

Trestle Rock Trail Extension

Concept Plan



City of Woodstock, GA



February 2022

Concept Plan

For

TRESTLE ROCK TRAIL EXTENSION Woodstock, Georgia

For

City of Woodstock Parks and Recreation

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CHAPTER 1
EXECUTIVE SUMMARY

I. Executive Summary

Objective of the Study

The City of Woodstock, Georgia, leases land from the USACE along Little River in the Greater Lake Allatoona property at the Interstate-575 crossing of Little River. The city has developed Olde Rope Mill Park on the site as a local passive park. The park amenities include parking, a covered pavilion, restrooms, trailhead, walking trails, fishing dock, kayak launch, river bridge, and a variety of mountain bike courses. Also included is the first phase of Trestle Rock Trail, which is a half-mile long, 10' wide, multiuse concrete trail from the main parking lot down the west side of Little River. It stops at a proposed bridge crossing just before reaching a very steep bank on the west side. The city now wants to extend this multipurpose trail further down Little River to connect with JJ Biello Park in Cherokee County. The objective of this study is to determine the feasibility of extending the trail, estimate the costs, and identify the permits required to complete the trail.

Goal of the Study

To identify the most feasible route for a 10' wide multipurpose trail from the end of the existing Trestle Rock Trail in Olde Rope Mill Park south along Little River to JJ Biello Park that is economical, functional, permittable, constructible, and environmentally responsible.

Consultant Team

The City of Woodstock Parks and Recreation Department selected the CPL Landscape Architecture team to complete the study and prepare a final Concept Plan identifying the best and most feasible route for extending Trestle Rock Trail down to JJ Biello Park. CPL is a multidiscipline firm of planners, architects, engineers, and landscape architects with a local office in Woodstock. CP retained Corblu Environmental Consultants as part of their team to identify the jurisdictional waters and assist with an assessment of the environmental and permitting requirements for the proposed trail extension.

Execution

The CPL Team proceeded to gather information about the property and to examine the existing conditions of the site to determine the most probable trail route and any alternates or options that may prove feasible. The fact that the entire new trail route passes through USACE owned property precipitated a need to include the USACE local office in the planning process.

Initial Route: After exhaustive research and analysis of the existing conditions, the CPL Team identified an 'Initial Route' (See *Exhibit 9*) for the trail through USACE property, which is considered the most direct, constructible, and environmentally sensitive route. The proposed 'Initial Route' extends the existing Trestle Rock Trail from Olde Rope Mill Park in the City of Woodstock southward to JJ Biello Park in Cherokee County. The proposed 'Initial Route' is intended to provide a safe, direct, functional, and continuous multiuse trail connection from Olde Rope Mill Park to JJ Biello Park. The route also

includes potential connections to the Cherokee Tennis Center, Twin Creeks Softball Complex, and possibly the South Cherokee Baseball Complex. The hard surface trail is a minimum of 10-feet wide and functions as a multiuse trail to accommodate a variety of users. The 'Initial Route' is the first Concept Plan which mainly follows an existing cleared Cherokee County sewer easement along the east and west banks of Little River. The 'Initial Route' passes through the USACE Wildlife Management Area (WMA) that lies on the east side of the river between the two destination parks.

USACE Leases: Because the entire proposed trail route is located on property owned and administered by the U.S. Army Corps of Engineers (USACE), it is necessary to obtain their permission for the proposed trail to exist and to secure a new lease for the proposed improvements. The current USACE leases with the City of Woodstock and Cherokee County separately may have to be modified to address any additional uses or changes to the existing site conditions within their lease boundaries. USACE Leases are usually for 20 years with a renewable clause. Cherokee County recently renewed their lease.

The city of Holly Springs and the South Cherokee Athletic Association also lease property from the Corps for the South Cherokee Baseball Complex north of Little River. However, that parcel is not part of the study area. The stretch of USACE property that lies between the City of Woodstock lease and Cherokee County lease is not currently under any lease. An additional property affected by the proposed trail between the two (2) leased parcels will have to be placed under a new or updated lease. The City of

Woodstock should be the leaseholder. (See *Exhibit 3* showing all USACE property and leases)

USACE Response: There is an existing USACE Master Plan for the Lake Allatoona Property that includes all the proposed study area. The illustrated conditions approved in the Allatoona Lake Project Master Plan must be considered during the process of determining a trail route. The master plan shows existing and proposed trails as well as identifies soft versus hard surface trails that are approved for the USACE subject property. After the first planning efforts for the ‘Initial Route’, the Consultant Team met with the local USACE staff to discuss the proposed ‘Initial Route’ for the trail. The USACE local staff made it clear that any changes proposed to the identified conditions in the Master Plan will require a revision to the current Allatoona Lake Project Master Plan (*See Reference F*). The Consultant Team was given the following criteria for locating trails on the identified Corps property.

1. No hard surface trails are allowed in the Wildlife Management Area (WMA).
A revision to the master plan in the WMA is nearly impossible.
2. No hard surface trails can be placed anywhere on USACE property, if not already identified in the Master Plan, without completing a revision.
3. Dirt/Soft surface trails may be located anywhere on USACE property without a revision to the Master Plan, if approved by the local office.
4. Boardwalks are considered hard surface trails.

If any of the conditions stated above are not followed, then it will be necessary to submit for a revision to the existing USACE Allatoona Lake Project Master Plan. Revision of a master plan can take 1 to 2 years and cost upwards to \$100,000 to complete. Any revision in the current Allatoona Lake Project Master Plan must also be approved by the U.S. Fish and Wildlife Service.

Alternate Route: The CPL team decided that the above requirements presented a significant barrier for implementing the Initial Route. Therefore, the Consultant Team proceeded to develop an ‘Alternate Route’ to connect the two (2) identified destination parks with a trail that avoids the WMA and follows the west bank of Little River (*Exhibit 10 & 11*). The following report presents the reasons for the ‘Initial Route’ and the follow up ‘Alternate Route’ with a variety of options on how the routes may be modified based on permitting, scheduling, and construction cost implications. The planning process divided the USACE property into a series of eight (8) separate Sections to study (*Exhibit 8*). Each separate trail Section was evaluated to determine if it could be included as part of the final ‘Recommended Route’ as identified at the end of this report.

Cost Estimate: A detailed Rough Order of Magnitude cost estimate is developed for each of the potential trail Sections and is included in the Appendix of this report. See *Appendix 3* for the cost estimate.



CHAPTER 2

**DATA COLLECTION AND EXISTING
CONDITIONS INVENTORY**

II. Data Collection and Existing Conditions Inventory

The first important step in the planning process is to secure as much existing data about the property as possible. The consultant team collected site data by contacting various local, state, and federal agencies that possessed important data relative to the subject USACE property along Little River. Corblu Environmental was released by the Consultant Team to investigate and evaluate the environmental conditions and permitting requirements related to the proposed routing plan for the trail.

The data collected includes aerial photos, topographic surveys, GIS data, tax maps, USGS maps, FEMA flood maps, property boundaries, soil surveys, utility easements, lease agreements, wetlands delineation, stream buffers, setbacks, parks maps, access routes, and environmental conditions. Corblu Environmental walked the proposed first ‘Initial Route’ to identify jurisdictional waters, delineate existing wetlands, identify potential environmental issues, and outline the required permits for developing the proposed ‘Initial Route.’ (See *Appendix 2 for Jurisdictional Waters Findings Report*)

Stakeholders:

Various private entities and local governmental agencies were also contacted during the initial concept planning process to secure existing data about the subject property. The following list of Stakeholders was contacted and asked to provide data or invited to participate in the planning process:

City of Woodstock Parks and Recreation Department (*Client*)

City of Woodstock and GIS Department

City of Woodstock Public Works Department

Cherokee County Recreation and Parks Department (CCRPD)

U.S. Army Corps of Engineers (USACE). **Stone Mountain Office**

Cherokee County Water and Sewer Authority (CCWSA)

Georgia Environmental Protection Division (GA EPD)

Georgia Soil and Water Conservation Commission (GSWCC)

Georgia Department of Transportation (GDOT)

Georgia Power Company. (G.P.)

Federal Emergency Management Agency (FEMA)

Patriot Rail Company LLC

A detailed contact list of the Project Members and Stakeholders can be found as *Exhibit 1* of this report.

City of Woodstock

The City of Woodstock Parks and Recreation Department is the Client for this project and approves the final Concept Plan for publication. The city provided GIS and tax map data for establishing the project base sheet. The Consultant Team met with the Woodstock Public Works Department that is responsible for maintaining the Highway 5 bridge. The City of Woodstock is the lessee and developer for Olde Rope Mill Park.

Cherokee County Recreation and Parks Department (CCRPD)

CCRPD was invited to assist on the project because they lease, developed and manage JJ Biello Park, which includes the following facilities:

JJ Biello Park: A 470-acre Park between Rubes Creek and Little River.

1. Riverside Athletic Complex
6 Soccer Fields, concessions, restrooms, parking, and woodland trails
2. Twin Creeks Softball Complex
5 softball fields, concessions, restrooms, and parking
3. Valley Playground
Play structure, pavilion, restrooms, open play field, and parking
4. Cherokee Tennis Center
10 Tennis Courts, Pro shop, restrooms, and parking

JJ Biello Park is the destination and south terminus for the proposed extension of Trestle Rock Trail from Olde Rope Mill Park.

U.S. Army Corps of Engineers: (USACE)

The property considered for the proposed Trestle Rock Trail Extension is owned and leased out by the USACE and lies completely within the Lake Allatoona Property boundaries. The property and leases are managed by the USACE Mobile District Real Estate Office in Mobile, Alabama. The local USACE office in Stone Mountain, Georgia, oversees the property and approves the broader plans for the use of the property. The local USACE office is part of the Savannah District Office in Savannah, Georgia, which regulates the property and is responsible for jurisdictional waters on the site. Any proposed new uses or changes to the amenities identified in the current master plan must first be approved by the Local USACE office in Stone Mountain, Georgia, and then sent to the Mobile District Office.

The Corps has a current Master Plan for the Lake Allatoona property that identifies all the existing and proposed trails currently approved for the property. The Corps prepares their own master plans for their properties and may enlist the assistance of professional

design firms to aid in the process. They adhere strictly to any established Land Classification Zones in the master plan. (*See Exhibit 4 and Reference E for Land Classification*)

The Corps has established classifications to identify uses in various areas of their property. The Corps property being considered for the Trestle Rock Trail Extension includes the following three (3) different classification zones:

1. High Density Recreation HDR
2. Low Density Recreation LDR
3. Wildlife Management Area WMA

Any changes to the land classification of a zone or uses within a zone will necessitate a revision to the current Allatoona Lake Project Master Plan for the areas affected. See **Exhibit 4** for the location of the zones on the subject property and **Reference F** for a detailed description of each land classification. To revise or update the Allatoona Lake Project Master Plan, the Client will have to clearly identify the following three (3) items:

1. What is already built
2. What has been approved to be built
3. Any new amenities desired to be built

Once the master plan is revised and approved by the local office, the plans must go to Savannah to secure permits for wetland impacts. Both processes are lengthy and can take up to two (2) years to complete. However, both can proceed simultaneously to save time.

The USACE staff recommends that the master plan revision be approved first to avoid delays or conflicts in the permitting process.

If the proposed plans destroy more than 100 LF of stream bank or more than 0.1 acre (5000 sf) of wetlands, the project will require an NWP 42 and appropriate mitigation credits from a third-party mitigation banker. The costs of mitigation credits have risen rapidly in the last few years and are expected to continue to escalate. Credits can cost between \$60,000 and \$70,000 per credit.

Impact to Jurisdictional Waters permitting and mitigation can be avoided by staying out of the wetlands with the trail or by using top-down construction for boardwalks and bridges when crossing wetlands and streams. If mitigation of jurisdictional waters impact is avoided, then a letter of 'No Permit Needed' can be issued by the USACE upon review of the plans. The letter of 'No Permit Needed' can also include the EPD buffer variances if no stream buffer impact is verified.

The USACE requires the completion of an Environmental Assessment (E.A.) as the first step in the master plan revision process and before the Corps will allow surveyors or geotechnical engineers to enter the site to collect field data. The stated field data is necessary to complete the design drawings for any proposed trail. Therefore, the first step in a master plan revision process or the preparation of development drawings is to complete an Environmental Assessment. See *Exhibit 2 Project Process*.

Cherokee County Water and Sewer Authority (CCWSA)

The CCWSA has multiple sewer easements crossing the subject property that run along the banks of Little River. The easements are the typical 20' on each side of the sewer line and are regularly mowed by the Cherokee County Public Works Department.

Encroachment agreements are needed to place trails on the easements. The CCWSA has approved such encroachments and crossings of their easements for trails in the existing Olde Rope Mill Park. The requirements to obtain permission are as follows:

1. Trail shall not impede access and maintenance by the CCWSA.
2. CCWSA shall not be liable for damage done to the trail by their staff.
3. CCWSA is not liable for the actions of trail users on the easement.

The CCWSA can issue temporary construction permits to allow contractors to use the easements for access and staging.

Georgia Environmental Protection Division (EPD) - Stream Buffers

Georgia EPD enforces a standard 25' non-disturb buffer from the edge of wretched vegetation on all waters of the state. Respective counties and municipalities may impose additional setbacks at their discretion based on their own development ordinances.

Cherokee County has adopted the Georgia DNR Part V buffer that protects Little River with a 150' setback. A Georgia EPD SBV is required to encroach in the 150' non disturb setback.

Any encroachment into a State Buffer must be submitted to the EPD for a Stream Buffer Variance (SBV). Local buffer variances are submitted to Cherokee County. The County can choose to waive the buffer variances at their discretion. Typically, Cherokee County

waves buffer variances and permit fees for Parks and Recreation Projects. The subject property being evaluated for the Trestle Rock Trail Extension includes the following ‘*Waters of the State*’ and their respective buffers:

Little River:

150’ non disturb State Vegetative Buffer

(The 150’ setback supersedes the 50’ and 75’ county buffers.)

Rubes Creek:

25’ State non disturb buffer

50’ Cherokee County non disturb buffer

75’ Cherokee County impervious setback

Mill Creek: :

25’ State non disturb buffer

50’ Cherokee County non disturb buffer

75’ Cherokee County impervious setback

Bethany Creek: :

25’ State non disturb buffer

50’ Cherokee County non-disturbed buffer

75’ Cherokee County impervious setback

Georgia EPD typically requires the use of permeable pavement in the buffer areas as a condition of a SBV. An EPD stream buffer variance (SBV) may take from 3 to 6 months to obtain and could cost about +\$10,000. A letter of ‘*No Permit Needed*’ can be issued if buffer impacts are avoided by the location and design of the trails.

Georgia Soil and Water Conservation Commission (GSWCC)

The Georgia Soil and Water Conservation Commission maintains jurisdiction over all state waters to ensure that they are protected from soil erosion and siltation. If any project is constructed within 200’ of a ‘*Waters of the State,*’ the plans are required to be reviewed and approved by the GSWCC before a local LDP or Building Permit can be issued.

Exception: Any recreational trail project built by a county or municipality that has under one (1) acre of disturbance is exempt from a GSWCC Review. However, GSWCC must be notified and informed of the project and proposed conditions.

Georgia Department of Transportation (GDOT)

Georgia DOT owns the Highway 5 Bridge that crosses the subject property just north of JJ Biello Park. The USACE owns the land under the bridge and has granted a 100' right of way easement to GDOT for the bridge. The bridge is maintained by the City of Woodstock and City of Holly Springs Public Works Departments. A permit is required from GDOT to cross or encroach on the easement with a trail. It is not uncommon for GDOT to grant permission for trails under the following conditions:

1. Trail is not a hazard for the intended use of the bridge
2. Trail does not impede maintenance of the easement or bridge
3. GDOT is not liable for damage caused by maintenance or repair of the bridge
4. GDOT is 'Hold Harmless' for actions of trail users on the easement
5. Clearance under the bridge is sufficient to protect the bridge

Georgia Power Company:

USACE granted a 100' easement to the Georgia Power Company for a major electrical service line across the property. The easement crosses the property from north to south, just north of the Highway 5 bridge. An encroachment permit must be granted by the power company to allow a trail to cross or encroach upon the easement. This is not an unusual request and has been granted in the past under the following conditions:

1. Trail is not a hazard to the power poles or electrical equipment
2. Trail does not impede maintenance of the easement
3. G.P. is not liable for damage caused during maintenance or repair of the lines
4. G.P. is 'Hold Harmless' for actions of trail users on the easement.

Georgia Power can grant permission for use of their easements for construction access and staging.

Georgia Power owns a small substation near the Cherokee Tennis Center in a wooded area adjacent to Rubes Creek. The substation is accessed by a graded one-lane dirt road that connects the tennis center parking lot to the substation. The road is well maintained and sits above the flood plain of Rubes Creek. A permit would be required from Georgia Power to convert the road into a paved trail as part of the Trestle Rock Trail Extension plan. This stretch of trail would have to meet traffic standards for roadway construction to support the Georgia Power Maintenance vehicles.

Federal Emergency Management Agency (FEMA)

FEMA is responsible for establishing, monitoring, and regulating flood conditions along the state waters existing within the study area. The Consultant Team reviewed the FEMA Flood Maps (see [Exhibit 6](#)) to determine flood elevations and requirements. The entire study area lies within the Lake Allatoona flood basin, which maintains a Full Pool elevation of 840 and the 100-year flood elevation of 861.1. USACE maintains the right to flood the area up to the 100-year elevation that shows as blue on the classification map.

[See Reference E for USACE Land Classification.](#)

FEMA requires that any new construction in a flood plain or and potential obstruction crossing a floodway must verify that it does not adversely affect the flood levels upstream of the construction. Any proposed bridge, boardwalk, or trail construction set below the

100-foot flood level must prove that it does not increase upstream flood levels. Such a condition requires completing a ‘*No Rise Study*’ on the impact of the proposed construction to verify the results. If an adverse increase in the rise of flood waters is determined, it can be mitigated by the following methods:

1. Compensatory grading in the flood plain to offset the volume of increase of floodwater caused by the construction or structure.
2. Raise the structure above the 100-year flood level.
3. Set pavement flush to existing grades to avoid displacement of flood waters.

The USACE has indicated that they will not approve any form of compensatory grading within a Wildlife Management Area (WMA).

Patriot Rail:

Patriot Rail Company LLC owns a 160’ right-of-way under their tracks, trestle, and bridge that cross the USACE property. The railroad reserves the right to approve any type of trail that crosses or encroaches on their right-of-way or passes underneath their trestle. Patriot Rail reserves the right to approve the width, height, and location of a trail and requires a permission agreement to build or pass under their trestle. The existing trestle piles are too close together to allow large construction equipment to pass between them, which represents an impediment for trail construction traffic and access. Any type of small construction traffic passing under the trestle will require an agreement with Patriot Rail LLC.

The railroad requires that a river bridge crossing near the railroad bridge must be on the downstream side and outside of the right-of-way. The distance from the bridge is based on the height of the trestle and the projected distance of a train derailment over the river.

Patriot Rail is concerned about any structure or traffic near the trestle piles or abutments of the railroad because any damage to a pile or abutment could prove catastrophic to the railroad. An on-site meeting with a Patriot Rail Representative is essential to determine how a trail may pass under the trestle and where a pedestrian river bridge can be placed.

Field Investigation:

After the data collection was completed, the Consultant Team walked the entire site to complete the following tasks:

1. Evaluate the existing site conditions.
2. Identify an 'Initial Route' for the trail alignment.
3. Determine the viability of placing a trail on the site.
4. Identify the best locations for pedestrian bridges.

Most of the potential trail routes are located within existing cleared Cherokee County sewer easements. The proposed trail route can cross Little River in several locations with a 100' clear span prefabricated bridge. The bridges may need to be below the 100-year flood level of elevation 861 to avoid access ramps in the floodway. Some possible routes pass over previously cleared wetland areas that hold standing water, which requires top-down constructed boardwalks to avoid triggering a USACE NWP-42. The proposed route also crosses several small no-name streams, a power easement, railroad right-of-way, highway bridge easement, encroaches into the 150' state riparian buffer, and the 200' GSWCC setback. A significant portion of the possible trail routes are already cleared of vegetation and maintained as 40' wide sanitary sewer easements by the County.

During the two (2) site visits, the Consultant Team identified the potential trail routes as eight (8) individual Sections and evaluated the site conditions of each Section separately. The eight (8) site condition evaluations are included in this report. After the field investigations were completed, the Consultant Team selected four (4) Sections to form an ‘Initial Route’ to be used for further evaluation and assessment. Corblu Environmental was directed to follow the ‘Initial Route’ to complete an on-site jurisdictional waters survey and produce a final ‘*Jurisdictional Waters Findings Report*’ for that route.

The delineated wetlands can be seen in *Exhibit 6*, and the ‘*Jurisdictional Waters Findings Report*’ is included as *Appendix 2* in this report.

EXISTING CONDITIONS INVENTORY

The Consultant Team assembled a site base sheet, collected data relative to the potential trail routes and prepared the following site inventory descriptions. The subject property is divided into the eight (8) individual Sections and given a number and specific name for each one. (*See Exhibit 8*). The existing site conditions for each Section is described as follows: (*See Exhibit 6 & 7*):

SECTION 1 EXISTING CONDITIONS - Rope Mill Park:

- The USACE property for this Section is classified as Low-Density Recreational (LDR) and is part of the land leased to the City of Woodstock for Olde Rope Mill Park and the existing Trestle Rock Trail.

- The proposed bridge and trail route are already identified in the Allatoona Lake Project Master Plan as a hard surface trail. *See Exhibit 5 & Reference A, B, C, and D.*
- The existing Trestle Rock Trail in Olde Rope Mill Park terminates on the west side of Little River at the approved location for a pedestrian bridge connection as identified in the Allatoona Lake Project Master Plan.
- The proposed route follows an existing dirt trail on the existing and cleared CCWSA sewer easement running eastward along the north bank of the river and stops before reaching the railroad trestle. A canoe launch is also identified in the MP for a site downstream of the railroad trestle.
- The entire route lies within the 150' state buffer for Little River and the 200' GSWCC setback. There were no wetlands identified in this Section.
- Site clearing for this Section is complete because the vegetation has already been cleared by the CCWSA as a sewer easement.
- There is an existing pedestrian bridge at the Olde Rope Mill trailhead upstream from the proposed bridge crossing. Park patrons cross Little River from the westside to the eastside to access a dirt trail that follows the sewer easement to the proposed bridge location and continues eastward to the railroad trestle.
- The river passes under the railroad bridge near a rock outcrop that has been exposed by erosion and adds to the scenic beauty of this spot.
- The proposed trail Section stops at the edge of the Patriot Rail right of way, which is also a boundary of the WMA.

- It is possible to cross Little River with a pedestrian bridge at a location downstream from the Railroad trestle to connect to Section 2 of the study.
- Construction access will prove difficult for this section. The existing Trestle Rock Trail can serve as access for the bridge construction, but trail construction will have to cross the Rope Mill bridge and use the dirt trail down to the beginning point. The railroad trestle presents a barrier for construction traffic coming from the east. The Corps may not allow construction access through the WMA.
- An Allatoona Lake Project Master Plan revision is not needed to develop Section 1 as proposed.

SECTION 1a: - EXISTING CONDITIONS: Southside

- This Section is identified as Southside because it basically parallels Section 1 Olde Rope Mill on the southside of the river.
- Section 1a lies entirely on land leased for Rope Mill Park and in the LDR classification zone. It lies within the 150' buffer, 200' GSWCC setback, and the 100-year flood plain.
- The area was not walked for Jurisdictional Waters, but no apparent wetlands were noted. A wetland delineation will be needed if this Section is chosen as part of the trail.
- The proposed trail for Section 1a runs between the terminus of the existing Trestle Rock Trail on the west bank of Little River and the proposed

pedestrian bridge west of the railroad trestle in Section 2 ‘Alternate Route’.

- Most of the proposed Section 1a trail route lies within the 40’ wide CCWSA cleared sewer easement on the southside of the river until it makes a sharp turn north across Bethany Creek through a forested area to connect to Olde Rope Mill Park. There is a steep rock slope along the river bank just before reaching the terminus of the existing Trestle Rock Trail.
- The most difficult challenge for Section 1a is to carve a narrow trail ledge into the rock hillside along the west bank of the river to link with it the south terminus of the existing Olde Rope Mill Park on the west bank.
- Bethany Creek can be crossed with a 50’ pedestrian bridge that may be set below the 100-year flood level.
- Avalanche mountain bike course is just south of Section 1a trail route.

See Note Below.

- Construction access is difficult and may have to use Trestle Rock Trail.

Note: Mountain Bike Trail

Although other area mountain bike trails, such as the system at Blankets Creek, permit pedestrian use in the opposite direction of bike travel, the Avalanche Trail at Rope Mill, which is adjacent to Trestle Rock Section 1a Southside route (See Exhibit 8), was designed as a mountain bike racecourse. As such, pedestrian use outside of scheduled events is discouraged, and there is no plan to connect the Trestle Rock Section 1a trail to any of the mountain bike trails at Rope Mill. Mountain bike access will continue through existing trailheads and signage and will be posted as necessary along the Trestle Rock Section 1a to encourage the separation of users.

