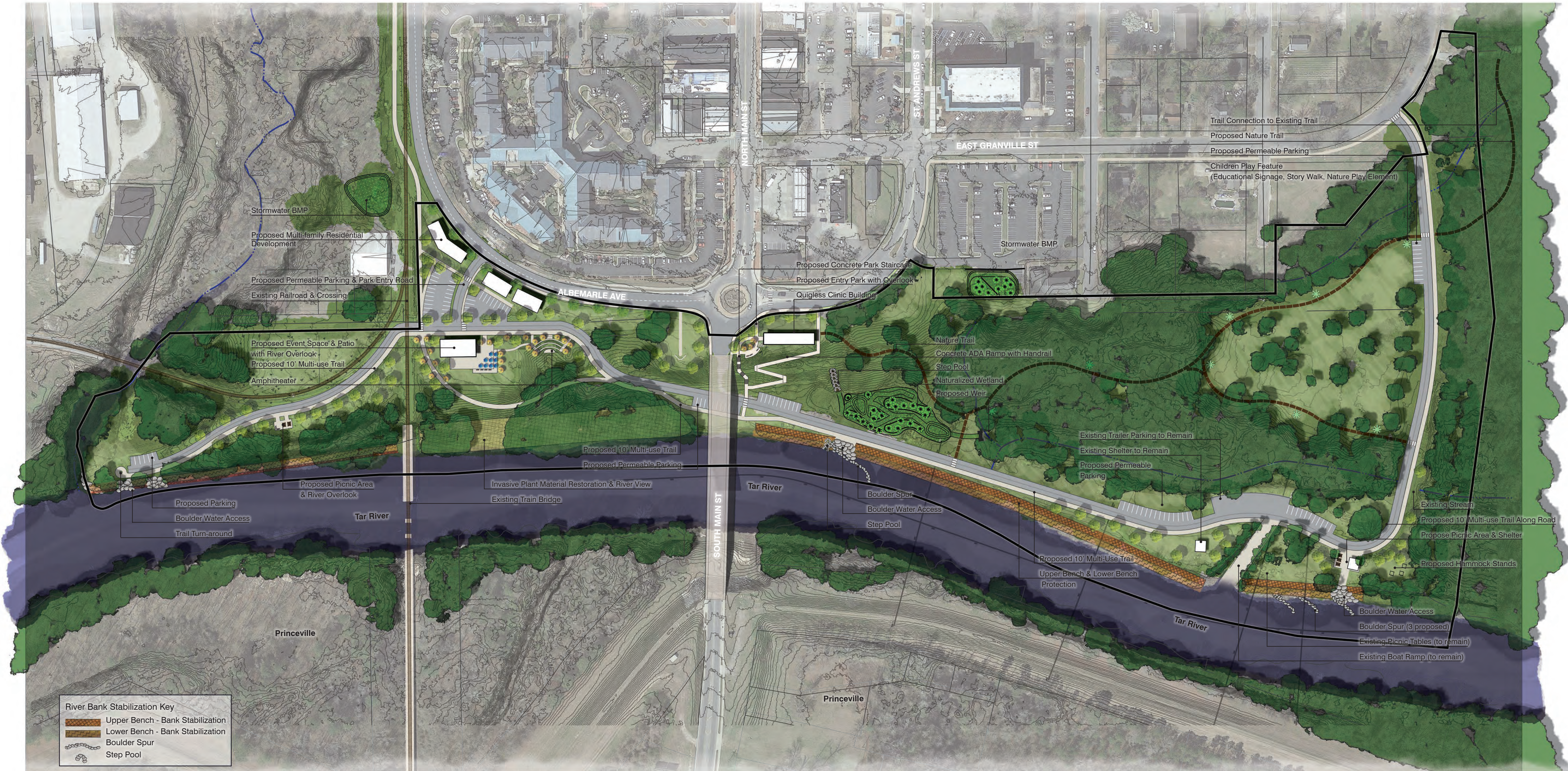


## Riverfront Park Restoration and Concept Design | Alternative A

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## Riverfront Park Restoration and Concept Design | Alternative B