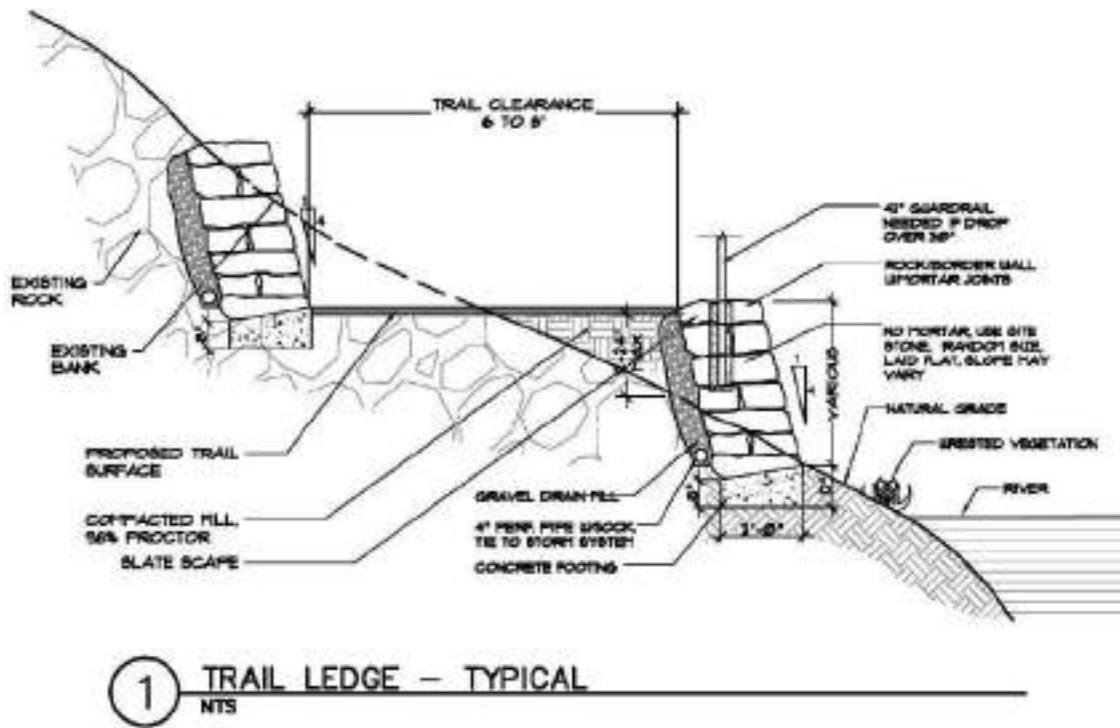
SECTION 2: - EXISTING CONDITIONS: Alternate Route

- Section 2 is identified as the ‘Alternate Route’ that was chosen after the USACE local officials expressed a strong resistance to the ‘Initial Route’ of Section 2a in the Wildlife Management Area. (WMA)
- Section 2 lies entirely within unleased USACE property between Olde Rope Mill Park and the Highway 5 bridge, also called Main Street.
- The entire property for this Section is classified as Low-Density Recreation (LDR), same as Olde Rope Mill Park.
- The entire proposed route lies within the 150’ state buffer and the 200’ GSWCC setback. There are no wetlands identified in this Section.
- There are no trails or park amenities identified in the Allatoona Lake Project Master Plan for this Section.
- There appears to be a mound of spoil material that may have been cast up by the USACE when the river was dredged decades ago by the CCC. The natural bank is above the flood plain the entire distance along the west bank of the river.
- The natural gradient of this route immediately rises dramatically from underneath the Highway 5 bridge and remains relatively flat as it continues northward along the river. The entire Section sits above the FEMA flood zone, and there are no jurisdictional wetland conditions.
- The elevated condition is consistent the entire distance along the riverbank until reaching a westward turn in the river just north of the Georgia Power

easement close to the railroad ROW. In this narrow space, there is a steep, rocky bank between the riverbank and the railroad ROW.

- Vegetation in Section 2 consists of large hardwood trees with some smaller understory. An on-grade, 10' trail corridor can be easily weaved between the large trees and cleared with minimal damage to the forest.
- Section 2 trail crosses a 100' wide, cleared Georgia Power easement that is above the flood zone until it crosses the river. The easement begins at the Woodstock Waste Management facility on Bell Parkway and continues due north to the river. The easement is an excellent construction access route and staging area for this Section.
- Section 2 intersects a sewer easement at the north end of the route where it turns west toward the railroad trestle. The sewer easement is used to extend the trail route over to the railroad trestle.
- There is adequate space behind the railroad bridge abutment to pass a trail between the pilings of the first bent. The trail will have to narrow down to about 8 feet to pass between the piles, but only for a short distance.
- The route continues west beyond the trestle on the CCWSA sewer easement until it reaches the point where Section 2 can connect across Little River over to Section 1 with a 100' pedestrian bridge. The bridge must be downstream from the trestle and should be below the 100' flood level to avoid long ramps to get up to the elevation of 861.
- The trail route may also connect to Section 1a Southside at this point if Section 1a is selected as it continues west to Olde Rope Mill Park.

- There is a small drain swale that crosses the trail route that can be crossed with a small 10' long bridge or a 36" culvert.
- The most difficult challenge for Section 2 is at a turn in the river where the route gets very close to the railroad right of way. There is very little space between the riverbank and the edge of the railroad right of way for a trail. The slope in this narrow space is very steep and will require cutting a ledge into the hillside to build a narrow trail northward.



SECTION 2a EXISTING CONDITIONS – Initial Route:

- Section 2a is identified as the 'Initial Route' because it was identified in the field during the first site investigation as being the most logical route to accomplish the Goals and Objectives of the study.

- The entire Section lies within unleased USACE property classified as a Wildlife Management Area (WMA).
- The Allatoona Lake Project Master Plan identifies this same proposed route as a soft surface natural trail but identifies no additional amenities.
- The USACE local officials expressed strong resistance to the 'Initial Route' of Section 2a in the Wildlife Management Area because hard surface trails are not allowed in a WMA classification.
- The proposed route lies entirely within the 40' wide CCWSA cleared sanitary sewer easement. The Section is within the 150' buffer, the 100-year flood plain and the 200' EPD setback.
- Section 2a trail route was delineated during the field investigation phase and found that about half of the route (2000 L.F.) is over jurisdictional wetlands which will require boardwalks to cross. It also crosses one (1) intermediate stream and three (3) perennial streams that can be crossed with small bridges.
- The proposed route links between the Patriot Rail trestle in the north and the Highway 5 bridge in the south. It also crosses a 100' wide Georgia Power easement just north of Highway 5.
- The north end of Section 2a trail route turns west at a major curve in the river and heads into a hardwood forest toward the railroad trestle. This short stretch of trail requires tree clearing and two (2) small bridges or culverts to cross two (2) perennial streams.

- Section 2a route must pass under the railroad trestle to connect with Section 1. The space between the trestle piles is narrow, and the surface is unlevel. This problem is resolved by using a split trail to effectively pass under the trestle in two locations and to negotiate the grade changes. The railroad owns the right of way both horizontally and vertically, which requires a permission agreement for a trail to pass under their trestle. The railroad imposes height clearances and width restrictions to prevent any negative impact on the structural integrity of the trestle piles or bridge abutment.
- Patriot Rail expressed a concern for trail users at this location because they are passing under a derailment zone.
- Construction access for this section is along the sewer easements from South Cherokee Baseball Park.

SECTION 3 - EXISTING CONDITIONS: Trailhead.

- The entire Section lies within USACE property classified as High-Density Recreation and is leased to Cherokee County Parks for JJ Biello Park. *(See Exhibit 4 for Land Classification)*
- The trail route has already been identified in the Allatoona Lake Project Master Plan as a multiuse trail. *(See Reference A)*
- Section 3 has two (2) distinct landforms along the trail route.
 1. Forested high ground along a service roadbed.
 2. Forested wetlands along the west side of Little River.

- The high ground area is outside the 150' buffer and the 200' setback.
The forested wetlands are within both the buffer and the setback.
- There is a Georgia Power substation adjacent to the route that is served by a one-lane gravel road that stops at the substation before reaching the wetlands.
- The proposed trail route begins at the Cherokee Tennis Center parking lot and follows the existing access road to the power substation. The trail continues down the slope behind the substation and through the forested wetlands north to the Highway 5 bridge.
- The wetland area from the substation to Highway 5 bridge appears to experience frequent and high floods, as revealed by the +5' high flood water marks on the large trees. It also appears to have been a local park and trail system due to old benches and other park furnishings on site.
- The existing substation access road makes an excellent access point for a trailhead for the proposed Trestle Rock Trail Extension project. The existing parking lot and restrooms at the Cherokee Tennis Center add to the value of this site as a trailhead.
- At the substation, the trail route drops down the slope of a natural bank into the wetlands running along Little River. The low area is jurisdictional wetlands and in the flood zone. The trail is proposed as an elevated boardwalk below the 100' year flood level to avoid an NWP 42. The boardwalk will require a 'No Rise Study'."

- From the wetland, the trail proceeds north under the Highway 5 bridge to connect to Section 2, the ‘Alternate Route.’ There is a small drainage swale at the highway bridge that can be crossed by the elevated boardwalk.
- Section 2 was not delineated in the field visit by Corblu and will need to be delineated as part of the next phase if chosen as part of the final route.
- Construction access is relatively easy by using the substation access road.

SECTION 3a - EXISTING CONDITIONS: River Confluence

- The entire Section lies within USACE property classified as High-Density Recreation and is leased to Cherokee County for JJ Biello Park. (*See Exhibit 4 for Land Classification*)
- Section 3a is entirely within delineated wetlands, inside the 150’ buffer and the 200’ GSWCC setback.
- The proposed trail route lies entirely within the 40’ wide CCWSA cleared sanitary sewer easement and the 100-year flood plain.
- This Section of the proposed trail runs from the Rubes Creek and Mill Creek confluence with Little River northward to the Highway 5 Bridge.
- A potential link to the South Cherokee Baseball Complex could continue along a spur of the sanitary sewer line that runs over to the park. The potential spur trail would connect the baseball park to all the facilities in JJ Biello Park and Rope Mill Park.

- Two (2) potential bridge crossings are identified in the Section based on which trail Sections are chosen for the final trail route.

North Location: Ties across Little River to Section 3

South Location: Ties across Little River to Section 4

- Construction access for Section 3a can come from South Cherokee Baseball Complex along the same sewer easement.

SECTION 4 - EXISTING CONDITIONS: JJ Biello

- Section 4 lies entirely within the USACE property classified as High-Density Recreation and is leased to Cherokee County for JJ Biello Park.
(See Exhibit 4 for Land Classification)
- The proposed trail route is entirely within an existing 40' wide Cherokee County sewer easement that runs between the two (2) Creek's confluence with Little River, southeast along the west bank down to the Riverside Athletic Complex. The route is already cleared of vegetation by the sanitary sewer construction.
- There are no proposed hard surface trail routes along the sewer easement for this Section in the current Allatoona Lake Project Master Plan, only dirt trail connection. *(See Reference A)*
- There is an existing Cherokee County Parks woodland dirt trail system in place that includes part of the sewer easement and adjacent woodlands. There are three (3) existing short trails that connect between the existing

sewer easement and Riverside Athletic Complex. The trails are identified by colors as Red, White, and Blue Trails.

- The trail route must cross Rubes Creek with a small bridge to connect to Section #3 trail route if that section is chosen for the final route. The bridge is identified in the Allatoona Lake Project Master Plan.
- The north end of Section 4 trail ends at the confluence of Rubes Creek, Mill Creek, and Little River where a bridge can cross Little River over to Section 3a. The proposed bridge would link Riverside Athletic Complex to Cherokee Tennis Center, Twin Creeks Softball Complex, Rope Mill Park, and potentially a future link to the South Cherokee Baseball Park. There are several options to where this proposed bridge can cross the river. The natural scenery at this location is very impressive and a perfect location for fishing.
- The Little River Confluence should have an archeological investigation if this Section is selected as part of the recommended trail route.
- The south end of the trail route begins at the parking lot and restroom in Riverside Athletic Complex, with a short stretch of trail over to the sewer easement. That short stretch of trail already shows as a multiuse trail on the Allatoona Lake Project Master Plan.
- Construction access can come from Riverside Athletic Fields along the existing CCWSA sewer easement.

SECTION 4a - EXISTING CONDITIONS: Corps Trail

- Section 4a lies entirely within the USACE property classified as High-Density Recreation and leased to Cherokee County for JJ Biello Park. *(See Exhibit 4 for Land Classification)*
- The proposed trail route is taken from the Allatoona Lake Project Master Plan for the property. The entire trail is already identified as a multiuse trail. *(See Reference A)*
- The Section is outside the 150' buffer and the 200' GSWCC setback.
- The trail route begins at the Section 3 Cherokee Tennis trailhead and runs south along Brooke Boulevard to connect with the Valley Playground and Twin Creeks Softball Complex.
- The route crosses Rubes Creek and its wetland just south of the Softball Complex and heads northeast to Riverside Athletic Complex.
- The identified route is mostly in woodlands except for the portion that crosses Riverside Athletic Complex to the parking lot.
- Construction access is possible from the end of Brooke Boulevard on the west side of Rubes Creek and from the Riverside Athletic Complex on the east side of Rubes Creek.

Archaeological Study:

The local USACE office informed the Client and Consultant Team that a complete archeological investigation has been done on the subject property, but the report is confidential and cannot be released to the public. When the Client commissions an E.A. for the project, the archeological data will be released to the selected consultant. At this point in the conceptual planning process, the Consultant Team had to proceed without the benefit of any archeological information.



CHAPTER 3

PLANNING AND DESIGN PROCESS

III. Planning and Design Process

Based on the results of the data collection and research phase, site inventory, jurisdictional waters assessment, ‘Initial Route’, and the stakeholders meeting, the CPL team developed a series of base maps and inventories to study several routing options between Olde Rope Mill Park and JJ Biello Park. After several site visits and team reviews, an updated final ‘Recommended Route’ was developed. The key factors affecting the final route were the USACE lease conditions, USACE land use classifications, current Allatoona Lake Project Master Plan, and the existing Cherokee County Sewer easements. The single most influential factor was the desire to avoid an Allatoona Lake Project Master Plan revision that could take up to two (2) years to complete.

The Base Maps and Inventories developed for the study include the following:

- USACE Lease Boundaries for the city and County. (*Exhibit 3 and Reference B & C*)
- USACE Master Plan Land Classifications (*Exhibit 4 and Reference E*)
- USACE Master Plan Trails (*Exhibit 5 and Reference A, B, C, and D*)
- Existing Conditions Inventory (*Exhibit 6*):
- Existing Conditions – Site Utilities (*Exhibit 7*)

Upon completion of the base sheet and inventories, the CPL team went on-site to begin the design phase of the project scope.

Initial Route:

The Consultant Team completed a site visit to evaluate the existing conditions and to select the most suitable route and bridge locations for the Trestle Rock Trail Extension. The team laid out a route identified as the ‘Initial Route’ (*Exhibit 9*) for the Concept Plan.

The proposed ‘Initial Route’ follows the precedent of placing trails within existing sewer easements to avoid additional environmental impact and woodland clearing. The main objective of the ‘Initial Route’ is to connect the trails through the unleased parcels of land between the two (2) already leased parcels. The unleased parcel includes both sides of Little River from Olde Rope Mill Park to JJ Biello Park. Using the logic of following the shortest and least destructive route, the ‘Initial Route’ included Sections 1, 2a, 3a, and 4. It follows the already cleared sewer easements except for a small stretch east of the railroad trestle. It connects the two destination parks as requested and crosses Little River twice.

However, the ‘Initial Route’ passed through a Wildlife Management Area (WMA) classification zone that does not allow for hard surface recreational trails. *See Exhibit 4 & Reference E, Land classification.* An alternate soft-surface trail connection was discussed. However, due to flooding concerns and surface suitability for the desired uses other than hiking and mountain biking, the alternative idea was dismissed by the Client as unusable for their goals and objectives of a continuous multiuse trail link from Olde Rope Mill Park to JJ Biello Park.

Stakeholder Meeting:

As part of the planning process, the Consultant Team held a stakeholder meeting with the Client at their Woodstock office on July 1, 2021, to present the site conditions inventory, overall findings, and the ‘Initial Route’. During the meeting, the USACE officials pointed out a gap in the leased and unleased property. To connect the two (2) parcels with a trail, a new lease would have to be written for the unleased parcel and a possible update for the leased parcels to accommodate the proposed changes. They also pointed out that the Allatoona Lake Project Master Plan does not designate any multiuse trails connecting the two (2) leased parcels of Olde Rope Mill Park and JJ Biello Park.

The USACE officials explained that the gap could only be connected with trails by revising the current Allatoona Lake Project Master Plan for the property. That is a process that can take up to two (2) years to complete. *See Reference F.* The USACE local officials also stated that although trails identified in the Master Plan are within the High-Density Recreation Zone, that does not mean the trails are multiuse. Sections 2a, 3a and 4 of the ‘Initial Route’ that follows the sewer easement are not identified in the Allatoona Lake Project Master Plan as multipurpose, and therefore would require a Master Plan Revision.

They expressed serious concerns about introducing new recreational facilities or trails of any kind into the Wildlife Management Area (WMA). They identified three (3) major concerns about the entire Concept Plan scope.

- a. No houses backed up to the trails or property boundaries.
- b. The negative impact that trails will have on the wildlife.
- c. No spur trail connections through the WMA to residential areas.

They also strongly stated that they would not support a multipurpose, hard surface trail anywhere in the WMA.

Based on these discussions with the Client, USACE officials, and the stakeholder group, the Consultant Team decided to look for an ‘Alternate Route’ around the WMA to connect the two (2) destination parks. The Consultant Team presented the idea of relocating the ‘Initial Route’ in the gap property over to the west side of Little River and out of the WMA. The gap parcel of USACE property is classified as High-Density Recreation in the current USACE Master Plan, but it has no trails shown on the plan. *See Exhibit 5 & Reference A, B, C, and D.* It was determined by the Client and Consultant Team to take another look at this alternative alignment in the field to see if a trail route is feasible through the area.

‘Alternate Route’:

The CPL team conducted a second site visit to investigate a possible trail realignment along the west and south banks of the river. The site investigation found that the potential new route is on high ground along the river’s western edge, above the flood plain, and outside any jurisdictional wetlands. The site vegetation is a typical hardwood forest with some understory vegetation. The “Alternate Route’ also eliminates one (1) river bridge. The new route will require some heavy rock cutting to create a trail ledge through a steep section of rock above the riverbank.

POTENTIAL TRAIL ROUTES:

Based on the two (2) site visits, the Existing Conditions Analysis and the Allatoona Lake Project Master Plan, the proposed trail alignments are divided into eight (8) trail Sections and are illustrated as *Exhibit 8*. Detailed site photos of the principal trail Sections are included as *Appendix 1*.

The results of the design phase have identified three (3) Potential Trail Routes.

Initial Route: The ‘Initial Route’ established during the first site visit

Recommended Route: The final Concept Plan established by the study.

Corps Route: The approved USACE trails identified in their Master Plan.

The ‘Initial Route’ is shown in *Exhibit 9*,

The ‘Recommended Route’ is presented in *Exhibit 10*.

The ‘Corps Route’ in the Allatoona Lake Project Master Plan in *Exhibit 11*.

DESIGN DESCRIPTION FOR EACH OF THE 8 TRAIL SECTIONS

The proposed Trestle Rock Trail Extension is divided into eight (8) potential trail Sections along the Little River and Rubes Creek corridors. Each Section is given a name and a reference number to aid in the identification of each of the proposed routes.

TRAIL SECTION 1: Rope Mill Park

- Trail Section 1 conforms to the USACE Allatoona Lake Project Master Plan that identifies a multiuse trail over the CCWSA easement.

- Trail Section 1 lies within the current USACE lease agreement with the City of Woodstock for Olde Rope Mill Park and a Low Density Recreation Zone.
- The trail is entirely within a CCWSA easement along Little River.
- Trail Section 1 includes the master plan approved pedestrian bridge #1 that connects the existing multiuse Olde Rope Mill Park Trail across Little River to the Section 1 Trestle Rock Trail Extension. The grade is too low to place the bridge at the 100' flood level without significant ramps to get up to the bridge.
- The trail ends just before reaching the Railroad Trestle.

TRAIL SECTION 1a: Southside

- Trail Section 1a lies within the USACE lease agreement with the City of Woodstock for Olde Rope Mill Park and in a Low-Density Recreation Zone.
- The USACE Allatoona Lake Project Master Plan does not identify a multiuse trail in this Section.
- Section 1a Trail begins at the railroad trestle where it connects eastward to Section 2 which passes through the trestle.
- A substantial portion of the trail is within the CCWSA easement from the railroad trestle to Bethany Creek.

- A pedestrian bridge at Bethany Creek is necessary to continue the trail north to the existing Trestle Rock Trail in Olde Rope Mill Park. The bridge may have to be below the 100-year flood level.
- A ledge is cut into the rocky hillside on the west side of the river to allow the trail to continue north to Rope Mill Park. The trail narrows to 8' wide at the ledge. See Sketch on page 28 within the report for a diagrammatic cross-section of the ledge.
- A revision to the Allatoona Lake Project Master Plan is required to put multiuse trails in this location in Rope Mill Park.

TRAIL SECTION 2: Alternate Route

- Section 2 lies entirely on unleased USACE property between the Olde Rope Mill Park and the JJ Biello Park. A new lease with USACE is necessary for the gap section before advancing the trail into the design and development phase. Section 2 trail is entirely in a High-Density Recreation Zone.
- No trail is proposed for Section 2 in the current Allatoona Lake Project Master Plan. A Master Plan Revision is required for this route to proceed.
- Section 2 trail route begins at the Patriot Rail bridge, where it passes under the railroad trestle. It is a single 8' wide trail that passes between the piles. However, further site investigation and an on-site meeting with the Patriot Rail Representative are necessary to advance this idea.

- Section 2 includes placing pedestrian bridge #2 across Little River to connect to the trails of Section 1 in Rope Mill Park.
- Section 2 trail route continues east from the trestle along a CCWSA cleared sewer easement until it reaches the river where it turns south along the west bank of Little River.
- Section 2 trail continues south through a heavily wooded area along the river that requires careful clearing to protect the forest aesthetics and the natural environment.
- No wetlands were observed along the route to require boardwalks.
- The trail crosses two (2) small swales that require bridges or culverts.
- The available space between the west riverbank and the railroad ROW narrows significantly at a turn in the river. A ledge is carved out of the steep hillside to accommodate a short 8' wide trail. *See page 28.*
- Section 2 trail crosses a Georgia Power easement that can also be used for construction access and staging.
- Section 2 trail remains on grade until it reaches the Highway 5 bridge where the grade drops down sharply and connects to Section 3 boardwalk under the bridge.
- This Section of trail requires a revision to the Allatoona Lake Project Master Plan for hard surface trails. See Reference F for a better explanation of the process to revise a USACE master plan.

TRAIL SECTION 2a: Initial Route

- Section 2a represents a major portion of the ‘Initial Route’ that was identified during the first field investigation. The route was rejected by the USACE local staff during the stakeholders meeting because Section 2a is entirely within the Wildlife Management Area WMA.
- WMA regulations are very rigid, and the USACE local office desires to keep the land restricted from human use and access. Hard surface trails and compensatory grading are prohibited in a WMA.
- Section 2 lies entirely on unleased USACE property between the Olde Rope Mill Park and the JJ Biello Park. A new lease with USACE is necessary for this Section before advancing any trail plans.
- No trails are proposed for this route in the current Allatoona Lake Project Master Plan. A Master Plan Revision is required for the design of this Section to proceed.
- The entire length of Section 2a trail lies within the CCWSA 40’ wide sanitary sewer easement except for a short piece of trail at the north end that runs west through a forested area.
- A large portion of the Section 2a route runs through jurisdiction wetlands that are cleared and are inside the sanitary sewer easement.
- 2000 lf of the trail is over cleared wetlands. The plan includes boardwalks built with top-down construction techniques to protect the wetlands. This length of the boardwalk will be very expensive to build.

- There are three (3) perennial streams and one (1) intermittent stream that cross the route and are bridged with raised boardwalks or short bridges. There are two (2) larger backwater streams in the north that are crossed with small bridges or culverts.
- The proposed trail splits into two (2) six-(6) foot-wide trails to pass between the wooden piles of the Railroad Trestle at the northern end of the Section. Crossing the railroad right of way and passing under the trestle requires approval by Patriot Rail LLC.
- The south end of the trail passes under the Highway 5 bridge where it to connect to Section 3a. The route can connect to Bridge #3 and cross the river over to Section 3.
- The Section 2a trail alignment crosses a Georgia Power easement which requires a permit to encroach or cross the easement.
- The proposed Section 2a trail routes are not identified on the Allatoona Lake Project Master Plan and would therefore require a revision of the Master Plan for hard surface trails.
- This Section is probably the least possible Section to get approved.

TRAIL SECTION 3: Trailhead

- Section 3 is within the USACE lease with Cherokee County for JJ Biello Park. It is in a High-Density Recreation Zone and aligns with the current Allatoona Lake Project Master Plan for a multipurpose trail.

- The proposed trail begins as a Trailhead at the Cherokee Tennis Complex parking lot and extends east along the access road to the substation.
- The portion of the trail that uses the substation roadbed requires very little preparation to pave the route as a trail. At the substation, the trail drops down the slope to pass over the wetlands and continues northward along Little River to the Highway 5 bridge.
- Part of the proposed trail lies within the floodway and jurisdictional wetlands of Little River. The low area is heavily impacted by frequent flooding and generally has a wet soils condition. To protect the wetlands, this portion of trail is boardwalk constructed using a top-down technique. For a better user experience and easier maintenance conditions, this boardwalk is concrete instead of wood.
- Additional delineation of the wetlands in Section 3 is necessary because it was not part of the original delineation exercise.
- A No Rise Study is required to make sure there is no potential increase in flood levels due to boardwalk construction.
- A permit or permission will be needed from Georgia DOT to pass under the Highway 5 bridge.
- A Master Plan Revision is not required to develop Section 3 trail.

TRAIL SECTION 3a: River Confluence

- This short Section of trail is within the USACE High-Density Recreation Zone, but no trails are proposed in the Allatoona Lake Project Master Plan that align with this proposed trail route.
- Section 3a is within the current USACE lease with Cherokee County for JJ Biello Park.
- The trail route is completely within the existing sanitary sewer easement along Little River.
- Section 3a is entirely wetlands, in the floodway, inside the 150' buffer and 200' setback.
- The trail route begins at pedestrian bridge #3 and Section 2a south of the Highway 5 bridge and continues south along Little River to the confluence of Little River with Mill Creek.
- Pedestrian bridge #4 crosses Little River at the confluence of Little River and Mill Creek to connect with Section 4. There are several options for the bridge location, but the bridge is below the 100-year flood to avoid ramps in the floodway. This connection ties the two (2) destination parks together and allows for a future access trail to South Cherokee Ballfield Park along the sewer easement.
- Section 3a requires a revision to the Allatoona Lake Project Master Plan.

TRAIL SECTION 4: JJ Biello

- Section 4 is under a current USACE lease with Cherokee County for JJ Biello Park.
- Section 4 trail is within the USACE High-Density Recreation Zone. There are no trails proposed in the Allatoona Lake Project Master Plan that align with this proposed trail route.
- The trail route follows the existing sewer easement beside Little River. Currently, there is an existing, cleared, dirt trail along this proposed route that is maintained by the Cherokee County Parks Department.
- Pedestrian bridge #5 crosses Rubes Creek to connect to the Section #3 trail which connects to the trail in Section #2. The bridge is below the 100-year flood level to avoid long ramps and impediments in the Rubes Creek floodway.
- Portions of the Section 4 trail alignment are impacted by frequent flooding it and passes over delineated wetlands. Most of these wetlands can be avoided by moving the trail to the other side of the sewer easement. Some can be avoided by using compensatory grading. Elevated boardwalks with top-down construction avoid the need for a NWP 42 for damaging wetlands.
- Section 4 trail terminates at the Riverside Athletic Complex at the parking lot and restroom which serves as a trail head.
- A revision to the Allatoona Lake Project Master Plain is required for multiuse trails in this Section.

- Construction access is possible from the Riverside Athletic Complex.

TRAIL SECTION 4a: Corps Trail

- Section 4a trail route is part of the current Cherokee County lease with the USACE for JJ Biello Park. It is also outside the flood plain, 150' buffer, 200' setback, and impacts almost no wetlands.
- The entire length of Section 4a trail is within the USACE High-Density Recreation Zone and represents a major portion of the multiuse trail identified in the Allatoona Lake Project Master Plan.
- A short portion of the trail crosses the jurisdictional wetlands of Rubes Creek. The crossing is a boardwalk built with top-down construction techniques to protect the wetlands and avoid the need for an NWP 42.
- The 4a trail begins at a trailhead near the Cherokee Tennis Center and continues south to connect to the Valley Playground and Twin Creeks Softball Complex. The trail parallels Brooke Drive until it turns east to cross Rubes Creek to connect to the Riverside Athletic Complex.
- The entire route is approved as part of the current Allatoona Lake Project Master Plan.
- The Section 4a trail route is the longest Section and represents the longest overall route to connect Rope Mill Park to JJ Biello Park.
- Section 4a will not require a revision in the Allatoona Lake Project Master Plan and represents the quickest way to complete the Trestle Rock Trail Extension without a two (2) year revision schedule.

- Construction access is from the end of Brook Drive and the Riverside Athletic Complex.



CHAPTER 4

PROJECT PERMITTING PROCESS

IV. Project Permitting Process

Due to the sensitivity of environmental issues on the site, the presence of USACE ownership, wide buffer requirements, and rigid land use classifications, a variety of different permits will be required to develop the proposed trail Sections. Below is a list of potential permits and approvals that need to be secured during the design and development process (see Exhibit 2) for the Trestle Rock Trail Extension project.

LIST OF POTENTIAL PERMITS REQUIRED FOR THE TRAIL SECTIONS:

1. USACE Lease Agreements: Update old leases or establish new leases.
2. Environmental Assessment: Issued by the USACE for the entire property.
3. USACE NWP 42: Any project that destroys over .1 acre of jurisdictional wetlands or 100 LF of streambank requires an NWP 42 from the USACE.
4. EPD State Buffer Variance: A project that encroaches into the 150' buffer or the 25' state buffer will require a SBV from Georgia EPD.
5. No Permit Needed: If the USACE determines that there is no significant impact to jurisdictional water, a letter of 'No Permit Needed' can be issued.
6. GSWCC Review: A project within 200' of state water will require a GSWCC plan review. Little River and Rubes Creek are both designated as state waters.
7. No Rise Study: A bridge or boardwalk that crosses a floodway and any fill material placed in the flood plan requires a No Rise Study.
8. Cherokee County Water & Sewer Authority Agreement: A trail that lies within a CCWSA easement will require a 'Letter of Understanding' between the CCWSA

- and the City of Woodstock. The County requires a 'Hold Harmless' for any damage to the trail caused by a sewer repair or maintenance.
9. Georgia Power Encroachment Agreement: Georgia Power will have to grant permission to cross or encroach on any portion of their easements with a trail.
 10. Railroad Encroachment Permission: Encroachment or crossing the railroad right-of-way will require the permission of Patriot Rail LLC. Construction under a bridge or trestle requires a special permit. The railroad prohibits construction of a bridge upstream from their bridge and regulates the distance from the trestle for a bridge downstream.
 11. DOT Encroachment Permit: Any crossing or encroachment into a local, state, or federal highway right-of-way must be approved by the respective DOT.
 12. Land Disturbance Permit: The local city or County issues an LDP for any construction project in their jurisdiction.
 13. Building Permit: Issued by the city or County for all structures.
 14. Construction Access Agreements: The various utilities and other parks that are used for construction access and staging will have to establish temporary construction access agreements.

PERMIT REQUIREMENTS DEFINED:

Using the proposed Concept Plan alignment, surfacing options and alternate route as a base line, a general permitting procedure is outlined in [Exhibit 2](#). Below is a list of the identified permits for each proposed section of the Concept Plan for the Trestle Rock Trail Extension Project.

USACE Lease Agreements:

The Army Corps of Engineers leases land to other entities for their use and development. If additional uses are added beyond the original plans stated in the agreement, a new lease must be negotiated. If the lessee wants to add additional property to the agreement, a new lease must be established, or the old lease is amended by negotiation.

Environmental Assessment:

Because the proposed trail project lies entirely within property owned and controlled by the USACE as part of Lake Allatoona, an agreement between the USACE Mobile District and the City of Woodstock will be necessary before commencing any activities on the property. The agreement will require an Environmental Assessment (E.A.) be completed to further investigate the site, document the project, and determine the effects of the land disturbance activities on the local site resources and human environment. An E.A. also serves to determine if the project execution will result in a 'Finding of No Significant Impact' (FONSI) or if it will require an Environmental Impact Statement (EIS). Because the project may result in land management improvement and may require minor land disturbances, it can be assumed an E.A. may result in a FOSNI. These requirements may also trigger a Cultural Resources Analysis, Archeological Survey, and a Protected Species Survey. The USACE local office has already completed an Archeological Survey that can be released to the consultant when the E.A. is commissioned. An E.A. with associated studies can take up to a year to complete and cost +\$50,000.

USACE Master Plan Revision

A revision to the Allatoona Lake Project Master Plan will be required for Sections 1a, 2, 2a, 3a, and 4 to add multipurpose hard surface trails or boardwalks where they do not show on the master plan. The WMA prohibits hard surface trails or boardwalks in the zone. A reclassification of the WMA would be required to place multipurpose trails in this zone. That change is highly unlikely because the local USACE office has stated that they will oppose such a reclassification. For the revision process outline, see [Reference F](#). A complete E.A. and its other associated studies become an automatic prerequisite for a USACE Master Plan Revision. A master plan revision can take up to two (2) years to complete and cost +100,000.

SECTIONS THAT REQUIRE A USACE MASTER PLAN REVISION

Section 1	Rope Mill	No Revision
Section 1a	Southside	Revision needed for multipurpose trails
Section 2	Alternate Route	Revision needed for multipurpose trails
Section 2a	Initial Route	Revision for WMA multipurpose trails
Section 3	Trailhead	No Revision
Section 3a	Confluence	Revision needed for multipurpose trails
Section 4	JJ Biello	Revision needed for multipurpose trails
Section 4a	Corps Route	No Revision

USACE Nationwide Permit No 42 (NWP 42)

Recreational Facilities will be required to authorize impacts up to 0.1 acre of wetland and 100 LF of a steam bank. A Pre-construction Notification (PNC, i.e., permit application) must be submitted and approved by the USACE, Savannah District if any impacts to jurisdictional waters are proposed. An NWP 42 requires one (1) to two (2) weeks to prepare and typically requires

45-days to review by the USACE and other agencies before approval. If trails avoid jurisdictional waters and boardwalks are built with top-down construction techniques, the USACE NWP 42 process can be avoided with a letter of 'No Permit Needed'.

State Buffer Variance (SBV):

The Georgia Environment Protection Division (EPD) requires that any land disturbance within 25' of the wretched vegetation of a state water must be granted an SBV. Little River has a 150' buffer that was adopted by the County that moves that requirement out to 150'. Almost all of the proposed trail routes in all but Section 4 are within the 150' buffer. Roadway drainage structures, bridges, and trail segments that cross from one side of a stream to the other are exempt from an SBV.

Cherokee County Ordinance No. 2005-7-003 Section 4.2 allows for some exemption in their 150' buffer that exceeds the 25' state buffer as follows:

4.2(1) Unpaved trails in the County buffer. *(Perhaps boardwalks as well)*

4.2(3) Land disturbance within existing rights-of-way. *(Keep trails in existing CCWSA, DOT, and Ga Power easements when in buffer areas)*

A State Buffer Variance has to be secured or a letter of 'No Permit Needed' issued before a trail can be granted an LDP by the local issuing authority (LIA) which is either the City of Woodstock or Cherokee County.

“No Permit Needed” Letter:

A Letter of ‘No Permit Needed’ can be issued by the USACE if the Client sufficiently proves that there is no significant impact to jurisdictional waters by the proposed project.

GSWCC Review:

Georgia Soil and Water Conservation Commission is responsible for managing a 200’ setback from all state waters. Any ground disturbance within the 200’ setback must be reviewed by the GSWCC before an LDP can be issued. If the local government has a Local Issuing Authority (LIA), the review can be avoided by adhering to the ‘*Manual for Erosion and Sediment Control in Georgia*’, which has specific requirements for managing any land disturbance within the 200’ setback. The responsible LIA is required to enforce these requirements as part of issuing an LDP for construction. Every Section of the study lies all or partly within the 200’ setback. Section 4a is the only one almost entirely out of the 200’ setback.

No Rise Study

A No Rise Study is required to address the impact of boardwalks, bridges, or fill material on the existing flood conditions within the FEMA flood zones. The ‘No Rise Study’ is required to verify that a construction element will not precipitate any changes in the historic FEMA flood levels or impair the floodways. A ‘No Rise Study’ may be required before a LDP can be issued.

A No Rise can be avoided by staying above the 100-year flood and using compensatory grading. See **Exhibit 6** for 100-year flood area.

Encroachment Permits:

There are several utilities and transportation corridors that cross the subject property and the proposed trail Sections. The USACE has granted easements to CCWSA, GDOT, and Georgia Power, but still owns the land within these easements. The railroad crosses the Corps property on a right-of-way owned by Patriot Rail LLC. Each of these entities will have to be approached separately to secure a permit or some form of agreement to allow the proposed trail to cross or encroach on their easements or rights-of-way. These agreements may be prerequisites to some of the other permits required.

Land Disturbance Permit (LDP)

City of Woodstock or Cherokee County issue a Land Disturbance (LDP) as a standard requirement for construction of a project. Both the City and the County have local issuing authority. (LIA)

Building Permit:

A building permit must be issued from the city or County for physical structures on the site. The Trestle Rock Trail project will need building permits for bridges, boardwalks, and retaining walls.

Temporary Construction Access Permit:

A temporary construction access permit must be acquired from the various utility companies to use their easements or rights of way for construction access or staging.

If access is across one of the Cherokee County Parks, and temporary access permit must be secured from the Parks Department for the contractor.

PERMITS REQUIRED PER SECTION OF THE STUDY:

The permit checklist below is for each section and identifies the proposed permits.

OVERALL PERMITS FOR THE FINAL TRAIL:

- USACE NEW OR UPDATED LEASE AGREEMENTS
- USACE ENVIRONMENTAL ASSESSMENT (E.A.)
- LETTER OF 'NO PERMIT NEEDED'
- CHEROKEE COUNTY WATER & SEWER AUTHORITY REVIEW
- GSWCC CONSTRUCTION DOCUMENTS REVIEW
- GEORGIA EPD STREAM BUFFER VARIANCE
- LAND DISTURBANCE PERMITS FROM THE CITY OR COUNTY.

TRAIL SECTION 1 Rope Mill

- UPDATED USACE LEASE AGREEMENT
- CITY OF WOODSTOCK LAND DISTURBANCE PERMIT
- BUILDING PERMIT FOR PEDESTRIAN BRIDGE #1

- EPD 150' BUFFER VARIANCE
- CCWSA COORDINATION LETTER OF AGREEMENT
- NO RISE STUDY FOR BRIDGE #1

TRAIL SECTION 1a Southside

- NEW USACE LEASE AGREEMENT
- USACE MASTER PLAN REVISION (for multipurpose trail)
- CITY OF WOODSTOCK LAND DISTURBANCE PERMIT
- BUILDING PERMIT FOR BETHANY CREEK BRIDGE
- BUILDING PERMIT FOR ROCK LEDGE AND WALL
- EPD 150' BUFFER VARIANCE
- CCWSA COORDINATION LETTER OF AGREEMENT
- TEMPORARY CONSTRUCTION ACCESS AGREEMENTS

TRAIL SECTION 2 Alternate Route:

- NEW LEASE AGREEMENT WITH USACE
- USACE MASTER PLAN REVISION (for multipurpose trail)
- BUILDING PERMIT FOR PEDESTRIAN BRIDGE #2
- EPD 150' STREAM BUFFER VARIANCE
- CCWSA COORDINATION LETTER OF AGREEMENT
- BUILDING PERMITS FOR SMALL BRIDGES
- PATRIOT RAIL ENCROACHMENT PERMIT

- GEORGIA POWER EASEMENT ENCROACHMENT PERMISSION
- TEMPORARY CONSTRUCTION ACCESS AGREEMENTS

TRAIL SECTION 2a Initial Route

- NEW LEASE AGREEMENT WITH USACE
- LETTER OF NO PERMIT NEEDED (wetlands)
- NEW LEASE AGREEMENT WITH USACE
- USACE MASTER PLAN REVISION (for multipurpose trail)
- BUILDING PERMITS FOR SMALL BRIDGES
- BUILDING PERMIT FOR WETLAND BOARDWALKS
- NO RISE STUDY FOR BOARDWALKS
- EPD 150' STREAM BUFFER VARIANCE
- CCWSA COORDINATION LETTER OF AGREEMENT
- HIGHWAY #5 ROW ENCROACHMENT PERMIT
- GEORGIA POWER EASEMENT ENCROACHMENT PERMISSION
- PATRIOT RAIL ENCROACHMENT PERMIT
- TEMPORARY CONSTRUCTION ACCESS AGREEMENTS

TRAIL SECTION 3 Trailhead

- LETTER OF NO PERMIT NEEDED (wetlands)
- EPD 150' STATE STREAM BUFFER VARIANCE

- WETLAND BOARDWALK BUILDING PERMIT
- NO RISE STUDY FOR BOARDWALKS
- HIGHWAY #5 ROW ENCROACHMENT PERMIT
- GEORGIA POWER USE AGREEMENT ON ROADWAY

TRAIL SECTION 3a Confluence


- NEW LEASE AGREEMENT WITH USACE
- LETTER OF NO PERMIT NEEDED (wetlands)
- EPD 150' STATE STREAM, BUFFER VARIANCE
- BUILDING PERMIT FOR PEDESTRIAN BRIDGE #4
- WETLAND BOARDWALK BUILDING PERMIT
- NO RISE STUDY FOR BRIDGE #4 AND BOARDWALK
- HIGHWAY #5 ROW ENCROACHMENT PERMIT
- TEMPORARY CONSTRUCTION ACCESS AGREEMENTS

TRAIL SECTION 4 JJ Biello Park

- UPDATED LEASE AGREEMENT WITH USACE
- USACE MASTER PLAN REVISION (for multipurpose trail)
- BUILDING PERMIT FOR PEDESTRIAN BRIDGE #5
- EPD 150' STREAM BUFFER VARIANCE
- CCWSA COORDINATION LETTER OF AGREEMENT
- TEMPORARY CONSTRUCTION ACCESS AGREEMENTS

TRAIL SECTION #4a Corps Route

- LETTER OF NO PERMIT NEEDED (wetlands)
- BUILDING PERMIT FOR WETLAND BOARDWALKS
- NO RISE STUDY FOR WETLAND BOARDWALKS
- TEMPORARY CONSTRUCTION ACCESS AGREEMENTS



CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

V. Conclusions and Recommendations:

The Consultant Team has identified three (3) potential trail routes to consider for the Final Concept Plan for the Trestle Rock Trail Extension.

A. Initial Route – **Exhibit 9**

The Initial Route is the same as the original trail route established during the first visit to the site. The route includes Sections 1, 2a, 3a, and 4 along the CCWSA sewer easement on the banks of Little River (*See Exhibit 9*). The Initial Route is more responsible from an environmental and a construction position. The route is already cleared for the sewer, so an additional loss of forested vegetation or wetlands is not necessary to build the trail.

The route also enjoys easy access for construction by using the same entry points used by CCWSA to build and maintain the sewer easement. The main obstacle to the ‘Preferred Route’ is that a major portion of the route is over jurisdictional wetlands that will require significant boardwalks to cross. Preferably the boardwalks should be concrete instead of wood, which represents a considerable expense. A USACE NWP-42 can be avoided by building the boardwalks with top-down construction techniques. The most serious problem with the ‘Preferred Route’ is that most of the proposed trail route lies within the WMA of the USACE Allatoona Lake Project Master Plan. The local office has clearly stated that they will not approve a hard surface trail inside a WMA without a complete revision of the current Master Plan, which is a long and difficult task. They also stated that they have denied such a request in the past and will probably do so again.

Although the Consultant Team identified this as the preferred route from a practical design, length of trail, construction access, and environmental protection standpoint, it is not the Recommended Route because of the two (2) year revision schedule for the master plan, boardwalk costs, and USACE local office objection.

B. Recommended Route - Exhibit 10

The proposed 'Alternate Route' shown as sections 1, 2, 3, and 4 is the most direct and effective route to tie together the two (2) destinations of the Trestle Rock Trail Extension project objective. For those reasons, the original 'Alternate Route' is chosen as the Concept Plan 'Recommended Route'.

The 'Recommended Route' begins as Section 1 at Rope Mill Park and crosses Little River with pedestrian bridge #1 to continue along the north bank toward the railroad trestle. At the trestle the route connects to Section 2 by crossing the river again with pedestrian bridge #2. The route passes under the Patriot Rail trestle on the southside of Little River. The route continues east to the river along the cleared sewer easement where it turns south through a woodland along the river. The trail route is carefully cleared so the trail can weave between the trees without wholesale tree clearing. There are no wetlands along the riverbank, so the trail remains at grade level. However, the route does impact an unspoiled hardwood forest that has to be partially cleared to build the trail, causing additional loss of important natural vegetation near the river. One stretch of the trail runs along a narrow, steep, and rocky strip between the river and the railroad. A trail ledge will have to be carved into the hillside to create a narrow ledge for the trail.

The recommended route continues south until it drops down the grade to pass under the Highway 5 bridge to connect to a boardwalk in Section 3. The boardwalk passes over a drainage swale and forested wetland until it reaches the end of a service road at the substation. It follows the service road out to the Cherokee Tennis Center parking lot that serves as a trailhead. The Recommended Route connects to Section 4 by crossing Rubes Creek with pedestrian bridge #4 to connect with a cleared sewer easement that runs southwest along the river to the Riverside Athletic Complex. Section 4 is almost entirely inside a CCWSA easement that has been completely cleared of vegetation and includes an existing dirt trail. Construction access is relatively easy using Rope Mill Park, the Georgia Power easement, sanitary sewer easement, and Riverside Athletic Complex. There are various other options for this trail that are shown in [Exhibit 10](#).

The ‘Recommended Route’ was chosen because it is a very direct route and is outside the restricted WMA. It has good access and ties all the various parks together as requested by the Client. The main challenge to this route is the need to revise the Allatoona Lake Project Master Plan to allow hard surface trails in Sections 2 and 4, both of which are in the High-Density Recreation Zone.

C. Corps Route - [Exhibit 11](#)

The ‘Corps Route’ was selected as the alternative route that is the most likely to be approved by the USACE without a lengthy Master Plan revision. Sections 1, 3, and 4a are already approved for multiuse trails in the current Allatoona Lake Project Master Plan.

[See References A, B and C](#). The only Section that could require a master plan revision is

Section 2 which was identified as the ‘Alternate Route’ during the second site visit.

Section 2 does not need a revision to establish soft surface trails, only to convert them to a hard surface. It may even be possible to get USACE approval without a full Master Plan revision if this is the only change and it is outside the WMA.

D. Optional – Dirt Trail:

The better option is to build the ‘Recommended Route’ or the ‘Corps Route’ as soft surface trails where there are no approved hard surface trails in the USACE Master Plan. is in process. After the two (2) year Master Plan Revision process is completed and the revision approved, then the soft trail Sections can be paved.

The ‘Corps Route’ may be the easiest route to permit and get approved by the USACE, but it will be the more expensive to build and is the longest route for connecting the two destination parks. *See Cost Estimate at the end of this report.*

DESIGN PROCESS– Exhibit 2

The important first step is to secure a USACE lease for the gap property between Olde Rope Mill Park in the north and JJ Biello Park in the south. The new lease should be held by the City of Woodstock as an extension of Ole Rope Mill Park. The USACE may also require an update to both current leases depending on the changes that have been recommended on each parcel within the lease boundaries.

The next step in the design and development process for the Trestle Rock Trail Extension project is to prepare an Environmental Assessment (E.A.) for the impacted USACE

properties. This study is a prerequisite before a survey crew, or geotechnical team can access the site to perform their services. An E.A. will take about a year to complete and cost about \$50,000. A complete E.A. is an automatic prerequisite for a USACE master plan revision, so it will be necessary for the design and construction phases later in the process anyway.

The follow-up step is to secure USACE approval to place hard surface trails on Sections #2 and Section #4. Because these trails are not part of the current Allatoona Lake Project Master Plan, the local USACE office may require a revision to the Master Plan for both Sections 2 & 4. It would be frugal to get this approval before expending resources to design hard surface trails in either of these locations. Revision to a USACE Master Plan is a long and complicated process that could take over two (2) years to complete. (See *Reference F for USACE Master Plan Revision Process*)

In areas already designated for multiuse trails in the USACE Master Plan and they are not in the WMA, no USACE Master Plan revision will be required. These areas could proceed as separate projects in the early first phases in the design and development process.

The Consultant Team conducted two (2) separate site visits and completed a wetland delineation survey on Sections 1, 2a, 3a, and 4. However, an additional wetland delineation survey is needed along Sections 2, 3, and possibly 4a as part of the design process to respond to any of the selected routes.

A meeting with a Patriot Rail LLC representative on site is still needed to further evaluate the proposed trail crossings under the railroad trestle on both sides of the river as well as the proposed location of Little River pedestrian bridge #2 near the trestle.

Once the above conditions are met, the City of Woodstock may proceed with the standard design process phase to develop the construction documents for Trestle Rock Trail Extension. See Exhibit 2.

Once the construction documents are completed, the City of Woodstock can proceed to submit for the various other permits and agreements that will be needed to construction the project.

FINAL RECOMMENDATIONS

The final recommendation of the Consultant Team is to pursue approval of the 'Recommended Route' on the west side of Little River shown as Sections 1, 2, 3, and 4 as Exhibit 10. The route avoids the WMA, which would require a lengthy USACE master plan revision that the local Corps office has already stated they will not support. The 'Recommended Route' avoids this lengthy process delay and unnecessary conflict with the local Corps officials. The route will require a revision in the current USACE master plan for hard surface trails in Section 2 and 4. However, the possibility of getting these trails approved has a higher probability than getting multiuse trails approved in Section 2a inside the WMA. The 'Recommended Route' is the most direct and viable route to avoid a lot of environmental conditions and USACE review and permitting processes.

The Consultant Team believes the ‘Recommended Route’ along the west side of Little Rivers is the more practical route from a vegetative clearing, development cost, construction access, and approval process than any of the other proposed routes. The trail can be developed as a hard surface trail with boardwalks and still have adequate space adjacent to the trail for a soft surface running trail.

Other Two (2) Proposed Routes compared to the ‘Recommended Route’

The ‘Corps Route’

Requires more tree clearing

Is a much longer multiuse trail’

Costs more to construct.

The “Initial Route’

Impacts more wetlands

Requires a lot of expensive boardwalks

Mush harder to permit

Probably can never get approved by USACE

The ‘Recommended Route’ is far more aesthetically pleasing than a trail inside a wide-open cleared sewer easement. The goal to connect Olde Rope Mill Park and JJ Biello Park with a multiuse hard surface trail is best accomplished by the ‘Recommended Route.’ *See Exhibit 10.*

OPTIONS

The CPL team also examined several options to get construction of the trail project started early while the process of revising the USACE master plan is underway. The objective is to design and build as much trail as possible while the two (2) year master plan revision process is underway.

Option A. Intermediate Plan – Recommended Route

1. Build Section 1 as a hard surface trail extension with a bridge to the west bank of Little River. Design and develop bridges #1 and #2 during this phase.
2. Build Section 2 as a soft surface trail to be paved later.
3. Build Section 3 as a boardwalk and hard surface trail with bridge #3.
4. Build Section 4 as a complete soft-surface trail to be paved later.
5. Bid and build the multiuse trail surfaces as a separate project after the Master Plan is revised.