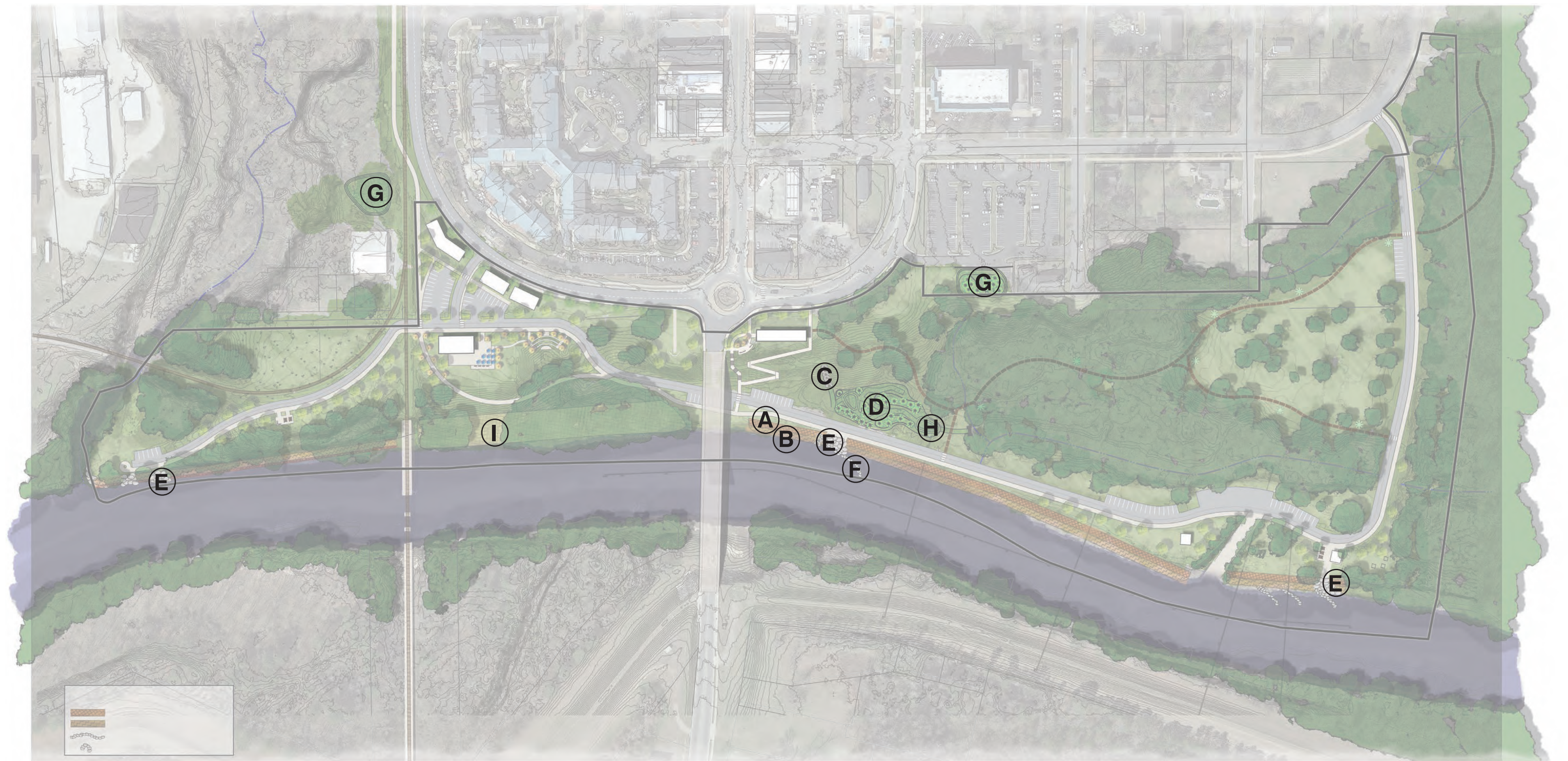
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<https://www.ecolandscaping.org/webinar-replays/the-wet-and-wild-world-of-constructed-wetlands/>