The Consultant Team believes Option B provides enough work to occupy the city and contractor for most of the time needed to submit for an approval of a USACE master plan revision. Once the revision is approved, it will be easy to pave the soft surface trails that are already in place. If rejected, then the soft trails remain.

Option B. Phased Plan– Recommended Route

Take a phased approach with Bid Add Alternates based on budgets and schedules. Design the entire projects as hard surface trails but bid the construction with the pavement in Sections 2 and 4 as bid add alternates.

1. Design and Build Sections 1 & 3 while the master plan revision is underway.
2. Design the soft trails in Sections 2 and 4 with a construction alternate to add a hard surface later after the master plan revision is completed.
3. After completion of the master plan revision, accept the bid add alternates for Sections 2 and 4 to be hard surface trails built by the original contractor.

If the master plan revision fails, then Sections 2 and 4 remain as soft surface trails.

There are various other options that could be considered during the process that may be affected by a more complete understanding of the schedules, permits, budgets and the desires of the USACE.

ROUGH ORDER OF MAGNITUDE COST ESTIMATE:

A detailed cost estimate is prepared as [Appendix 3](#) in this report. The estimate is broken down into the eight (8) identified trail Sections. The upgrade pavement options are shown at the bottom of each Section estimate and include only items that are not approved in the current Allatoona Lake Project Master Plan. The cost estimate includes a Pre-Development Phase that identifies the fees for the EA, Master Plan revision, field survey, each permit, and all three (3) design phases for each Section separately. The Construction

Phase estimate breaks down into individual construction items indicating the quantity, unit cost, and total cost of each item.

The Design Chart shows the design costs per route, which combines the four (4) selected sections into one cost. The Summary shows the full totals for each Section. The Comparison Chart shows the complete totals for each of the three (3) proposed trail routes.

The Rough Order of Magnitude Cost Estimate is intended to give the City of Woodstock a tool by which to choose the preferred trail routes and to make project budget and schedule decisions for the Trestle Rock Trail Extension project. Please see [Appendix 3](#) for a summary cost of each of the three identified trail routes and a more detailed breakdown of these costs.

ESTIMATED COSTS FOR EACH PROPOSED TRAIL ROUTE

<u>Trail</u>	<u>Design *</u>	<u>Construction</u>	<u>Total</u>
1. INITIAL ROUTE	\$ 820,000	\$ 6,766,000	\$ 7,586,000
2. RECOMMENDED ROUTE	\$ 766,100	\$ 3,279,900	\$ 4,046,000
3. CORPS ROUTE	\$ 710,000	\$ 3,967,000	\$ 4,677,000

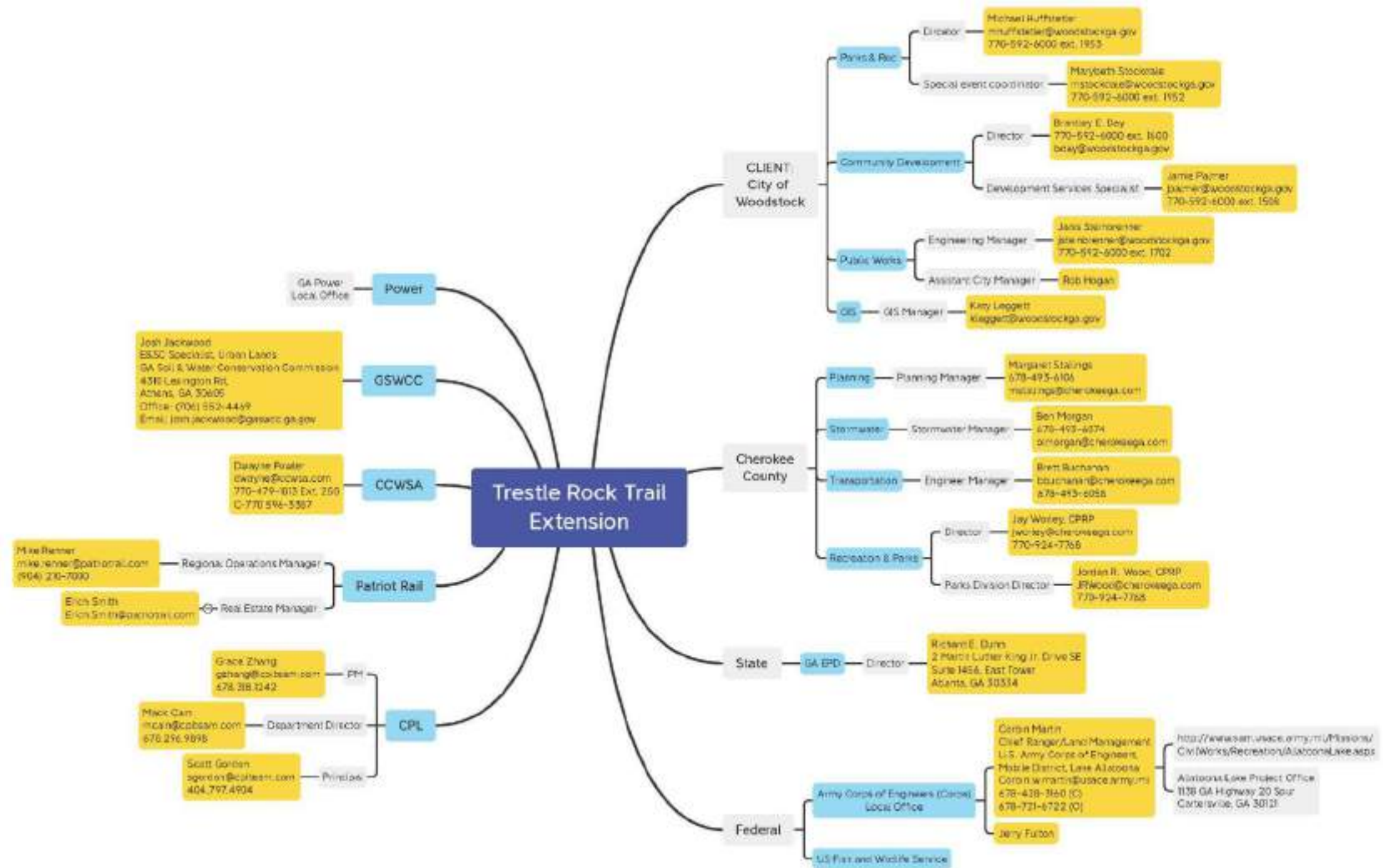
Note: Design include the EA, Master Plan Revision, permits, field survey, and design phases



EXHIBITS

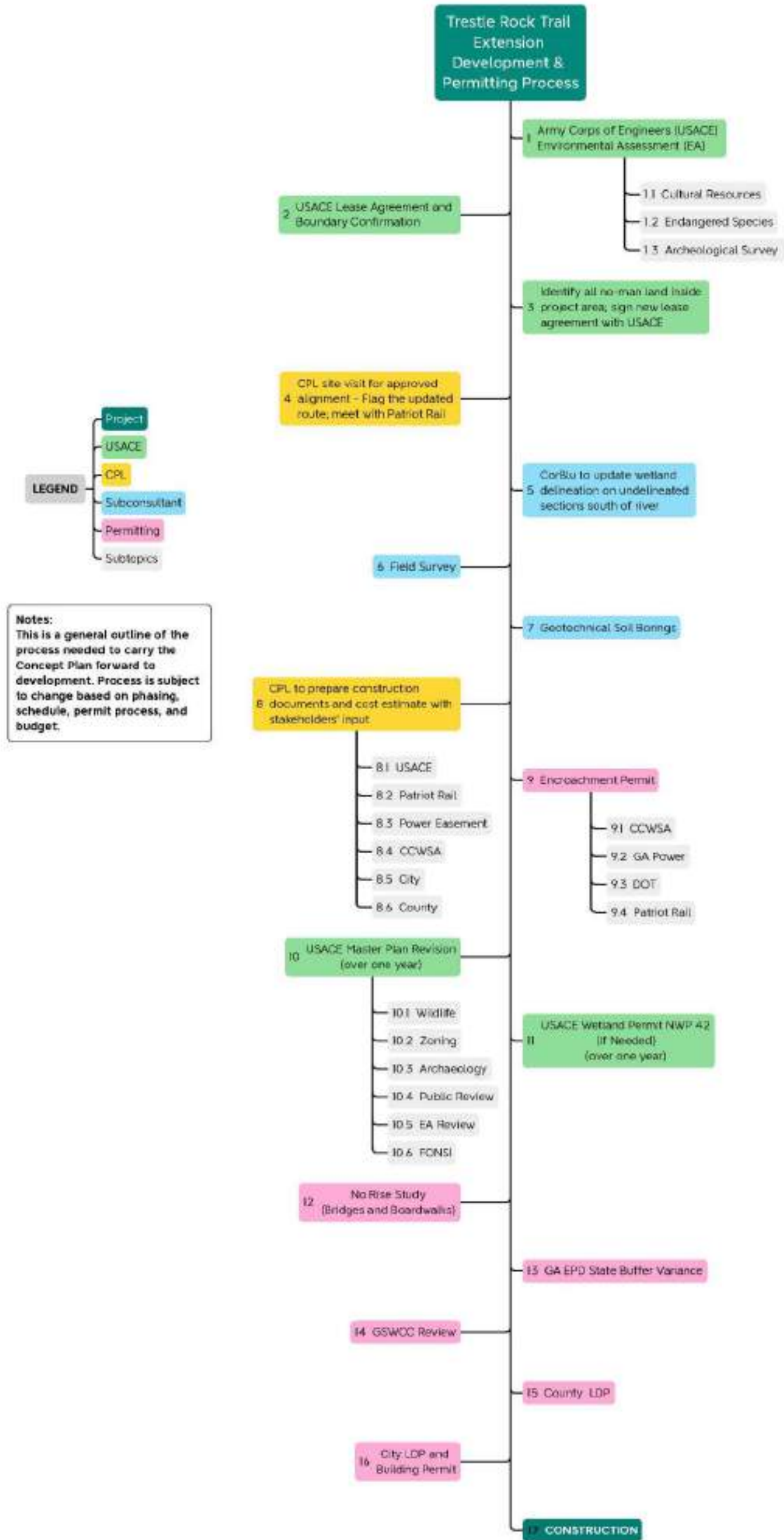
Trestle Rock Trail Extension Concept Plan

Exhibit 1: Trestle Rock Trail Extension – Project Members



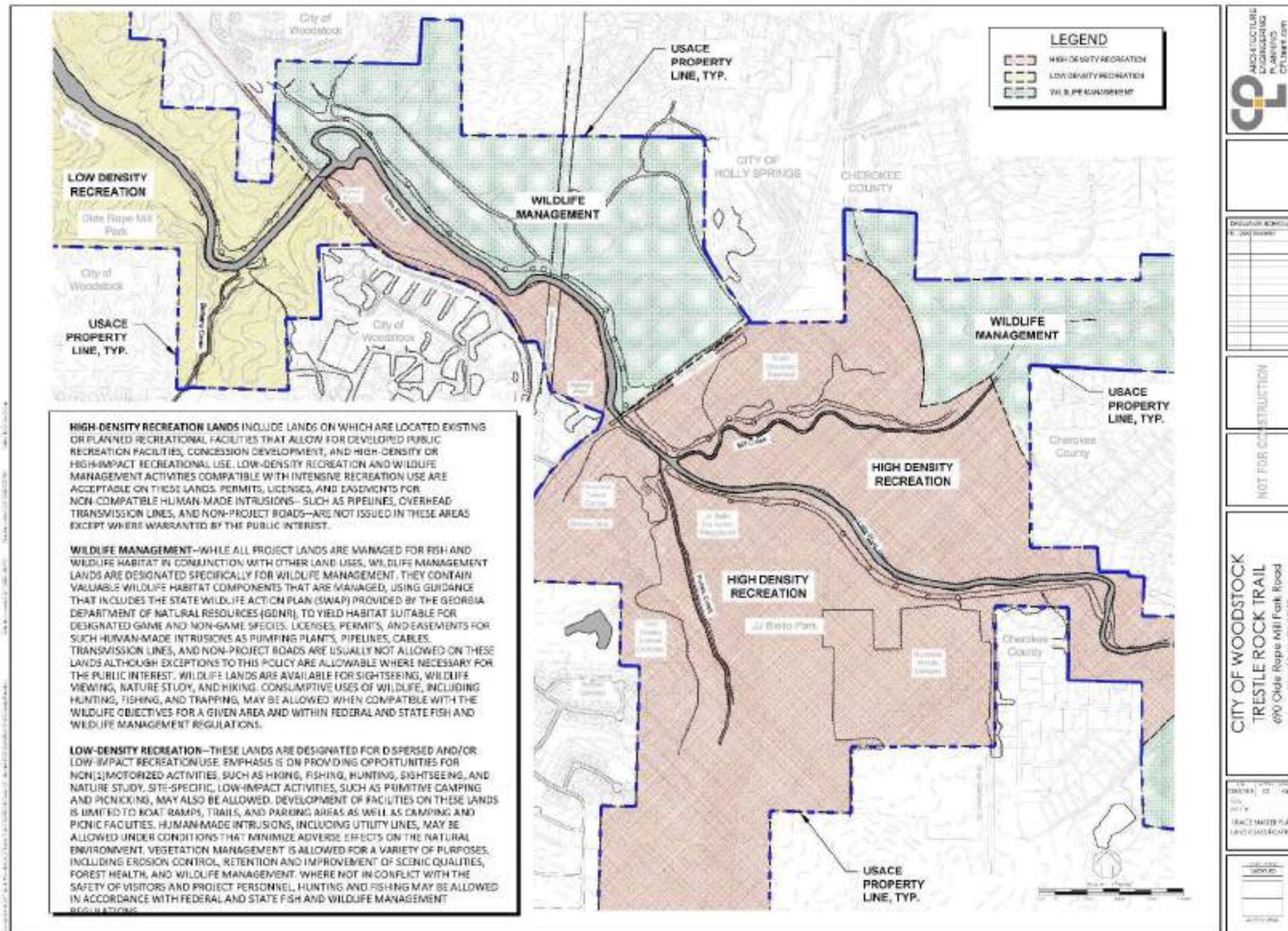
Trestle Rock Trail Extension Concept Plan

Exhibit 2 - Project Development Process Outline



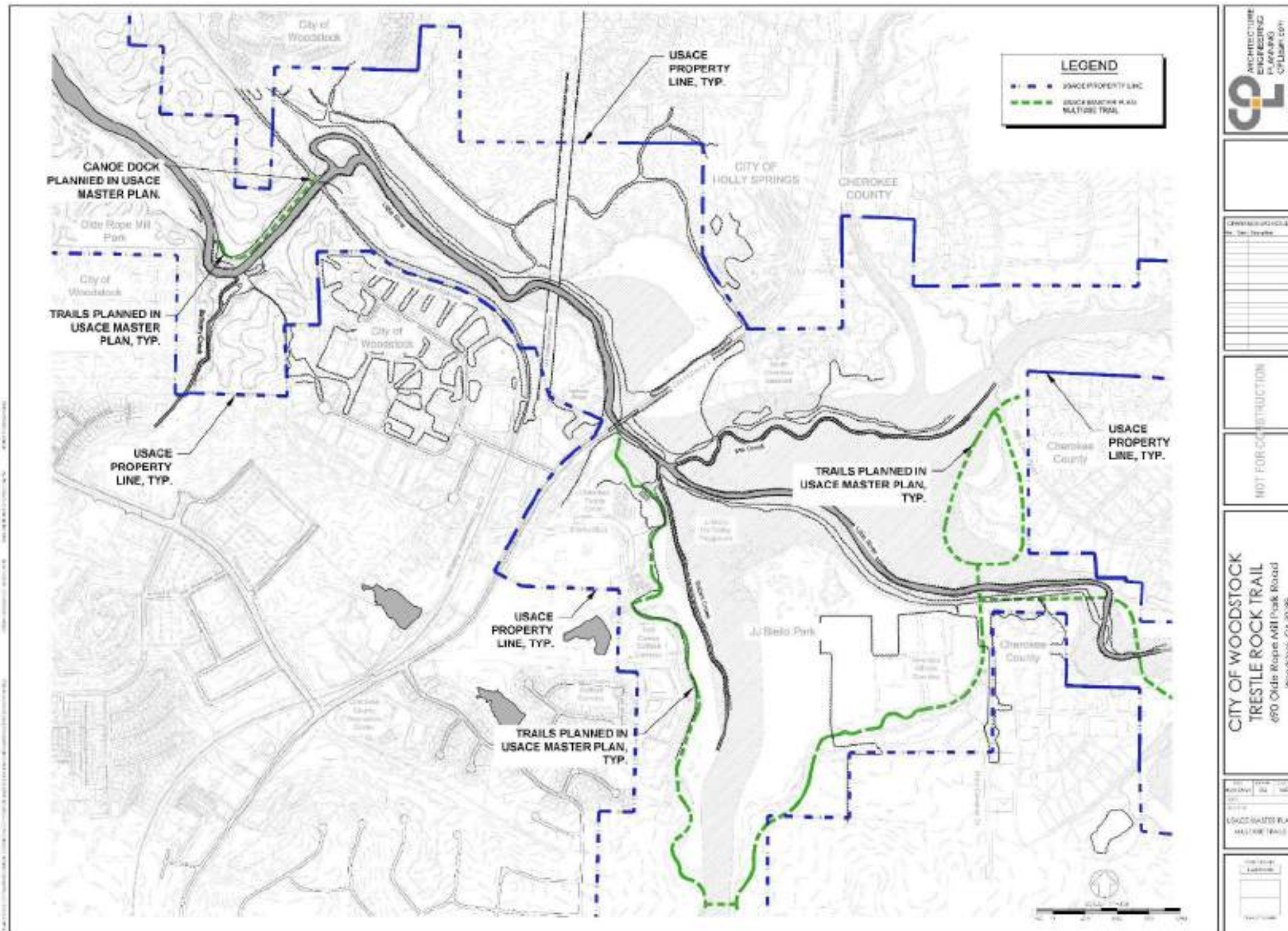
Trestle Rock Trail Extension Concept Plan

Exhibit 4 - USACE Master Plan Land Classification



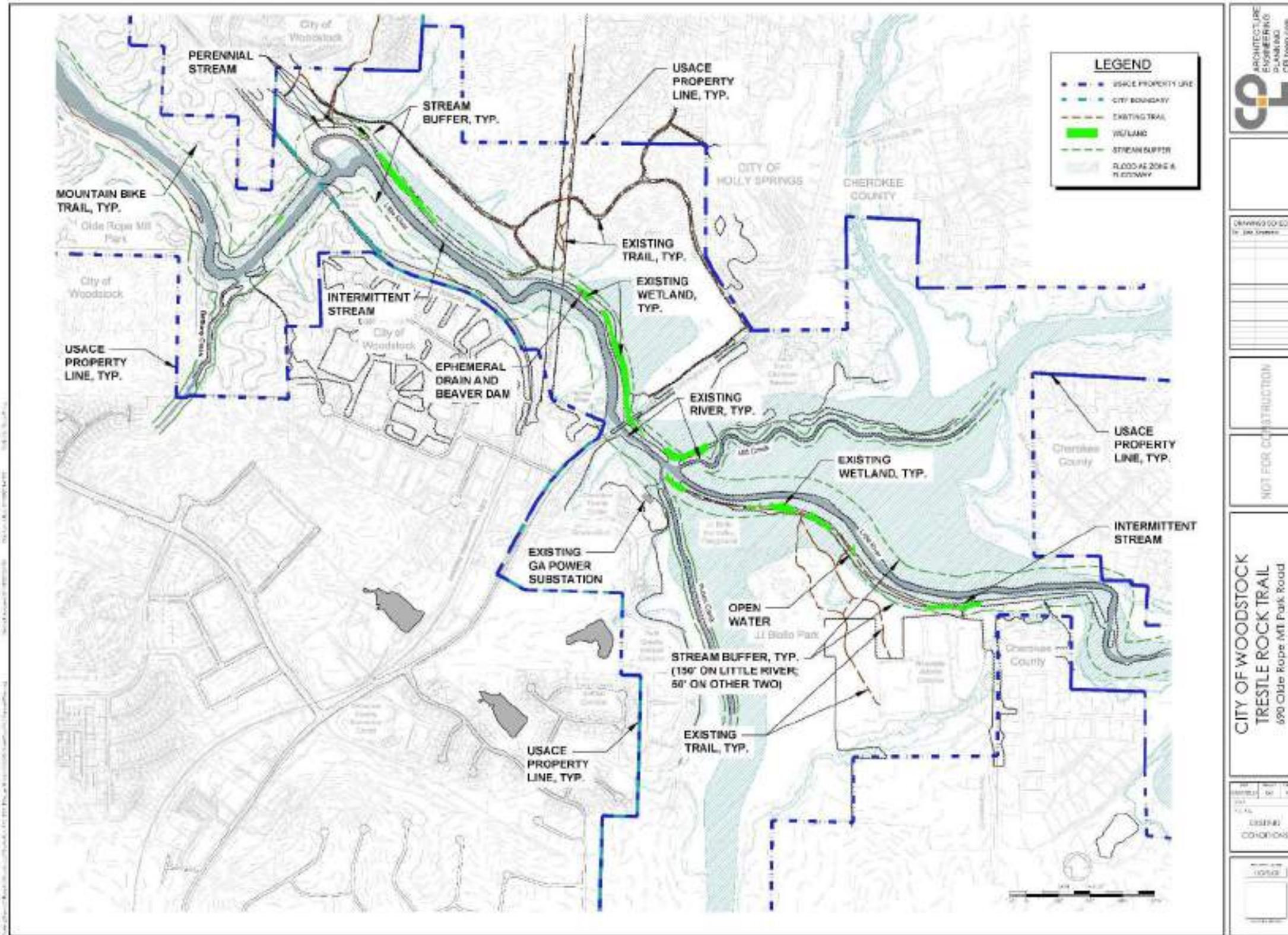
Trestle Rock Trail Extension Concept Plan

Exhibit 5 - USACE MP Trails



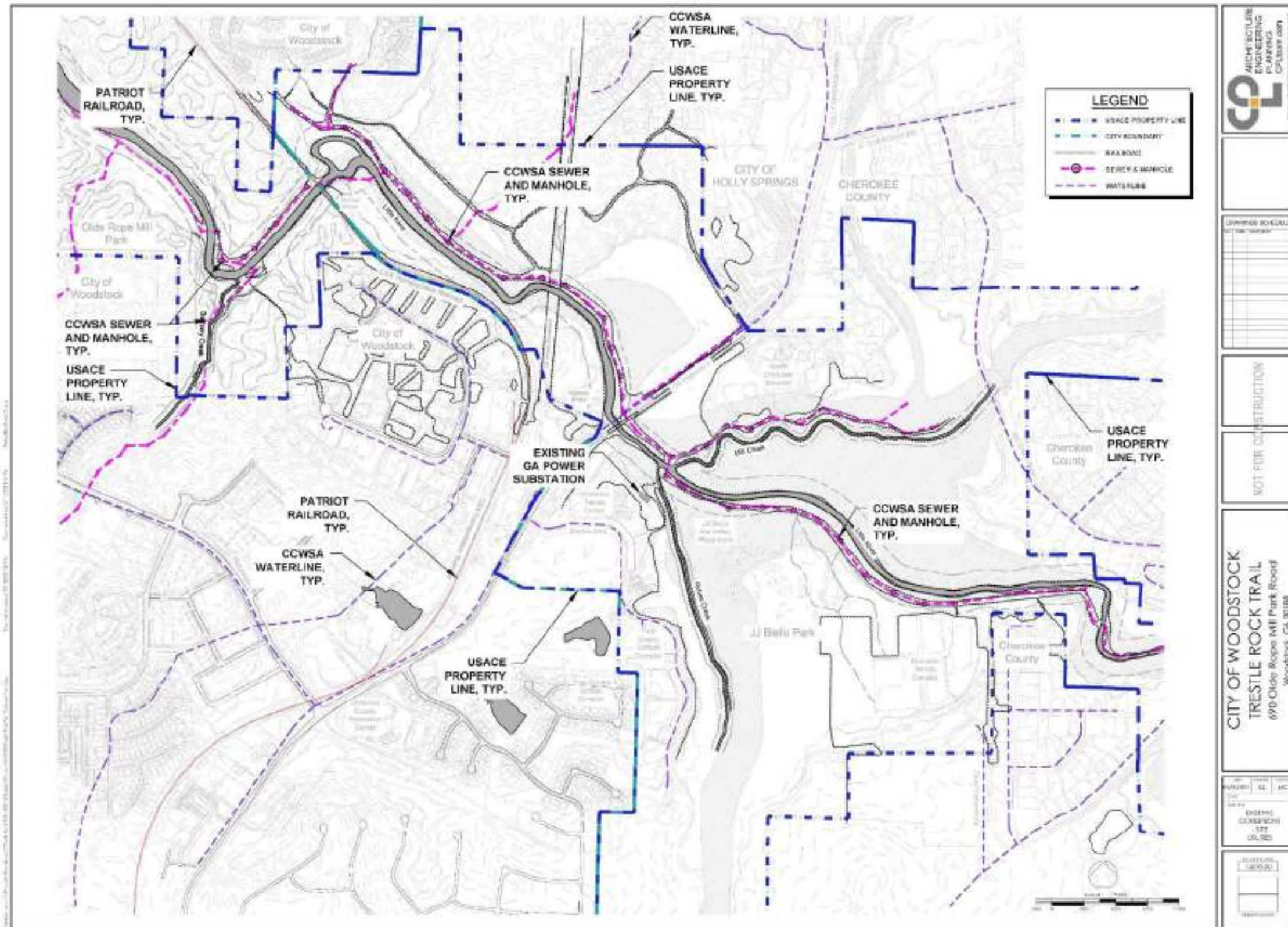
Trestle Rock Trail Extension Concept Plan

Exhibit 6 - Existing Conditions Inventory



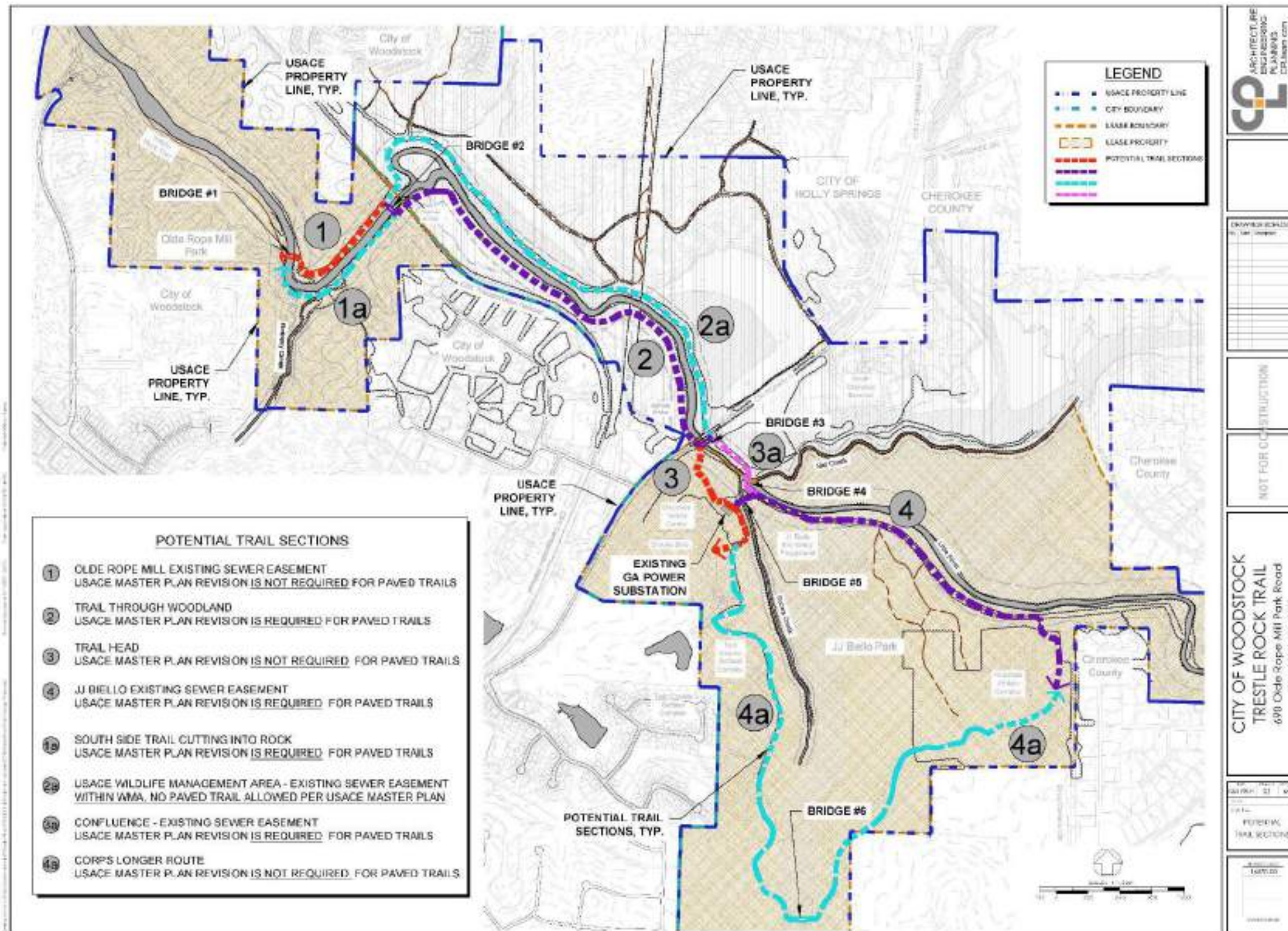
Trestle Rock Trail Extension Concept Plan

Exhibit 7 - Existing Conditions - Site Utilities



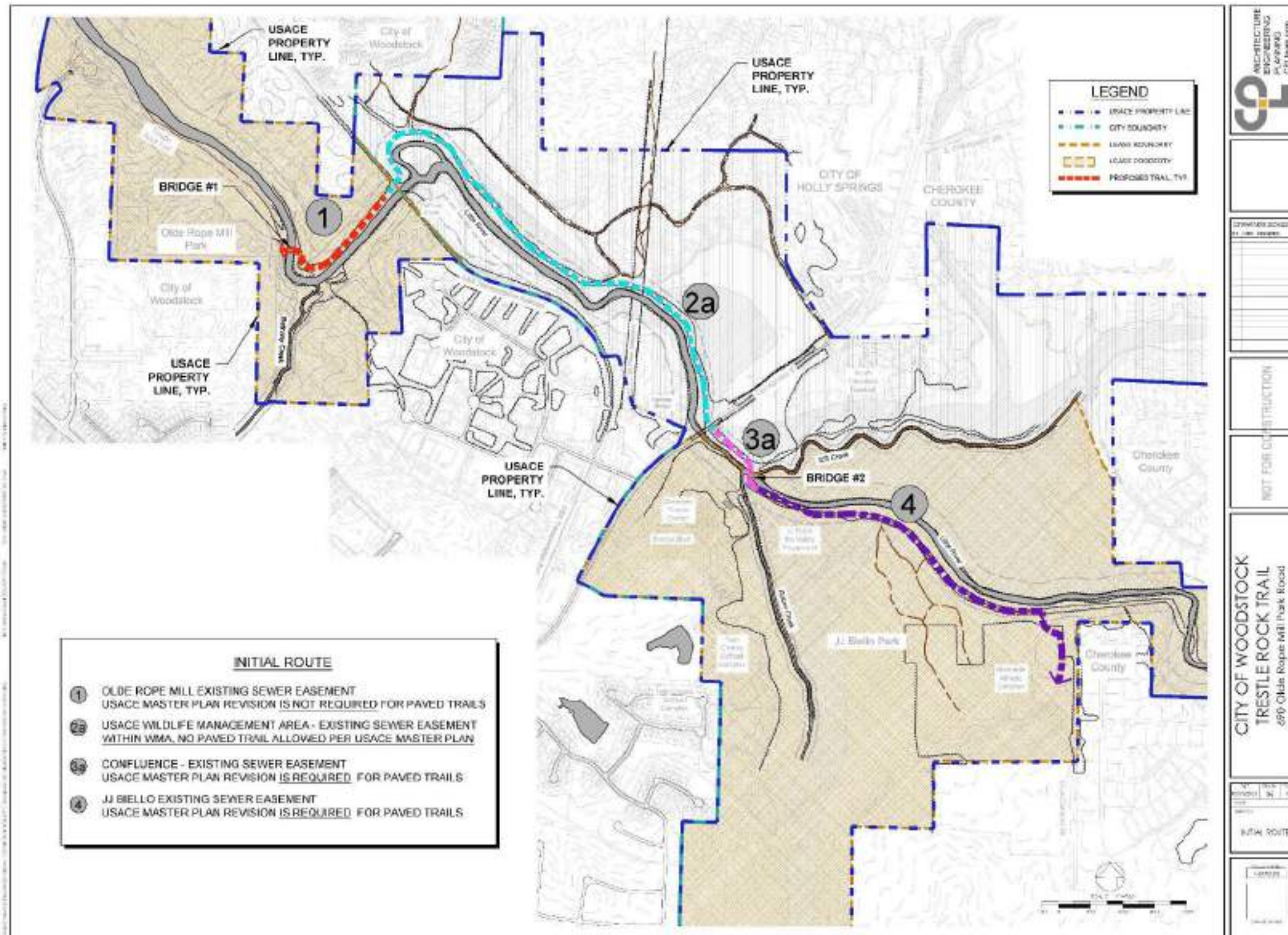
Trestle Rock Trail Extension Concept Plan

Exhibit 8 - Trestle Rock Trail Concept Plan-Potential Trail Sections



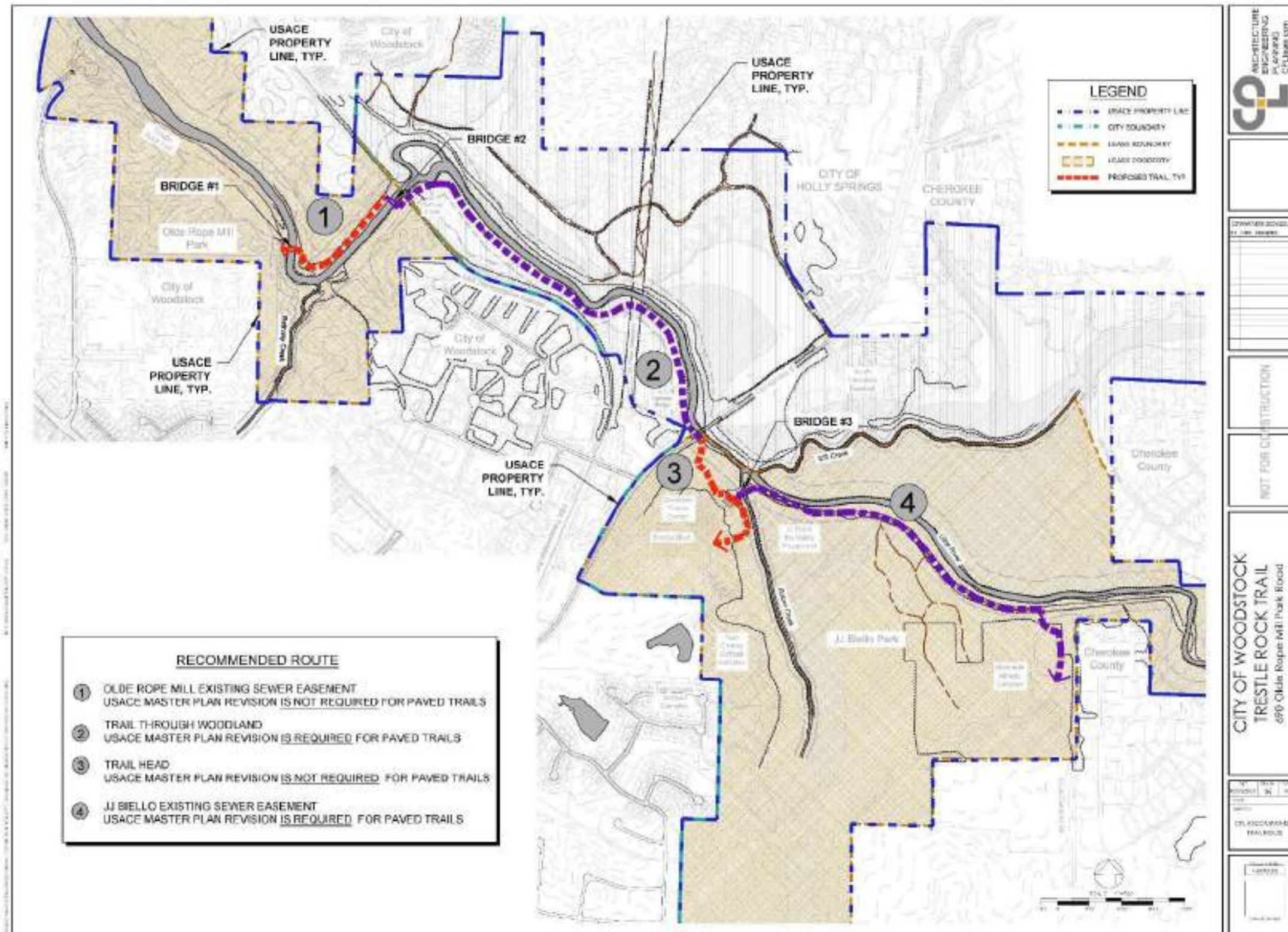
Trestle Rock Trail Extension Concept Plan

Exhibit 9 - Trestle Rock Trail Concept Plan-Initial Route



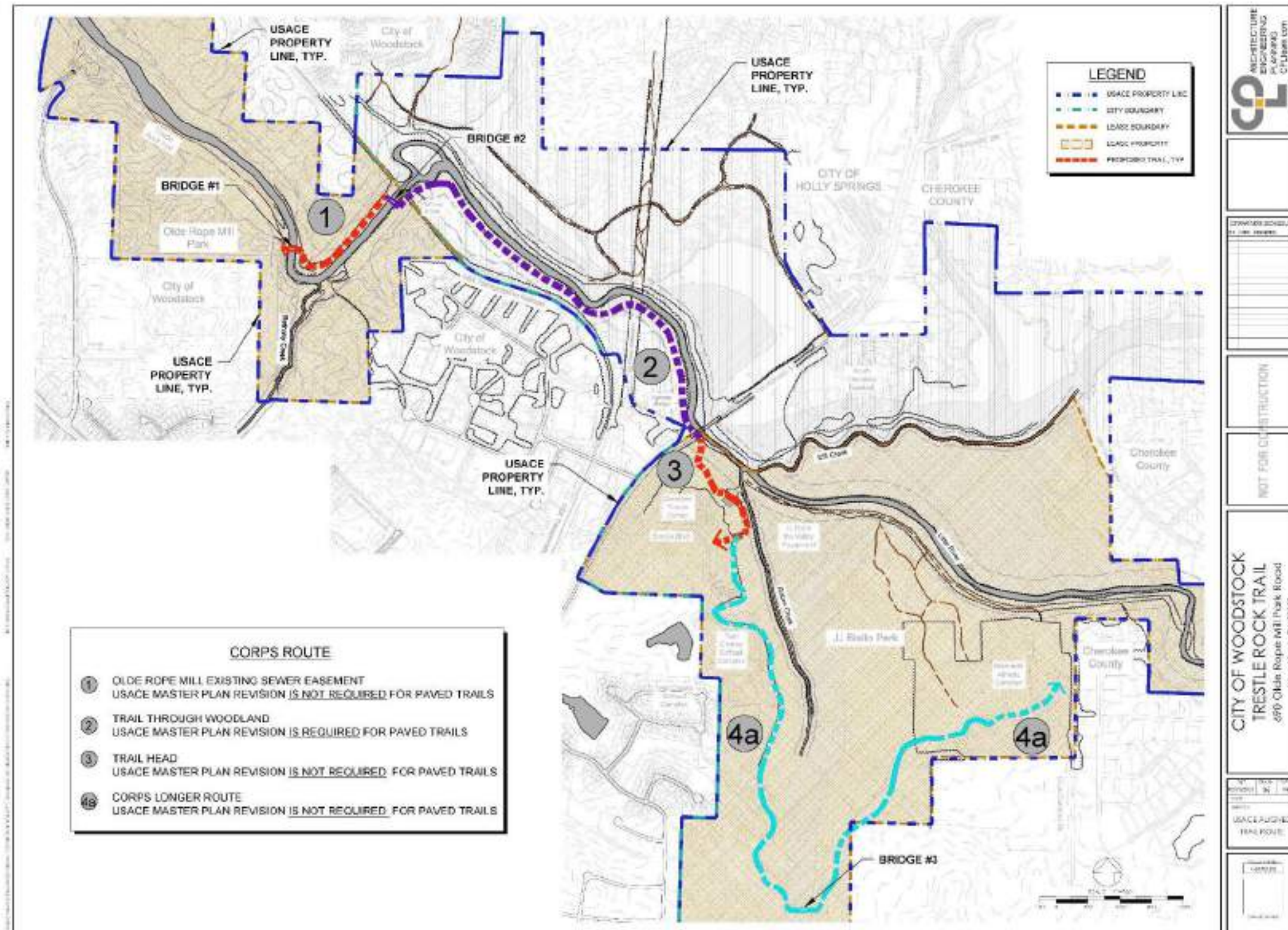
Trestle Rock Trail Extension Concept Plan

Exhibit 10 - Trestle Rock Trail Concept Plan-Recommended Route



Trestle Rock Trail Extension Concept Plan

Exhibit 11 - Trestle Rock Trail Concept Plan-Corps Route

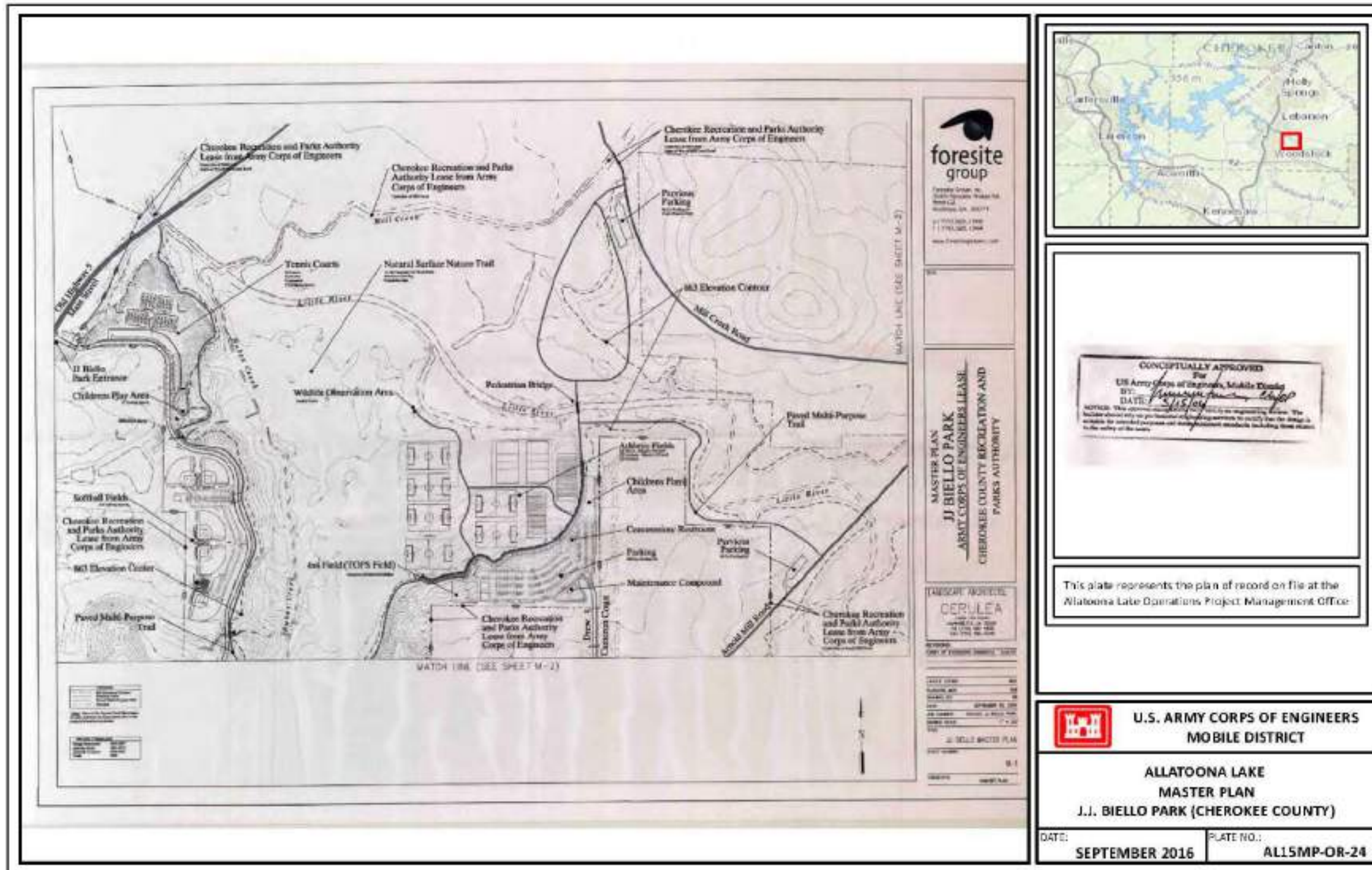


REFERENCES



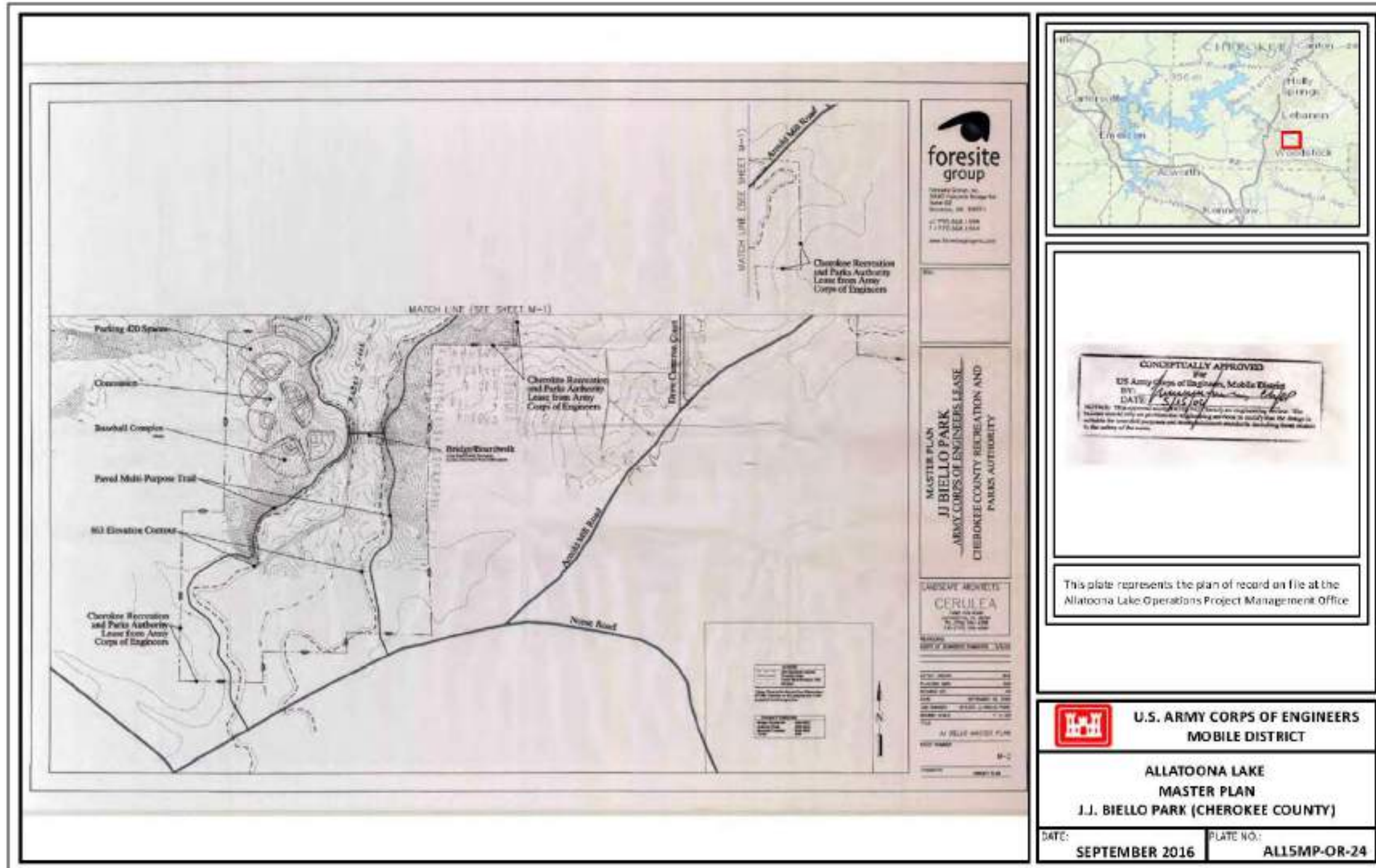
Trestle Rock Trail Extension Concept Plan

Reference B: JJ Biello USACE MP (USACE Allatoona MP Page 352)



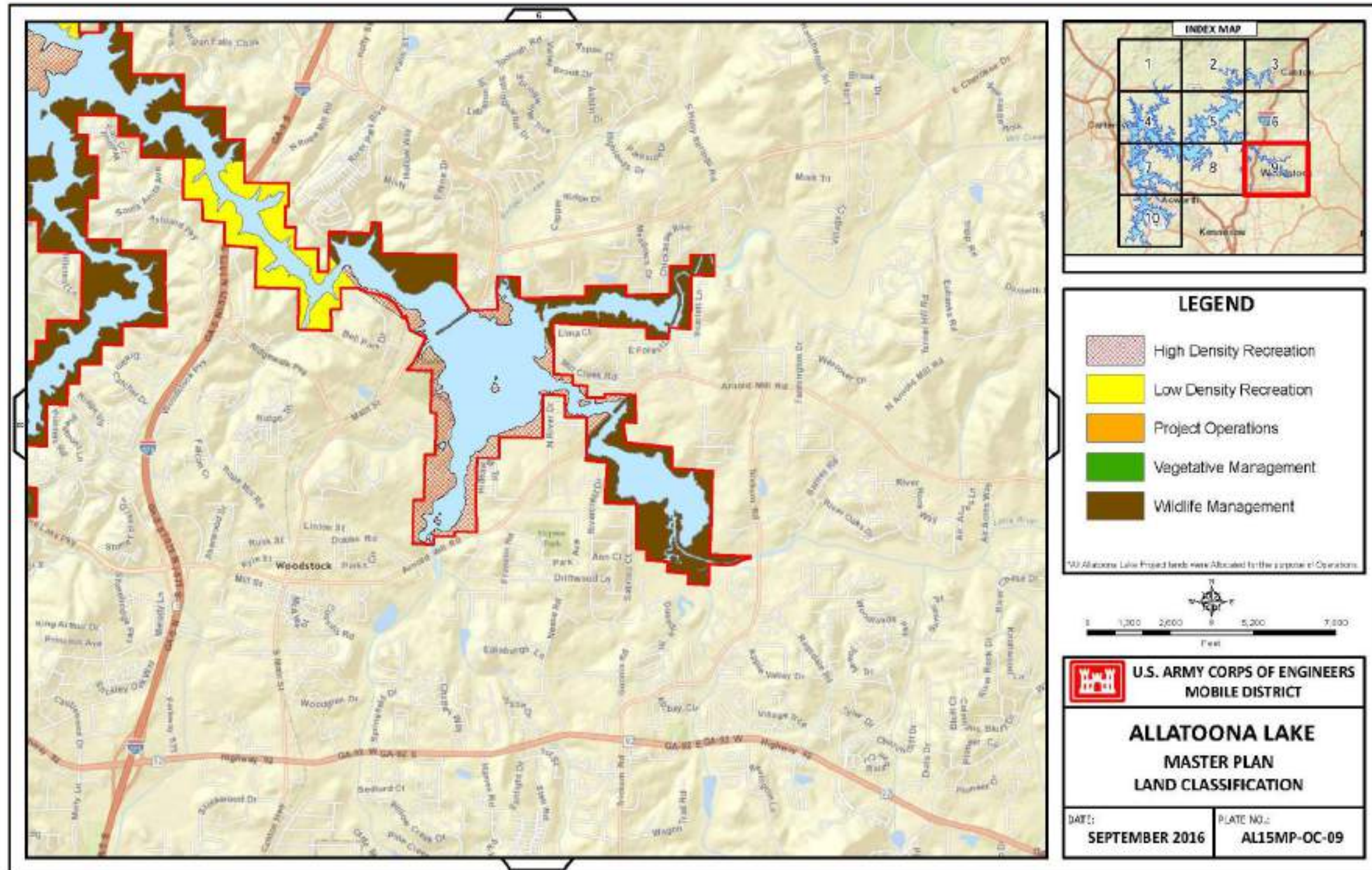
Trestle Rock Trail Extension Concept Plan