<https://www.durhamnc.gov/1619/Green-Infrastructure>



<https://www.ecolandscaping.org/wp-content/uploads/2016/12/DSCN0035-500x375.jpg>



<https://www.alltrails.com/parks/us/georgia/morgan-falls-overlook-park>

## Riverfront Park Restoration and Concept Design | Environmental Restoration Visioning Images

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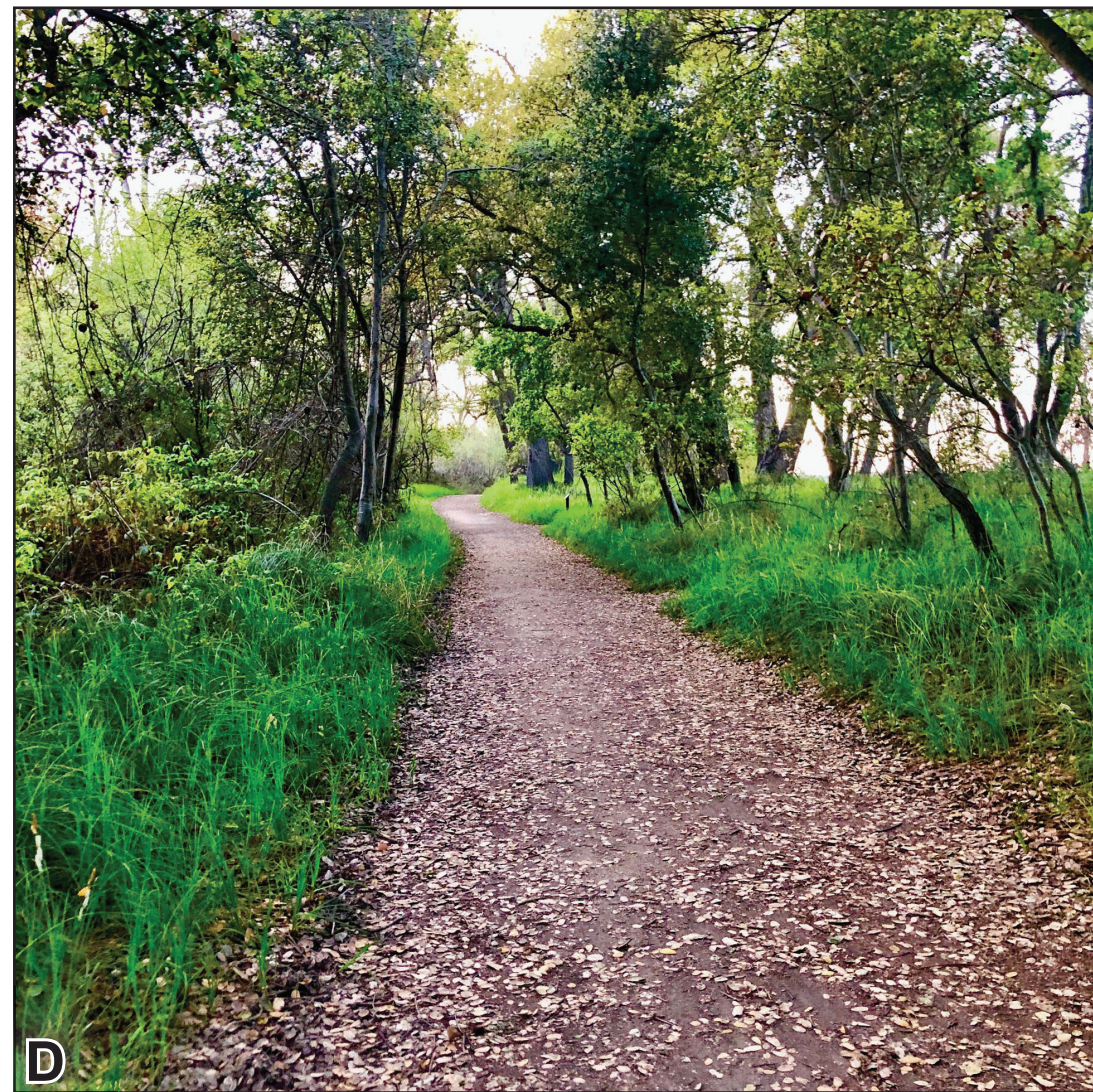
**A**  
<https://npplan.com/parks-by-state/virginia-national-parks/prince-william-forest-park-park-at-a->



**B**  
<https://www.murfreesborotn.gov/facilities/facility/details/Walter-Hill-Trailhead-55>



**C**  
[https://accuratefencelc.com/bunch\\_portfolio/idealrail-commercial-handrail-black/](https://accuratefencelc.com/bunch_portfolio/idealrail-commercial-handrail-black/)