Reference C: USACE MP (USACE Allatoona MP Page 353)



Trestle Rock Trail Extension Concept Plan

Reference E: USACE Land Classification (USACE Allatoona MP Page 312)



Reference F: USACE Master Plan Revision Process



APPENDIXES 1: SITE PHOTOS



Appendix 1: Site Photos

Appendix 1: Site Photos (Section #1)



Approaching Trestle on north side



Existing Dirt Path



Trestle Bridge Clearance



Potential Bridge Crossing Location

Appendix 1: Site Photos (Section #2)



Approaching Trestle on South side



Trestle on South side



Steep Slope on West River Bank



View from South Bank to North Bank

Appendix 1: Site Photos (Section #2a)



Sewer Easement on North side



Wet Area on North Side

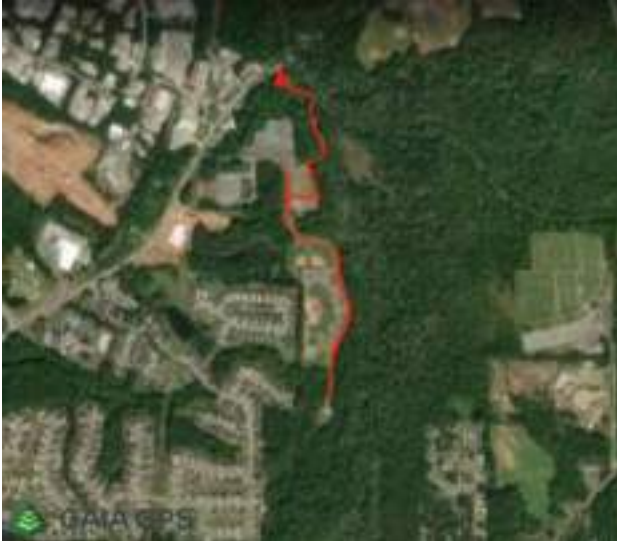


Highway Bridge on North Side



Approaching Trestle on North side

Appendix 1: Site Photos (Section #3)



Section 3 Aerial Photo



Sewer Line Crossing the River on South Side



Existing Woodland Trail



Existing Substation Enclosure

Appendix 1: Site Photos (Section # 3a)



Existing Easement Connecting to Athletic Field



Sewer Line Crossing the River on North Side



Wet Area along Easement



Approach Highway Bridge on North Side

Appendix 1: Site Photos (Section #4)



Section 4 Site Aerial Photo



Potential Trail Entrance



Existing Dirt Trail on Sewer Easement



Wet Area on Sewer Easement

Appendix 1: Site Photos (Section #4 – Cont.)



Existing Woodland Trails



Manhole along Existing Sewer Easement



Where Three Streams Meet



End of Existing Dirt Trail

Appendix 1: Site Photos (Section #4a)



View to the Cherokee Tennis Center



View to Existing Playground



View from Playground to Potential Trail Head



View from South Bank to North Bank

The image features a horizontal strip of four photographs. From left to right: 1. A building with a stone base and a wooden roof over a body of water. 2. A stream flowing through a wooded area with bare trees. 3. A dirt path or road winding through a wooded area with a cloudy sky. 4. A green golf course with a line of trees in the background under a blue sky.

APPENDIX 2: WETLAND FINDING REPORT

May 25, 2021

Mr. Mark Cain
Clark Paterson Lee
3011 Sutton Gate Drive
Suite 130
Suwanee, GA 30024

VIA E-MAIL

**Subject: Jurisdictional Waters Findings Report
Trestle Rock Trail Extension
Woodstock, Georgia
Corblu Project No. 02-012820**

Dear Mr. Cain:

Corblu Ecology Group, LLC (CEG) is pleased to submit this finding report to Clark Paterson Lee (CPL) regarding jurisdictional waters on the proposed 2.3-mile trail extension of the Trestle Rock Trail adjacent to the Little River in Woodstock, Georgia (Figure 1).

Methods

Jurisdictional waters of the U.S., including streams and wetlands, are defined by 33 CFR Part 328.3, and are protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered and enforced by the U.S. Army Corps of Engineers (USACE). Waters of the State of Georgia, including streams and ponds, are defined by Chapter 391-3-7-.01(aa) of the Georgia Department of Natural Resources (GDNR), Environmental Protection Division (EPD) Rules for Erosion and Sedimentation Control.

Jurisdictional waters were delineated during the May 18-19, 2021 field effort using the 1987 USACE Wetlands Delineation Manual¹ and the regional supplement for the Eastern Mountains and Piedmont². The referenced manuals use a multi-parameter wetland

¹ *Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Corps of Engineers, Washington D.C. 100 pp. plus appendices.*

² U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0*, ed. J. F. Berkowitz, J. S. Wakeley, R. W. Lichvar, C. V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

identification process, which require positive evidence of three criteria: 1) hydrophytic vegetation; 2) hydric soils; and 3) wetland hydrology. Any areas exhibiting all three criteria for wetland determination, as well as seasonal streams and ponds are considered jurisdictional waters regulated by the USACE under Section 404, Clean Water Act (CWA).

The survey area was established by creating an 80-foot buffer around the proposed trail route as provided by CPL as a CAD file. All wetlands and streams observed within the survey area were documented, flagged, and their locations were recorded with a handheld GPS exhibiting sub-meter accuracy.

Results

The soils mapped by the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) within the survey area include Augusta fine sandy loam, Buncombe loamy sand, Chewacla-Cartecay complex, Gwinnett sandy clay loam, Madison fine sandy loam, Masada fine sandy loam, Tallapoosa fine sandy loam, Tallapoosa gravelly sandy clay loam, Tallapoosa channery sandy loam, Toccoa complex, Wickham fine sandy loam, and Wickham sandy clay loam; of these soils, Chewacla-Cartecay complex (Chc) and Augusta fine sandy loam (Afs) are considered hydric (Figure 2).

During the field survey, CEG personnel identified two intermittent streams, three perennial streams, twelve wetland areas, and one open water feature (oxbow lake) within the survey area (Figure 3). The 80-foot buffer around the proposed route incorporated an existing sanitary sewer easement, as well as a short distance into tree-line. Majority of the area directly adjacent to the Little River consisted of a natural levee composed of alluvial sediment that did not meet the wetland criteria which resulted in a wetland boundary line between the sanitary sewer easement and river in most areas.

Open Water 01 is an oxbow lake that is mostly located outside of the survey area to the south but connects to Wetland 02 through the survey area before draining into the Little River. We do not anticipate Open Water 01 to require state water buffer protection due to the lack of wretched vegetation as a result of wave action or stream flow.

The attached photoblock shows representative photographs of the two intermittent streams (Streams 1 and 2; Photograph Nos. 1 and 2), three perennial streams (Streams 3, 4, and 5;

Photograph Nos. 3-5), Open Water 01 (Photograph No. 6), and Wetlands 1-12 (Photograph Nos. 7-18).

Discussion

We understand the project site is being evaluated for a trail system expansion connecting existing outdoor recreation facilities to Old Rope Mill Park. Based on USACE guidance, intermittent and perennial streams are considered relative permanent waters (RPW), which are expected to flow a minimum of three consecutive months per year. All RPWs are considered jurisdictional waters of the U.S. and are regulated by the USACE under the Section 404 of the Clean Water Act. Also, warm water intermittent streams will require a protected buffer by the EPD and Cherokee County unless the buffer encroachment is exempt (e.g., roadway and utility crossings) or the encroachment receives an EPD and/or City of Woodstock buffer variance.

Federal Permitting Requirements

If wetland and/or stream impacts are proposed, Nationwide Permit No. 42 (NWP 42) – *Recreational Facilities* authorizes impacts to up to 0.5-acre. A Pre-Construction Notification (PCN; i.e., permit application) must be submitted and approved by the USACE, Savannah District if any impacts to jurisdictional waters are proposed. Compensatory mitigation is normally required for activities that result in impacts greater than 100 linear feet or 0.1-acre of stream and/or wetland, respectively. A NWP 42 requires one to two weeks to prepare, and typically requires a 45-day review by the USACE and other regulatory agencies to obtain approval.

As discussed, it is anticipated the proposed trail will travers wetlands/streams as a boardwalk supported by driven pilings. It is our understanding that by using pilings to support an elevated boardwalk over streams and wetland areas, and by avoiding the mechanized clearing of wetland areas (i.e., hand clearing), this project can avoid requiring CWA authorization from the USACE. Based on regulation, and as defined in 33 CFR Part 323.2 (e), “*fill material means material placed in waters of the United States where the material has the effect of: (i) Replacing any portion of a water of the United States with dry land; or (ii) Changing the bottom elevation of any portion of a water of the United States*”. Further, as specified in 33 CFR Part 323.3(c)(2), “*placement of pilings for linear projects, such as bridges, elevated walkways and powerline structures, generally does not have the effect of a discharge of fill*

material". Therefore, certain piling methods do not replace waters with dry land, nor do they change the bottom elevation of the jurisdictional water, and no USACE authorization is required.

Considering the proposed project will take place within property owned or controlled by the USACE, an agreement between the USACE Mobile District and the City of Woodstock will be necessary prior to commencing the activities. This agreement will likely result in the requirement of an Environment Assessment (EA) to further documentation of the project and to determine the effects that the land disturbing activities will have on local resources and the human environment.

State and Local Permitting Requirements

As proposed, the Trestle Rock Trail extension does not require authorization from the Georgia Environmental Protection Division (EPD) as all currently proposed stream buffer encroachments are limited to "stream crossings" which are exempt from requiring a variance [EPD Rule 391-3-7.05(c)] similar to roadway stream crossings. CEG recommends coordination with EPD and City of Woodstock [Local Issuing Authority (LIA)] prior to commencing any land-disturbing activities.

Conclusion

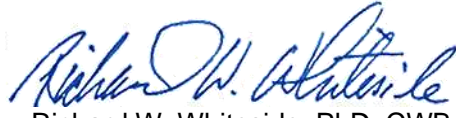
CEG appreciates the opportunity to assist you with this project. We can provide a proposal for an NWP 42 PCN, stream buffer variance, and/or EA as needed to support the project. If you have any questions regarding this report, please contact us at (770) 591-9990.

Sincerely,

CORBLU ECOLOGY GROUP, LLC

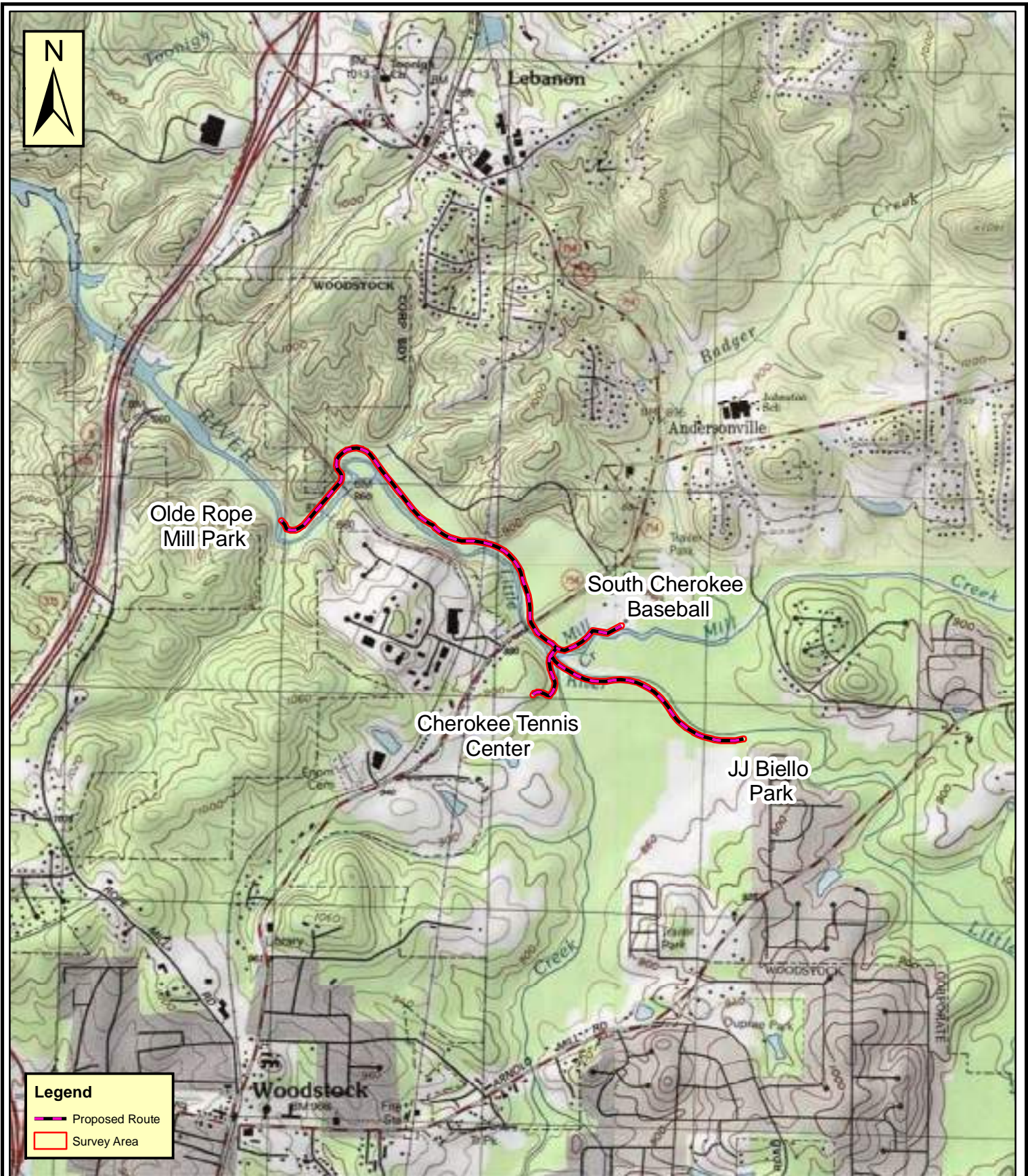


Trey C. Trickett, CAE
Staff Ecologist



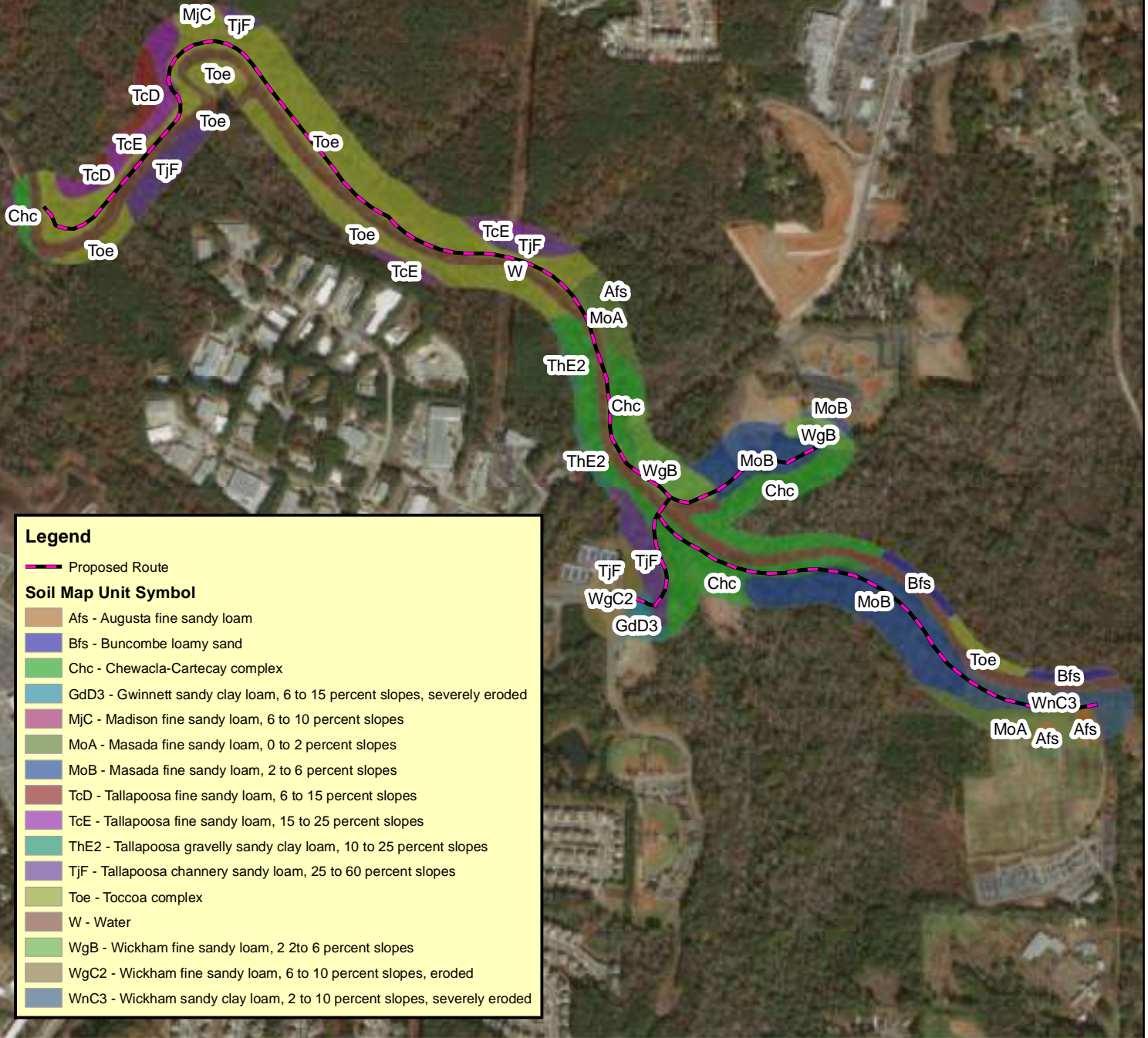
Richard W. Whiteside, PhD, CWB, CSE
President

Enclosures: Figure 1 – Site Location Map
Figure 2 – Site Soils Map
Figure 3 – Index Map
Figure 4.1-4.3 – Aquatic Features Maps
Photograph Nos. 1 - 18



Base Map Source: USA Topo Maps

1:24,000 2,700 1,350 0 2,700 Feet



Legend

— Proposed Route

Soil Map Unit Symbol

- Afs - Augusta fine sandy loam
- Bfs - Buncombe loamy sand
- Chc - Chewacla-Cartecay complex
- GdD3 - Gwinnett sandy clay loam, 6 to 15 percent slopes, severely eroded
- MjC - Madison fine sandy loam, 6 to 10 percent slopes
- MoA - Masada fine sandy loam, 0 to 2 percent slopes
- MoB - Masada fine sandy loam, 2 to 6 percent slopes
- TcD - Tallapoosa fine sandy loam, 6 to 15 percent slopes
- TcE - Tallapoosa fine sandy loam, 15 to 25 percent slopes
- ThE2 - Tallapoosa gravelly sandy clay loam, 10 to 25 percent slopes
- TjF - Tallapoosa channery sandy loam, 25 to 60 percent slopes
- Toe - Toccoa complex
- W - Water
- WgB - Wickham fine sandy loam, 2 to 6 percent slopes
- WgC2 - Wickham fine sandy loam, 6 to 10 percent slopes, eroded
- WnC3 - Wickham sandy clay loam, 2 to 10 percent slopes, severely eroded

Base Map Source: ESRI Aerial Imagery
 Soil Data Source: USDA WebSoil Survey

1:12,000



**Trestle Rock Trail Extension
 Findings Report
 Woodstock, Georgia**



**Figure 2
 Soil Map
 Project No. 02-012820**



Figure 4.3



Figure 4.2



South Cherokee
Baseball

Figure 4.1



Cherokee Tennis
Center

JJ Biello
Park

Legend

- Proposed Route
- Survey Area

Base Map Source: ESRI Aerial Imagery

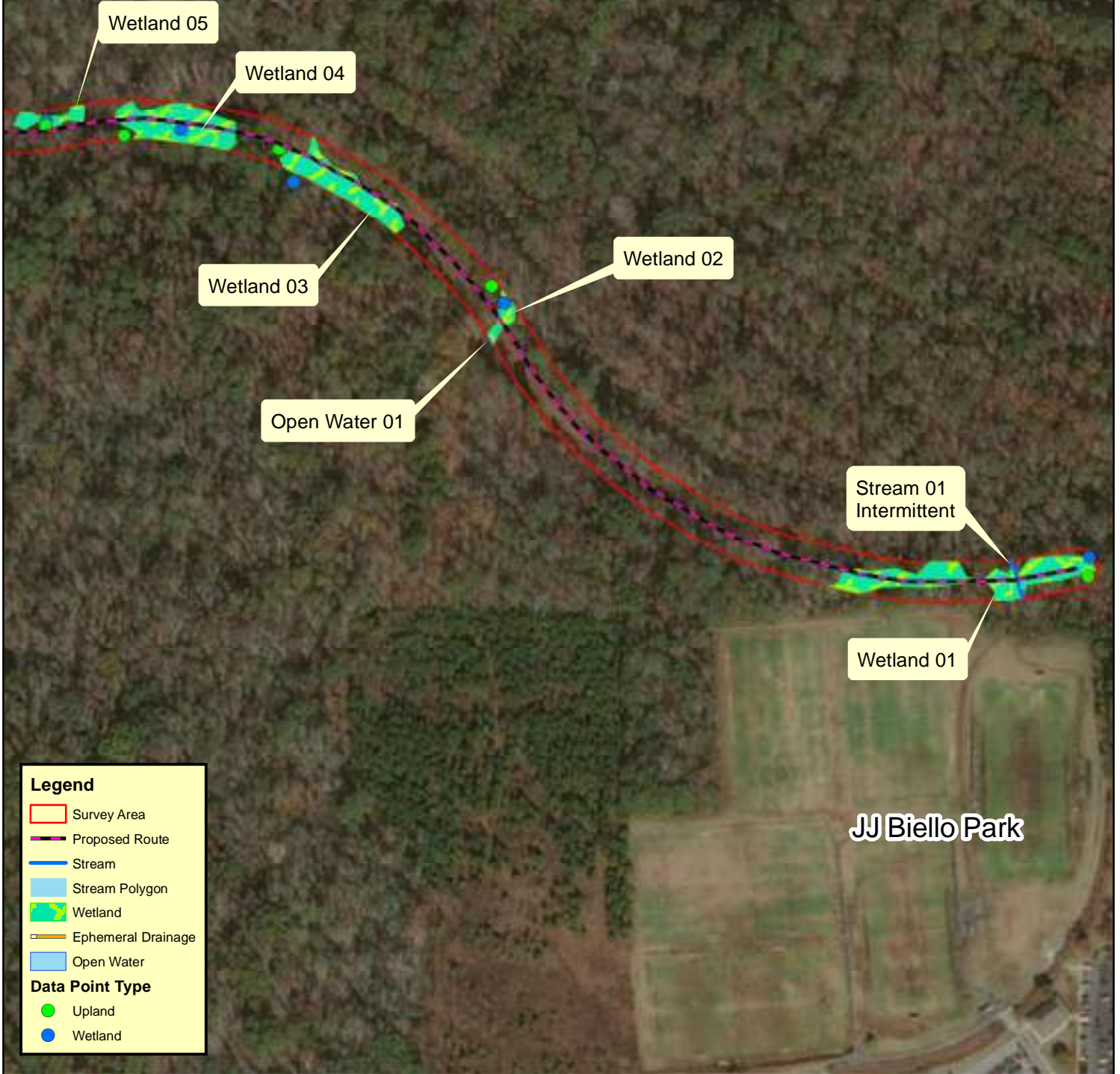
1:13,000

1,400 700 0 1,400 Feet

**Trestle Rock Trail Extention
Findings Report
Woodstock, Georgia**



**Figure 3
Index Map
Project No. 02-012820**



Base Map Source: ESRI Aerial Imagery
GPS Data Collected: 5/18/2021

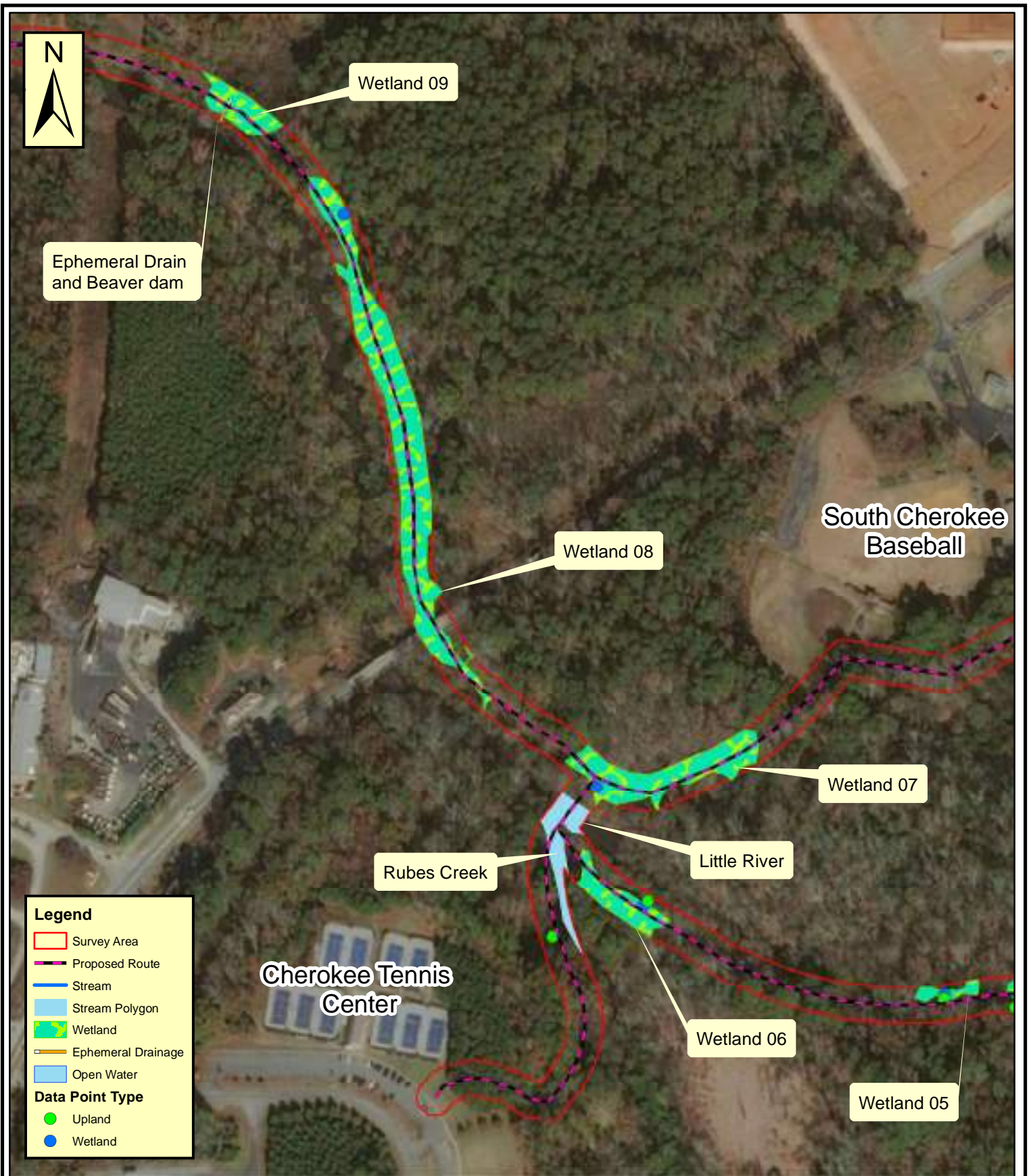
1:3,500



**Trestle Rock Trail Extention
Findings Report
Woodstock, Georgia**



**Figure 4.1
Aquatic Features Map
Project No. 02-012820**



Base Map Source: ESRI Aerial Imagery
 GPS Data Collected: 5/18/2021 and 5/19/2021