**D**  
<https://www.lodi.gov/982/Trails-and-Pathways>



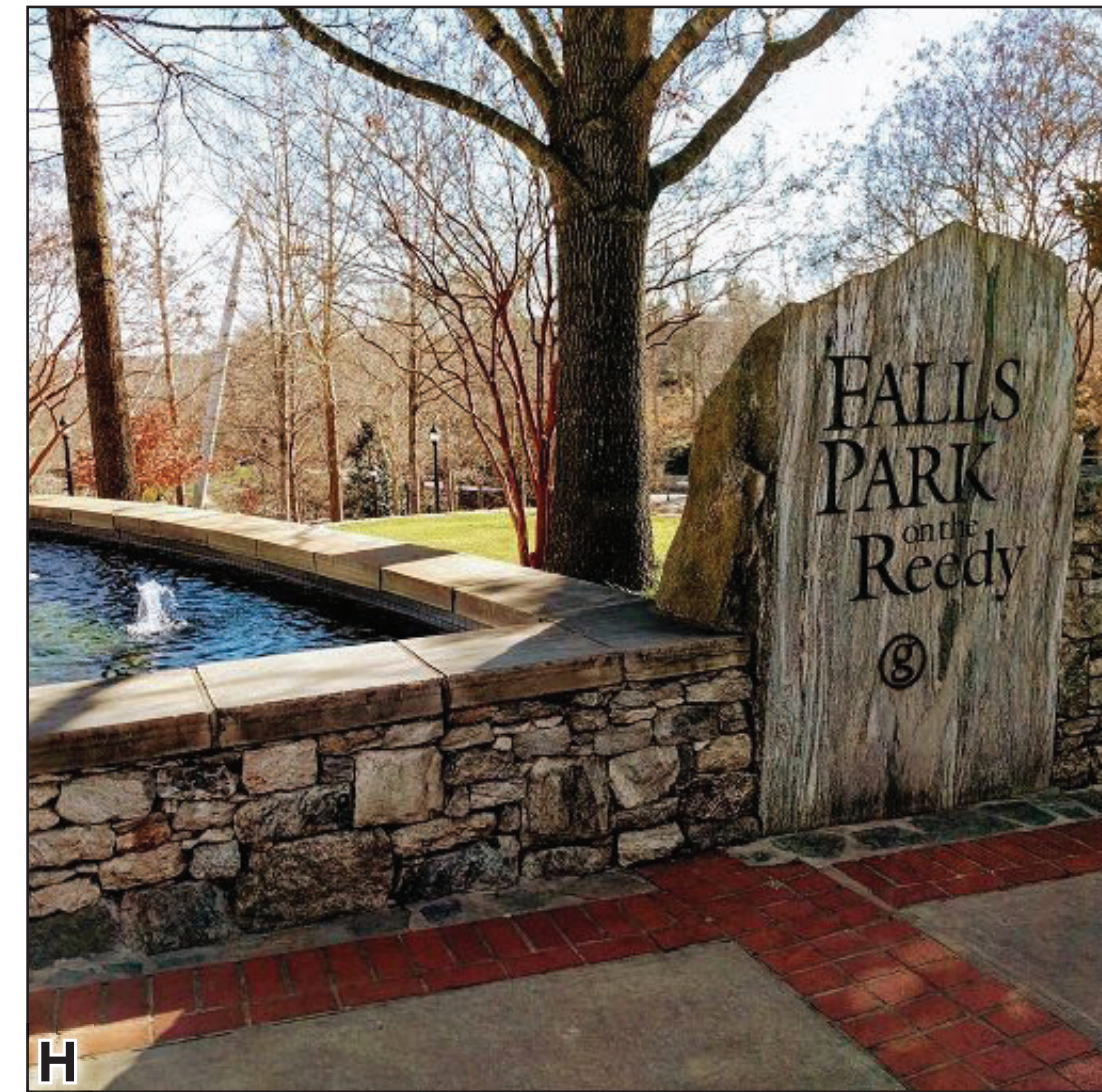
**E**  
<https://romtec.com/blog-categories/gable-ends-windows-or-vents>



**F**  
<https://www.exploregeorgia.org/sandy-springs/outdoors-nature/fishing/morgan-falls-overlook-park>



**G**



**H**



**I**  
<https://www.exploregeorgia.org/sandy-springs/outdoors-nature/fishing/morgan-falls-overlook-park>

## Riverfront Park Restoration and Concept Design | Alternative B Visioning Images

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A  
<https://www.virginia.org/listing/hawksbill-greenway/6977/>



B  
<https://www.murfreesborotn.gov/facilities/facility/details/Walter-Hill-Trailhead-55>



C  
<https://www.mass.gov/service-details/demonstration-3-permeable-paving-materials-and-bioretenion-in-a-parking-lot>