1:3,500

400 200 0 400 Feet



Stream 05 Perennial

Stream 04 Perennial

Wetland 11

Stream 03 Perennial

Wetland 10

Stream 02 Intermittent

Wetland 12

Legend

- Survey Area
- Proposed Route
- Stream
- Wetland

Data Point Type

- Upland
- Wetland

Base Map Source: ESRI Aerial Imagery
GPS Data Collected: 5/18/2021 and 5/19/2021

1:3,500

400 200 0 400 Feet

Trestle Rock Trail Extention
Findings Report
Woodstock, Georgia



Figure 4.3
Aquatic Features Map
Project No. 02-012820



Photograph 1: A representative photograph of Stream 01 facing north.



Photograph 2: A representative photograph of Stream 02 crossing the sewer easement facing southeast.



Photograph 3: A representative photograph of Stream 03 facing north outside of the survey area.



Photograph 4: A representative photograph of Stream 04 and the exposed sewer line facing south.



Photograph 5: A representative photograph of Stream 05 facing south.



Photograph 6: A representative photograph of the oxbow lake (Open Water 01) facing south outside of the survey area.



Photograph 7: A representative photograph of Wetland 01 facing east.



Photograph 8: A representative photograph of wetland 02 facing north outside of the survey area.



Photograph 9: A representative photograph of Wetland 03 facing southeast.



Photograph 10: A representative photograph of Wetland 04 facing west.



Photograph 11: A representative photograph of Wetland 05 facing west.



Photograph 12: A representative photograph of Wetland 06 facing southeast.



Photograph 13: A representative photograph of Wetland 07 facing west.



Photograph 14: A representative photograph of Wetland 08 facing northwest.



Photograph 15: A representative photograph of wetland 09 and a beaver impoundment facing northeast outside of the survey area.




Photograph 16: A representative photograph of wetland 10 facing northwest.



Photograph 17: A representative photograph of Wetland 11 facing southeast.



Photograph 18: A representative photograph of Wetland 12 facing southwest.



APPENDIXES 3: COST ESTIMATES

TRESTLE ROCK TRAIL EXTENSION COST COMPARISON CHART

Trail Route Name	Phase 1 Costs	Phase 2 costs	Complete Total
1 INITIAL ROUTE			
<i>Predesign - Design Permits</i>	\$ 458,200.0	\$ 361,700.0	\$ 819,900.0
Section 1 - Rope Mill	\$ 458,018.8		
Section 2a - Initial Route	\$ 677,637.5	\$ 3,086,000.0	
Section 3a - Confluence	\$ 932,576.3	\$ 773,000.0	
Section 4 - JJ Biella	\$ 533,900.0	\$ 304,687.5	
TOTALS	\$ 3,060,332.5	\$ 4,525,387.5	\$ 7,585,720.0
2 RECOMMENDED ROUTE			
<i>Predesign - Design Permits</i>	\$ 560,900.0	\$ 205,200.0	\$ 766,100.0
Section 1 - Rope Mill	\$ 458,018.8		
Section 2 - Alternate Route	\$ 580,638.8	\$ 469,750.0	
Section 3 - Trailhead	\$ 932,576.3		
Section 4 - JJ Biello	\$ 533,900.0	\$ 304,687.5	
TOTALS	\$ 3,066,033.8	\$ 979,637.5	\$ 4,045,671.3
3 CORPS ROUTE			
<i>Predesign - Design Permits</i>	\$ 553,400.0	\$ 240,200.0	\$ 793,600.0
Section 1 - Rope Mill	\$ 458,018.8		
Section 2 - Alternate Route	\$ 580,638.8	\$ 469,750.0	
Section 3 - Trailhead	\$ 932,576.3		
Section 4a - Corps Route	\$ 1,442,362.5		
TOTALS	\$ 3,966,996.3	\$ 709,950.0	\$ 4,676,946.3

Pre-design - Design - Permit - Estimate per Trail Route

2/9/2022

1 INITIAL ROUTE Sections - 1 2a 3a 4a		qty	Phase 1	Phase 1 Total	Qty	Phase 2	
PRE- DESIGN & DESIGN PHASE:							
A	Environmental Assessment	1	job	\$ 50,000.00	\$ 50,000.00		first project only
B	USACOE Master Plan Revision	1	Job	\$ 100,000.00	\$ -	\$ 100,000.00	not needed
C	USACE - NWP 42	1	Job	\$ 9,300.00	\$ 9,300.00		no wetlands damaged
D	EPD Stream Buffer Variance	1	Job	\$ 10,800.00	\$ 10,800.00		150' Setback
E	Field topographic / tree survey	2.25	miles	\$ 36,000.00	\$ 81,000.00		cleared easement
F	Wetland Delineation	1	Job	\$ 4,500.00	\$ -		completed
G	Geotechnical investigation / soils report	6	borings	\$ 2,500.00	\$ 15,000.00	20	\$ 50,000.00
H	Design & Construction drawings	8	%	\$ -	\$ 200,000.00		\$ 150,000.00
I	Encroachment permit	4	ea	\$ 1,200.00	\$ 4,800.00		CCWSA GP GDOT RR
J	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	2	\$ 7,000.00
K	No Rise Study	3	ea	\$ 4,000.00	\$ 12,000.00	1	\$ 4,000.00
L	Building Permit	3	ea	\$ 3,500.00	\$ 10,500.00	1	\$ 3,500.00
M	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00		State Waters
N	Biding Project	1	NTE	\$ 4,000.00	\$ 4,800.00		\$ 2,200.00
O	Construction Administration	2	%	\$ 50,000.00	\$ 50,000.00		\$ 45,000.00
TOTAL Initial rout Design Phase					\$ 458,200.00		\$ 361,700.00

2 RECOMMENDED ROUTE Sections - 1 2 3 4		qty	Phase 1	Phase 1 Total	Qty	Phase 2	
PRE- DESIGN & DESIGN PHASE:							
A	Environmental Assessment	1	job	\$ 50,000.00	\$ 50,000.00		first project only
B	USACOE Master Plan Revision	1	Job	\$ 100,000.00	\$ 100,000.00	1	\$ 100,000.00
C	USACE - NWP 42	1	Job	\$ 9,300.00	\$ 9,300.00		no wetlands damaged
D	EPD Stream Buffer Variance	1	Job	\$ 10,800.00	\$ 10,800.00		150' Setback
E	Field topographic / tree survey	2.25	miles	\$ 36,000.00	\$ 81,000.00		cleared easement
F	Wetland Delineation	1	Job	\$ 4,500.00	\$ 4,500.00		Section 3
G	Geotechnical investigation / soils report	6	borings	\$ 2,500.00	\$ 15,000.00	8	\$ 20,000.00
H	Design & Construction drawings	8	%	\$ -	\$ 200,000.00		\$ 62,000.00
I	Encroachment permit	4	ea	\$ 1,200.00	\$ 4,800.00		CCWSA GP, GDOT, RR
J	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	2	\$ 7,000.00
K	No Rise Study	4	ea	\$ 4,000.00	\$ 16,000.00		Bridges & Boardwalk
L	Building Permit	4	ea	\$ 3,500.00	\$ 14,000.00		Bridges & Boardwalk
M	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00		State Waters
N	Biding Project	1	NTE	\$ 4,000.00	\$ 4,800.00		\$ 2,200.00
O	Construction Administration	2	%	\$ 50,000.00	\$ 50,000.00		\$ 14,000.00
TOTAL 2 Design Phase					\$ 560,900.00		\$ 205,200.00

3 CORPS ROUTE Sections 1, 2, 3, 4a		qty	Phase 1	Phase 1 Total	Qty	Phase 2	
PRE- DESIGN & DESIGN PHASE:							
A	Environmental Assessment	1	job	\$ 50,000.00	\$ 50,000.00		first project only
B	USACE Master Plan Revision	1	Job	\$ 100,000.00	\$ 100,000.00	1	\$ 100,000.00
C	USACE - NWP 42	1	Job	\$ 9,300.00	\$ 9,300.00		no wetlands damaged
D	EPD Stream Buffer Variance	1	Job	\$ 10,800.00	\$ 10,800.00		150' Setback
E	Field topographic / tree survey	3.00	miles	\$ 36,000.00	\$ 108,000.00		cleared easement
F	Wetland Delineation	1	Job	\$ 4,500.00	\$ 4,500.00		Section 3
G	Geotechnical investigation / soils report	8	borings	\$ 2,500.00	\$ 20,000.00		Bridge #1 #2 Boardwalk
H	Design & Construction drawings	8	%	\$ -	\$ 250,000.00		\$ 35,000.00
I	Encroachment permit	4	ea	\$ 1,200.00	\$ 4,800.00		CCWSA, RR, GP, DOT
J	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	2	\$ 7,000.00
K	No Rise Study	3	ea	\$ 4,000.00	\$ 12,000.00		Bridge #1 #2 Boardwalk
L	Building Permit	3	ea	\$ 3,500.00	\$ 10,500.00		Bridge #1 #2 Boardwalk
M	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00		State Waters
N	Biding Project	1	NTE	\$ 4,000.00	\$ 4,800.00		\$ 2,200.00
O	Construction Administration	2	%	\$ 68,000.00	\$ 68,000.00		\$ 96,000.00
TOTAL 3 Design Phase					\$ 553,400.00		\$ 240,200.00

TRESTLE TRAIL EXTENSION DEV. COST SUMMARY				1 Route		2 Route		3 Route		4 Route		
#	Trail Section	Phase 1	Total Costs	Phase 2 Pavement	INITIAL	Phase 2 paved	ALTERNATE	Phase 2 paved	RECOMMENDED	Phase 2 paved	USACE Approved	Phase 2 paved
1	Olde Rope Mill Park	Design	\$ 148,200.00		\$ 148,200.00		\$ 148,200.00		\$ 148,200.00		\$ 148,200.00	
		Construction	\$ 458,018.75	included	\$ 458,018.75	included	\$ 458,018.75	included	\$ 458,018.75	included	\$ 458,018.75	Included
1a	S Side River	Design	\$ 93,302.00									
		Construction	\$ 295,775.00	\$ 133,500.00								
2	Alternate Route	Design	\$ 133,900.00				\$ 133,900.00		\$ 133,900.00		\$ 133,900.00	
		Construction	\$ 580,638.75	\$ 469,750.00			\$ 580,638.75	\$ 469,750.00	\$ 580,638.75	\$ 469,750.00	\$ 580,638.75	\$ 469,750.00
2a	WMA	Design	\$ 180,700.00		\$ 180,700.00							
		Construction	\$ 677,637.50	\$ 3,086,000.00	\$ 677,637.50	\$ 3,086,000.00						
3	Trail Head & Access	Design	\$ 145,700.00				\$ 145,700.00		\$ 145,700.00		\$ 145,700.00	
		Construction	\$ 932,576.25	included			\$ 932,576.25	included	\$ 932,576.25	included	\$ 932,576.25	included
3a	S. Baseball	Design	\$ 78,900.00		\$ 78,900.00							
		Construction	\$ 295,218.75	\$ 773,000.00	\$ 295,218.75	\$ 773,000.00						
4	Three Rivers	Design	\$ 124,050.00		\$ 124,050.00		\$ 124,050.00		\$ 124,050.00			
		Construction	\$ 533,900.00	\$ 304,687.50	\$ 533,900.00	\$ 304,687.50	\$ 533,900.00	\$ 304,687.50	\$ 533,900.00	\$ 304,687.50		
4a	USACE MP Trail	Design	\$ 227,500.00								\$ 227,500.00	
		Construction	\$ 1,442,362.50	included							\$ 1,442,362.50	Included
OPTION TOTALS					\$ 2,496,625.00	\$ 4,163,687.50	\$ 3,056,983.75	\$ 774,437.50	\$ 3,056,983.75	\$ 774,437.50	\$ 4,068,896.25	\$ 469,750.00

Total w paved trails in the USACE areas
2/3/2022

\$ 6,660,312.50

\$ 3,831,421.25

\$ 3,831,421.25

\$ 4,538,646.25

1 Trestle Rock Trail Extension						2/11/22
SECTION #1 - Rope Mill Park						
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details
PRE- DESIGN & DESIGN PHASE:						
A	Environmental Assessment	1	job	\$ 50,000.00	\$ 50,000.00	first project only
B	USACOE Master Plan Revision	1	Job	\$ 100,000.00		not needed
C	USACE - NWP 42	1	Job	\$ 9,300.00		no wetlands damaged
D	EPD Stream Buffer Variance	1	Job	\$ 10,800.00	\$ 10,800.00	150' Setback
E	Field topographic / tree survey	0.25	miles	\$ 36,000.00	\$ 9,000.00	cleared easement
F	Wetland Delineation		Job	\$ 4,500.00	\$ -	completed
G	Geotechnical investigation / soils report	4	borings	\$ 2,500.00	\$ 10,000.00	Bridge #1
H	Design & Construction drawings	8	%	\$ -	\$ 35,000.00	% of Design
I	Utility CCWSA Encroachment permit	2	ea	\$ 1,200.00	\$ 2,400.00	CCWSA
J	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County
K	No Rise Study	1	ea	\$ 4,000.00	\$ 4,000.00	Bridge #1
L	Building Permit	1	ea	\$ 3,500.00	\$ 3,500.00	Bridge #1
M	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters
N	Biding Project	1	NTE	\$ 4,000.00	\$ 4,000.00	% of construction
O	Construction Administration	2	%		\$ 9,500.00	For Total Phase
TOTAL #1 Design Phase					\$ 148,200.00	Per Section
CONSTRUCTION PHASE:						
SECTION # 1 1300 lf Trail						
1	Pre- Construction - Mobilization	2	%		\$ 9,500.00	General Conditions
	a. Construction Staking and Layout	1	job	\$ 5,000.00	\$ 5,000.00	General Conditions
	b. Trail Construction access & protection	1	job	\$ 8,000.00	\$ 8,000.00	Rope Mill Park
	c. Staging area	1	job	\$ 5,000.00	\$ 6,000.00	Access area in park
2	Demolition					
	a. General site debris removal	1	job	\$ 1,200.00	\$ 1,200.00	for access route
3	Site Clearing & Tree Protection	NIE				CCWSA cleared ROW
4	Erosion control & Seeding Grass	5,000	sf	\$ 0.50	\$ 2,500.00	disturbed area
	a. Construction entrance	1	ea	\$ 1,800.00	\$ 1,800.00	
	b. Construction entrance - maintenance	1	ea	\$ 500.00	\$ 500.00	
	c. Silt Fence	1,300	lf	\$ 3.30	\$ 4,290.00	double
	d. Silt Fence - maintenance	1,300	lf	\$ 1.25	\$ 1,625.00	
	e. Silt Sock	-	lf	\$ 6.50	\$ -	12" forest areas
	f. Silt Sock - maintenance	-	lf	\$ 1.00	\$ -	
5	Grading & Drainage					
	a. Trail Area & Gravel Base 1300 LF x 12' =	15,600	sf	\$ 1.90	\$ 29,640.00	sub base grading
	b. 18" RCP	20	Lf	\$ 44.00	\$ 880.00	DOT standard
	c. Catch Basin	1	ea	\$ 2,500.00	\$ 2,500.00	DOT standard
	d. Headwall	1	ea	\$ 900.00	\$ 900.00	DOT standard
	e. Rip Rap	3	cy	\$ 90.00	\$ 270.00	DOT standard
	f. Equalizer pipe 8" pvc @ 60' oc	20	ea	\$ 100.00	\$ 2,000.00	60' oc under trail
6	Hillside Trail Ledge	NIE				not on this trail
7	Concrete Trail; 1300 lf					SEE BELOW *
	a. Concrete Trail 1300 LF x 10' @ (6")	13,000	sf	\$ 7.00	\$ 91,000.00	over gravel base
	b. Pervious concrete Trail 120 LF x 6' (6")	-	sf	\$ 8.50	\$ -	under trees
8	Trail Bridge #1 -Aluminum bridge 10' wide.	100	lf	\$ 1,200.00	\$ 120,000.00	Across Little River - Prefab
	a. Delivery to Site	1	Job	\$ 3,500.00	\$ 3,500.00	Rope Mill Park
	b. Placement and Erection of bridge	1	Job	\$ 12,000.00	\$ 12,000.00	on site
	c. Concrete Abutment	2	ea	\$ 14,000.00	\$ 28,000.00	on each end of bridge
	d. Concrete Wing wall 4 ea 20'	80	lf	\$ 100.00	\$ 8,000.00	each side of abutment
	e. Helical piers - 4 vertical @ 40 lf each	160	lf	\$ 25.00	\$ 4,000.00	2 per abutment
	f. Helical piers - 2 diagonal @ 40 lf ea	80	lf	\$ 25.00	\$ 2,000.00	Se1 per abutment
	g. Bridge Deck, concrete 10' wide	1,000	sf	\$ 8.00	\$ 8,000.00	cast in place concrete
	h. Foundation Design	1	Job	\$ 1,500.00	\$ 1,500.00	See soils report

	i. Shop Drawings		Job	\$ 2,500.00	\$ -	by Bridge maker
9	Boardwalk - Perimetric	NIE				None needed
10	Site Furniture at rest stop					River overlook
	a. Benches	1	ea	\$ 1,200.00	\$ 1,200.00	city standard
	b. Trash Receptacle	1	ea	\$ 900.00	\$ 900.00	city standard
	c. Picnic Table	1	ea	\$ 1,800.00	\$ 1,800.00	city standard
11	Site Signage;					
	a. Signs on each end of bridge #1	2	ea	\$ 175.00	\$ 350.00	City standard
	b. 3 Bollards on each end of bridge #1	6	ea	\$ 350.00	\$ 2,100.00	Removable
					\$ -	
12	Final Clean Up and Grading	15,000	sf	\$ 0.10	\$ 1,500.00	total site
13	Unit Price items under trail - Allowance					
	a. rock excavation	20	cy	\$ 44.00	\$ 880.00	as needed
	b. Unsatisfactory soil removal				\$ -	Included in unit price
	c. replace w GAB or #57 Stone	20	cy	\$ 72.00	\$ 1,440.00	in poor soils
	d. replace w surge stone	20	cy	\$ 82.00	\$ 1,640.00	in wet soils
	Sub - Total				\$ 366,415.00	
	General Conditions, fee, overhead,	10	%	\$ 0.25	\$ 91,603.75	15% contingency included
	Total Section #1 Construction Costs				\$ 458,018.75	
	Pre Construction & Design				\$ 148,200.00	Per Section
	SECTION #1 Development Costs				\$ 606,218.75	w paved trails

* Paved trails permitted in Ole Rope Mill Park

1a Trestle Rock Trail Extension						2/11/22
SECTION #1a - Southside						
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details
PRE-DESIGN & DESIGN PHASE:						
A	Environmental Assessment		job	\$ 50,000.00	\$ -	In Section 1
B	USACE Master Plan Revision		Job	\$ 100,000.00	\$ -	In section 2
C	USACE NWP 42		Job	\$ 93,000.00		no wetlands
D	EPD Stream Buffer Variance	1	ea.	\$ 10,800.00	\$ 10,800.00	150' setback
E	Design & Construction drawings	8	%		\$ 32,000.00	% of Design
F	Field topographic / tree survey	0.25	miles	\$ 38,000.00	\$ 9,500.00	cleared & forested
G	Wetland Delineation	1	Job	\$ 2,800.00	\$ 2,800.00	New area
H	Geotechnical investigation / soils report	4	borings	\$ 1,200.00	\$ 4,800.00	rock ledge
I	Permitting LDP	2	ea.	\$ 3,500.00	\$ 7,000.00	City and County
J	Utility Encroachment permit	1	ea.	\$ 1,200.00	\$ 1,200.00	CCWSA
K	No Rise Study	1	ea.	\$ 4,500.00	\$ 4,500.00	Bethany Bridge
L	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters
M	Building Permits	2	ea.	\$ 4,500.00	\$ 4,502.00	Ledge wall & bridge
N	Biding Project	1	NTE	\$ 4,200.00	\$ 4,200.00	% of construction
O	Construction Administration		%		\$ 9,000.00	Total Phase
TOTAL 1a Design Phase					\$ 93,302.00	Per Section
CONSTRUCTION PHASE: 1a						
SECTION # 1a 1500 LF Trail						
1	Pre- Construction - Mobilization	2	%	\$ 2,500.00	\$ 5,000.00	General Conditions
	a. Construction Staking and Layout	1	job	\$ 5,000.00	\$ 5,000.00	General Conditions
	b. Trail Construction access & protection	1	job	\$ 8,000.00	\$ 8,000.00	difficult
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	at Access area
2	Demolition					
	a. General site debris removal	1	job	\$ 1,200.00	\$ 1,200.00	along access route
3	Site Clearing & Tree Protection					
	a. Tree Protection fence & maintenance	1,300	lf	\$ 2.20	\$ 2,860.00	in forested areas
	b. Tree Removal	50	ea	\$ 200.00	\$ 10,000.00	as noted
	c. Site Clearing limits	1,800	sf	\$ 0.15	\$ 270.00	for ledge trail
	d. Specimen Tree Care - arborist work	10	trs	\$ 250.00	\$ 2,500.00	Prescription
4	Erosion control & Seeding Grass	6,000	sf	\$ 0.50	\$ 3,000.00	disturbed area
	a. Construction entrance	1	ea	\$ 1,800.00	\$ 1,800.00	on access route
	b. Construction entrance - maintenance	1	ea	\$ 500.00	\$ 500.00	
	c. Silt Fence	1,000	lf	\$ 3.30	\$ 3,300.00	double
	d. Silt Fence - maintenance	1,000	lf	\$ 1.25	\$ 1,250.00	
	e. Silt Sock	500	lf	\$ 6.50	\$ 3,250.00	12" in wooded area
	f. Silt Sock - maintenance	500	lf	\$ 1.00	\$ 500.00	
5	Grading & Drainage					
	a. Trail Area & Gravel Base 1500 lf x 12' (4")	18,000	sf	\$ 1.90	\$ 34,200.00	sub base grading
	b. 18" RCP	20	Lf	\$ 44.00	\$ 880.00	DOT standard
	c. Catch Basin	2	ea	\$ 2,500.00	\$ 5,000.00	DOT standard
	d. headwall	2	ea	\$ 900.00	\$ 1,800.00	DOT standard
	e. Rip Rap	6	cy	\$ 90.00	\$ 540.00	DOT standard
	f. Equalizer pipe 6" pvc 60' oc	6	cy	\$ 100.00	\$ 600.00	60' oc under trail
6	Hillside Trail Ledge 120'					
	a. Rock excavation for ledge 120' x 4' x 8	100	cy	\$ 55.00	\$ 5,500.00	out of hillside
	b. Rock retaining wall - lower	120	lf	\$ 120.00	\$ 14,400.00	Use site stones
	c. 42" Guard rails	120	lf	\$ 50.00	\$ 6,000.00	IBC standard
	d. Fill behind retaining wall	20	cy	\$ 50.00	\$ 1,000.00	as needed
7	Concrete Trail; 1500 lf					See Phase 2 below *

	a. Concrete Trail	1380 LF x 10' @ (6")		sf	\$	7.00	\$	-	
8	Trail Bridge Bethany Ck. -Aluminum bridge		50	lf	\$	1,200.00	\$	60,000.00	10' wide - Prefab
	a. Delivery to Site		1	Job	\$	3,500.00	\$	3,500.00	staging area
	b. Placement and Erection of bridge		1	Job	\$	6,000.00	\$	6,000.00	on site
	c. Concrete Abutment		2	ea	\$	9,000.00	\$	18,000.00	each end of bridge
	d. Concrete Wing wall 4 ea 10'		40	lf	\$	100.00	\$	4,000.00	See Detail
	e. Helical piers - 4 vertical @ 30 lf each		120	lf	\$	25.00	\$	3,000.00	2 per abutment
	f. Helical piers - 2 diagonal @ 20 lf ea		40	lf	\$	25.00	\$	1,000.00	1 per abutment
	g. Bridge Deck, concrete 10' wide		500	sf	\$	8.00	\$	4,000.00	concrete
	h. Foundation Design		1	Job	\$	1,500.00	\$	1,500.00	See soils report
	i. Shop Drawings			Job	\$	2,500.00	\$	-	Bridge maker
9	Boardwalk - Perimetric		NIE						Perm eTrac
10	Site Furniture at rest stop								River overlook
	a. Benches		1	ea	\$	1,200.00	\$	1,200.00	city standard
	b. Trash Receptacle		1	ea	\$	900.00	\$	900.00	city standard
	c. Picnic Table		1	ea	\$	1,800.00	\$	1,800.00	city standard
11	Site Signage;								
	a. Signs on each end of bridge		2	ea	\$	175.00	\$	350.00	City standard
	b. 3 Bollards on each end of bridge		6	ea	\$	350.00	\$	2,100.00	Removable
							\$	-	
12	Final Clean Up and Grading		24,000	sf	\$	0.10	\$	2,400.00	entire site
13	Unit Price items under trail - allowance								
	a. rock excavation		10	cy	\$	44.00	\$	440.00	as needed
	b. Unsatisfactory soil removal						\$	-	Included in unit price
	c. replace w GAB or #57 Stone		20	cy	\$	72.00	\$	1,440.00	in soft soil area
	d. replace w surge stone		20	cy	\$	82.00	\$	1,640.00	in wet areas
	Phase 1 Sub - Total						\$	236,620.00	
	General Conditions, fee, overhead,		10	%	\$	0.25	\$	59,155.00	15% contingency included
	Total Section #1a Construction Costs						\$	295,775.00	
	Pre- design and Design Total						\$	93,302.00	Per Section Phase I
	SECTION #1a Development Costs						\$	389,077.00	Phase 1 soft trails