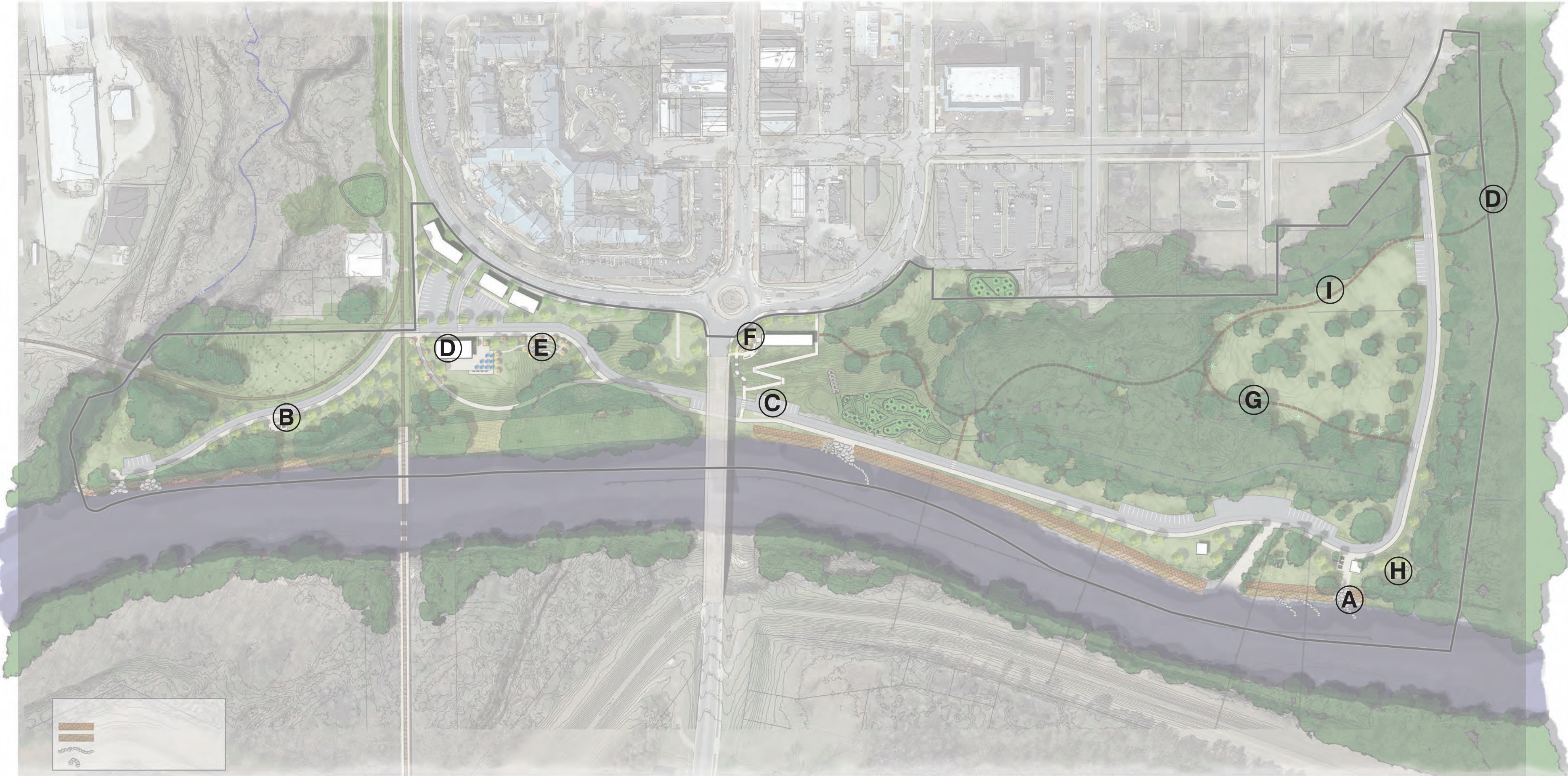
D  
<https://theparklands.org/venues/>



E  
<https://theparklands.org/venues/>



F  
<https://www.exploregeorgia.org/sandy-springs/outdoors-nature/fishing/morgan-falls-overlook-park>



G  
<https://www.pinterest.com/pin/60165345002758929/>



H  
<https://www.hillsboroughcounty.org/en/newsroom/2019/04/19/hanging-with-nature>



I  
<https://woodlibrary.org/story-walk-coming-to-canandaigua/>

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