PHASE 2 - PAVEMENT OPTION

7	Concrete Trail; 1500 lf								Pave over gravel base
	a. Concrete Trail 1380 LF x 10' @ (6")	13,800	sf	\$	7.00	\$	96,600.00		Rope Mill Park area
	b. Pervious concrete Trail 120 LF x 10' (6")	1,200	sf	\$	8.50	\$	10,200.00		In tree areas
	Phase 2 Subtotal					\$	106,800.00		
	Overhead profit, fee	10	%	\$	0.25	\$	26,700.00		15% contingency
	Total Section 1a pavement option					\$	133,500.00		Phase 2 pavement
	Total Section 1a development w paved trails					\$	522,577.00		w paved trails

* No paved trails in USACE Master Plan for Section 2

2 Trestle Rock Trail Extension							2/11/22
SECTION # 2 - Alternate Route							
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details	
PRE-DESIGN & DESIGN PHASE:							
A	Environmental Assessment (EA)		job	\$ 50,000.00	\$ -	In Section 1	
B	USACE Master Plan Revision		Job	\$ 100,000.00	\$ -	See Option below	
C	USACE NWP 42	1	Job	\$ 9,300.00	\$ 9,300.00	no wetlands	
D	EPD Stream Buffer Variance	1	ea	\$ 10,800.00	\$ 10,800.00	150' Little River buffer	
E	Field topographic / tree survey	0.75	miles	\$ 42,000.00	\$ 31,500.00	Forested site	
F	Design & Construction drawings	8	%		\$ 42,000.00	% of Design	
G	Wetland Delineation	1	Job	\$ 5,200.00	\$ 5,200.00	new area	
H	Geotechnical investigation / soils report	4	borings	\$ 2,000.00	\$ 8,000.00	for bridge #2	
I	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County	
J	Utility and RR Encroachment permits	3	ea	\$ 1,200.00	\$ 3,600.00	CCWSA, RR, & Ga. Power	
K	No Rise Study	1	ea	\$ 4,000.00	\$ 4,000.00	Bridge #2	
L	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters	
M	Building Permit	1	ea	\$ 3,500.00	\$ 3,500.00	Bridge #2	
N	Biding Project	1	NTE	\$ 4,200.00	\$ 4,400.00	% of construction	
O	Construction Administration		%		\$ 10,500.00	Total Phases	
TOTAL Design Phase #2					\$ 142,800.00	Per Section	
CONSTRUCTION PHASE:							
SECTION #2 - 4200 lf Trail							
1	Pre- Construction - Mobilization	2	%		\$ 9,500.00	General Conditions	
	a. Construction Staking and Layout	1	job	\$ 5,000.00	\$ 7,500.00	General Conditions	
	b. Trail Construction access & protection	1	job	\$ 8,000.00	\$ 8,000.00	via power easement	
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	Access area	
2	Demolition						
	a. General site debris removal	1	job	\$ 500.00	\$ 500.00	See Specifications	
3	Site Clearing & Tree Protection						
	a. Tree Protection fence & maintenance	7,000	lf	\$ 2.20	\$ 15,400.00	in wooded area	
	b. Tree Removal 3500' x 12'	120	ea	\$ 150.00	\$ 18,000.00	Woodland area	
	c. Site Clearing limits	42,000	sf	\$ 0.15	\$ 6,300.00	in wooded area	
	d. Specimen Tree Care - arborist work	25	trs	\$ 250.00	\$ 6,250.00	Prescription	
4	Erosion control & Seeding Grass	16,800	sf	\$ 0.50	\$ 8,400.00	disturbed area	
	a. Construction entrance	1	ea	\$ 1,800.00	\$ 1,800.00	in power easement	
	b. Construction entrance - maintenance	1	ea	\$ 500.00	\$ 500.00		
	c. Silt Fence	900	lf	\$ 3.30	\$ 2,970.00	double in clear areas	
	d. Silt Fence - maintenance	900	lf	\$ 1.25	\$ 1,125.00		
	e. Silt Sock	3,100	lf	\$ 6.50	\$ 20,150.00	12" in forest area	
	f. Silt Sock - maintenance	3,100	lf	\$ 1.00	\$ 3,100.00		
					\$ -		
5	Grading & Drainage						
	a. Trail Area & Gravel Base 4200 lf x 12' (4") =	42,000	sf	\$ 1.90	\$ 79,800.00	sub base grading	
	b. 18" RCP	20	Lf	\$ 44.00	\$ 880.00	DOT standard	
	c. Catch Basin	1	ea	\$ 2,500.00	\$ 2,500.00	DOT standard	
	d. headwall	1	ea	\$ 900.00	\$ 900.00	DOT standard	
	e. Rip Rap	3	cy	\$ 100.00	\$ 300.00	DOT standard	
	f. Equalizer PVC 8" pipe 12' @ 60' oc	70	ea	\$ 100.00	\$ 7,000.00	60' oc under trail	
6	Hillside Trail Ledge						
	a. Rock excavation for ledge 150 lf x 4' x 8'	170	cy	\$ 55.00	\$ 9,350.00	on hillside slope	
	b. Rock retaining wall - lower	150	lf	\$ 120.00	\$ 18,000.00	use site stones	
	c. 42" Guard rails	150	lf	\$ 50.00	\$ 7,500.00	IBC standard	
	d. Fill behind retaining wall	30	cy	\$ 50.00	\$ 1,500.00	as needed	
7	Concrete Trail;					See Below	
	a. Concrete Trail 4200' LF x 10' @ (6")		sf	\$ 6.50	\$ -	Phase 2 over gravel base	
	b. Pervious concrete Trail 120 LF x 6' (6")		sf	\$ 8.50	\$ -	Phase 2 in buffer area	
	c. Gravel over root zone 600' x 10'		sf	\$ 1.05	\$ -	trees to save	

8	Trail Bridge #2-Aluminum bridge 10' wide.	100	lf	\$	1,200.00	\$	120,000.00	Little River - Prefab
	a. Delivery to Site	1	Job	\$	3,500.00	\$	3,500.00	via power easement
	b. Placement and Erection of bridge	1	Job	\$	12,000.00	\$	12,000.00	See Specifications
	c. Concrete Abutment	2	ea	\$	14,000.00	\$	28,000.00	on each end of bridge
	d. Concrete Wing wall 4 ea 25'	100	lf	\$	100.00	\$	10,000.00	See Detail
	e. Helical piers - 4 vertical @ 40 lf each	160	lf	\$	25.00	\$	4,000.00	2 per abutment
	f. Helical piers - 2 diagonal @ 40 lf ea	80	lf	\$	25.00	\$	2,000.00	1 per abutment
	g. Bridge Deck, concrete 10' wide	1,000	sf	\$	8.00	\$	8,000.00	Concrete
	h. Foundation Design	1	Job	\$	1,500.00	\$	1,500.00	See soils report
	i. Shop Drawings	1	Job	\$	2,500.00	\$	2,500.00	Bridge maker
9	Pedestrian bridge - wood 10' x 14'.							Small swale crossings
	a. Delivery to storage area	1	Job	\$	500.00	\$	500.00	via power easement
	b. Placement & Erection of bridge		Job			\$	-	stick built.
	c. Wooden Abutment	2	ea	\$	2,000.00	\$	4,000.00	on each end
	d. Wooden Wing wall 4 ea at 10'	40	lf	\$	80.00	\$	3,200.00	2 per abutment
	e. Helical piers - 4 vertical @ 15 lf ea		lf	\$	22.00	\$	-	2 per abutment
	f. Helical piers - 2 diagonal @ 12 lf ea		lf	\$	22.00	\$	-	1 per abutment
	g. Bridge deck, wood 10' wide 14' long	140	sf	\$	50.00	\$	7,000.00	cast in place concrete
	h. 42" Guard Railing		lf	\$	60.00	\$	-	see grading
	I. Bumper railing 6"	28	lf	\$	12.00	\$	336.00	see grading
10	Site Furniture at Rest Stop							river overlook
	a. Benches	1	ea	\$	1,200.00	\$	1,200.00	city standard
	b. Trash Receptacle	1	ea	\$	900.00	\$	900.00	city standard
	c. Picnic Table	1	ea	\$	1,800.00	\$	1,800.00	city standard
11	Site Signage;							
	a. Signs on each end of bridge	2	ea	\$	175.00	\$	350.00	City standard
	b. 3 Bollards on each end of bridge	6	ea	\$	350.00	\$	2,100.00	Removable
						\$	-	
12	Final Clean Up and Grading	58,800	sf	\$	0.10	\$	5,880.00	entire site
13	Unit Price items under trail - allowance							
	a. rock excavation	10	cy	\$	44.00	\$	440.00	as needed
	b. Unsatisfactory soil removal					\$	-	Included in unit price
	c. replace w GAB or #57 Stone	20	cy	\$	72.00	\$	1,440.00	in soft soil areas
	d. replace w surge stone	20	cy	\$	82.00	\$	1,640.00	in wet areas
	Phase 1 - Construction Sub - Total					\$	464,511.00	
	General Conditions, fee, overhead,	10	%	\$	0.25	\$	116,127.75	15% contingency included
	Section #2 Construction Costs					\$	580,638.75	Phase 1
	Pre-design and Design					\$	133,900.00	Less ACOE MP revision
	SECTION # 2 Development Costs					\$	714,538.75	Phase 1 soft surface

PHASE 2 PAVEMENT OPTION

7	Concrete Trail; 4200 lf							Over the gravel base
	a. Concrete Trail 4080 LF x 10' @ (6")	40,800	sf	\$	7.00	\$	285,600.00	Phase 2 over gravel base
	b. Pervious concrete Trail 120 LF x 6' (6")	1,200	sf	\$	8.50	\$	10,200.00	Phase 2 in buffer area
	Phase 2 Construction Subtotal					\$	295,800.00	
	Revising the ACOE Master Plan Fee					\$	100,000.00	See fees above
	Overhead profit, fee	10	%	\$	0.25	\$	73,950.00	15% contingency
	Section #2 Pavement option					\$	469,750.00	Pavement
	Section #2 total w Paved Trails					\$	1,184,288.75	Phase 2 paved trails

2a	Trestle Rock Trail Extension					2/11/22
SECTION #2a - Initial Route						
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details
PRE-DESIGN & DESIGN PHASE:						
A	Environmental Assessment		job	\$ 50,000.00	\$ -	In section 1
B	USACE Master Plan Revision		Job	\$ 100,000.00	\$ -	in Section 2
C	USACE NWP 42	1	Job	\$ 9,300.00	\$ 9,300.00	in wetlands
D	EPD Stream Buffer Variance	1	ea	\$ 10,800.00	\$ 10,800.00	in 150' setback
E	Field topographic / tree survey	1.20	miles	\$ 36,000.00	\$ 43,200.00	Cleared Easement
F	Design & Construction drawings	8	%	\$ -	\$ 50,000.00	% of Design
G	Wetland Delineation		Job	\$ 5,200.00	\$ -	Completed
H	Geotechnical investigation / soils report	4	borings	\$ 2,500.00	\$ 10,000.00	Bridge #3 Little River
I	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County
J	Utility, DOT and RR Encroachment permits	3	ea	\$ 1,200.00	\$ 3,600.00	CCWSA, DOT, & Ga. Power
K	No Rise study	1	ea	\$ 4,000.00	\$ 4,000.00	Bridge #3 Little River
L	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters
M	Building Permits	6	ea	\$ 3,500.00	\$ 21,000.00	stream bridges
N	Biding Project	1	NTE	\$ 4,800.00	\$ 4,800.00	% of construction
O	Construction Administration		%		\$ 14,000.00	Total Phase
TOTAL #2a Design Phase					\$ 180,700.00	Per Section
CONSTRUCTION PHASE:						
SECTION # 2a 6200 lf Trail						
1	Pre- Construction - Mobilization	2	%		\$ 9,000.00	General Conditions
	a. Construction Staking and Layout	1	job	\$ 9,000.00	\$ 9,000.00	General Conditions
	b. Trail Construction access & protection	1	job	\$ 8,000.00	\$ 8,000.00	CCWSA easement
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	S Cherokee Park
2	Demolition					
	a. General site debris removal	1	job	\$ 1,400.00	\$ 1,400.00	trail & access route
3	Site Clearing & Tree Protection					
	a. Tree Protection fence & maintenance	1,300	lf	\$ 2.20	\$ 2,860.00	along woodland
	b. Tree Removal	-	ea	\$ 500.00	\$ -	as noted
	c. Site Clearing limits	-	sf	\$ 0.15	\$ -	See Specifications
	d. Specimen Tree Care - arborist work	-	trs	\$ 250.00	\$ -	Prescription
4	Erosion control & Seeding Grass	24,000	sf	\$ 0.50	\$ 12,000.00	disturbed area
	a. Construction entrance	2	ea	\$ 1,800.00	\$ 3,600.00	on sewer easement
	b. Construction entrance - maintenance	2	ea	\$ 500.00	\$ 1,000.00	
	c. Silt Fence	5,600	lf	\$ 3.30	\$ 18,480.00	double / in CCWSA area
	d. Silt Fence - maintenance	5,600	lf	\$ 1.25	\$ 7,000.00	
	e. Silt Sock	400	lf	\$ 6.50	\$ 2,600.00	12" in wooded area
	f. Silt Sock - maintenance	400	lf	\$ 1.00	\$ 400.00	
5	Grading & Drainage					
	a. Trail Area & Gravel Base 6000 LF x 12' =	72,000	sf	\$ 1.90	\$ 136,800.00	sub base grading
	b. 18" RCP	20	Lf	\$ 44.00	\$ 880.00	DOT standard
	c. Catch Basin	3	ea	\$ 2,500.00	\$ 7,500.00	DOT standard
	d. headwall	3	ea	\$ 900.00	\$ 2,700.00	DOT standard
	e. Rip Rap	9	cy	\$ 100.00	\$ 900.00	DOT standard
6	Hillside Trail Ledge	NIE				not needed
7	Concrete Trail;	NIE				See Phase 2 below *
	a. Concrete Trail 6000 LF x 10' @ (6")		sf	\$ 7.00	\$ -	Not allowed in WMA
8	Trail Bridge #3 -Aluminum bridge 10' wide	100	lf	\$ 1,200.00	\$ 120,000.00	Little River @ Hwy #5
	a. Delivery to Site	1	Job	\$ 3,500.00	\$ 3,500.00	to staging area
	b. Placement and Erection of bridge	1	Job	\$ 12,000.00	\$ 12,000.00	on site
	c. Concrete Abutment	2	ea	\$ 14,000.00	\$ 28,000.00	one on each end
	d. Concrete Wing wall 4 ea 20'	80	lf	\$ 100.00	\$ 8,000.00	each side of abutment
	e. Helical piers - 4 vertical @ 40 lf each	160	lf	\$ 25.00	\$ 4,000.00	2 at each abutment
	f. Helical piers - 2 diagonal @ 40 lf ea	80	lf	\$ 25.00	\$ 2,000.00	1 at each abutment
	g. Bridge Deck, concrete 10' wide x 100'	1,000	sf	\$ 8.00	\$ 8,000.00	cast in place concrete
	h. Foundation Design	1	Job	\$ 1,500.00	\$ 1,500.00	See soils report

	i. Shop Drawings		Job	\$ 2,500.00	\$ -	by Bridge maker
8a	Trail Bridges - wooden 5 ea @ 20'					5 Stream crossings
	a. Delivery to storage area		Job	\$ 2,500.00	\$ -	Stick built on site
	b. Erection of 5 bridges	5	ea	\$ 2,500.00	\$ 12,500.00	stick built on site
	c. Wooden Abutments 2 x 5 bridges	10	ea	\$ 2,000.00	\$ 20,000.00	each end of bridge
	d. wood Wing wall 20 ea at 8'	160	lf	\$ 100.00	\$ 16,000.00	each side of abutment
	e. Helical piers - 4 vertical @ 30 lf each		lf	\$ 25.00	\$ -	no needed
	f. Helical piers - 2 diagonal @ 20 lf ea		lf	\$ 25.00	\$ -	no needed
	g. Bridge Deck, wood 10' wide 20' long x 5	1,000	sf	\$ 50.00	\$ 50,000.00	5 Bridges
	h. 42" Guard Railing	200	lf	\$ 60.00	\$ 12,000.00	5 Bridges
9	Boardwalk - Permatrac 2000 lf	NIE				PermeTrac * see below
10	Site Furniture at rest stop					rest stop
	a. Benches		ea	\$ 1,200.00	\$ -	city standard
	b. Trash Receptacle		ea	\$ 900.00	\$ -	city standard
	c. Picnic Table		ea	\$ 1,800.00	\$ -	city standard
11	Site Signage;					
	a. Signs on each end of bridge #3	2	ea	\$ 175.00	\$ 350.00	City standard
	b. 3 Bollards on each end of bridge #3	6	ea	\$ 350.00	\$ 2,100.00	Removable
					\$ -	
12	Final Clean Up and Grading	60,000	sf	\$ 0.10	\$ 6,000.00	See Specifications
13	Unit Price items under trail - allowance					
	a. rock excavation	20	cy	\$ 44.00	\$ 880.00	See Specifications
	b. Unsatisfactory soil removal				\$ -	Included in unit price
	c. replace w GAB or #57 Stone	40	cy	\$ 72.00	\$ 2,880.00	in soft soils under trail
	d. replace w surge stone	40	cy	\$ 82.00	\$ 3,280.00	in wet areas under trail
	Phase 1 Sub - Total				\$ 542,110.00	
	General Conditions, + Contingency	10	%	\$ 0.25	\$ 135,527.50	15% contingency
	SECTION #2a Construction Costs				\$ 677,637.50	soft trails
	Pre Construction & Design				\$ 180,700.00	Per Section Phase I
	SECTION #2a DEVELOPMENT Costs				\$ 858,337.50	Phase 1 w/o paved trails

PHASE 2 PAVEMENT OPTION

7	Concrete Trail;					SEE BELOW
	a. Concrete Trail 4000 LF x 10' @ (6")	40,000	sf	\$ 7.00	\$ 280,000.00	Not permitted in WMA
9	Boardwalk - Permatrac 2000 lf					Perm eTrac * see below
	a. Delivery to storage area		Job	\$ 2,500.00	\$ -	included in unit price
	b. Erection of boardwalks 2000 lf		Job	\$ 4,000.00	\$ -	included in unit price
	c. Concrete Abutment 2 ea		ea	\$ 2,500.00	\$ -	included in unit price
	d. Concrete Wing wall 4 ea @ 10'		lf	\$ 100.00	\$ -	not needed
	e. Helical piers - 4 vertical @ 20 lf each		ea	\$ 500.00	\$ -	included in unit price
	f. Helical piers - 2 diagonal @ 20 lf ea		ea	\$ 500.00	\$ -	included in unit price
	g. Boardwalk Deck, concrete 10' wide	20,000	sf	\$ 100.00	\$ 2,000,000.00	Perm eTrac
	h. 42" Guard Railing	100	lf	\$ 60.00	\$ 6,000.00	see grading
	i. Bumper railing 6"	1,900	lf	\$ 12.00	\$ 22,800.00	see grading
	j. Foundation Design		Job	\$ 1,500.00	\$ -	included in unit price
	k. Shop Drawings		Job	\$ 2,500.00	\$ -	included in unit price
	Phase 2 Subtotal				\$ 2,308,800.00	
	Overhead profit, fee	10	%	\$ 0.25	\$ 577,200.00	15% contingency
	Design for Phase 2				\$ 200,000.00	Per Section Phase 2
*	Section #2a Pavement & Boardwalk Option				\$ 3,086,000.00	Phase 2 if permitted
	TOTAL SECTION #2a w PAVED TRAILS				\$ 3,944,337.50	w paved trails

* Note This Section is inside the WMA where paved trails are not permitted

3		Trestle Rock Trail Extension				2/11/22	
SECTION # 3 Trailhead							
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details	
DESIGN PHASE:							
A	Environmental Assessment		job	\$ 50,000.00	\$ -	In Section 1	
B	USACE Master Plan Revision		Job	\$ 100,000.00	\$ -	In section 2	
C	USACE NWP 42		Job	\$ 9,300.00	\$ -	Top down boardwalk	
D	EPD Stream Buffer Variance	1	ea	\$ 10,800.00	\$ 10,800.00	in 150'	
E	Field topographic / tree survey	0.25	miles	\$ 42,000.00	\$ 10,500.00	Forested route	
F	Design & Construction drawings	8	%	\$ -	\$ 65,000.00	% of Design	
G	Wetland Delineation	1	Job	\$ 3,500.00	\$ 3,500.00	New area	
H	Geotechnical investigation / soils report	18	borings	\$ 1,200.00	\$ 21,600.00	boardwalk over wetlands	
I	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County	
J	DOT & Ga Power Encroachment permits	2	ea	\$ 1,200.00	\$ 2,400.00	Local DOT & Ga Power	
K	No Rise Study	1	ea	\$ 4,000.00	\$ 4,000.00	For Boardwalk	
L	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters	
M	Building Permit	1	ea	\$ 3,500.00	\$ 3,500.00	Boardwalk	
N	Biding Project	1	NTE	\$ 3,600.00	\$ 4,200.00	% of construction	
O	Construction Administration		%	\$ -	\$ 10,200.00	Total Phase	
TOTAL #3 Design Phase					\$ 145,700.00	Per Section	
CONSTRUCTION PHASE:							
SECTION #3 1250 lf Trail							
1	Pre- Construction - Mobilization	2	%		\$ 9,000.00	General Conditions	
	a. Construction Staking and Layout	1	job	\$ 5,000.00	\$ 5,000.00	General Conditions	
	b. Trail Construction access & protection	1	job	\$ 2,000.00	\$ 2,000.00	Substation Road	
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	in parking lot	
2	Demolition						
	a. General site debris removal	1	job	\$ 1,200.00	\$ 1,200.00	along trail route	
3	Site Clearing & Tree Protection						
	a. Tree Protection fence & maintenance	650	lf	\$ 2.20	\$ 1,430.00	In forest areas	
	b. Tree Removal	20	ea	\$ 200.00	\$ 4,000.00	as noted	
	c. Site Clearing limits 650 lf x 12'	7,800	sf	\$ 0.15	\$ 1,170.00	In wooded area only	
	d. Specimen Tree Care - arborist work	5	trs	\$ 250.00	\$ 1,250.00	Prescription	
4	Erosion control & Seeding Grass	2,400	sf	\$ 0.50	\$ 1,200.00	disturbed area of trail	
	a. Construction entrance	1	ea	\$ 1,800.00	\$ 1,800.00	on access road	
	b. Construction entrance - maintenance	1	ea	\$ 500.00	\$ 500.00		
	c. Silt Fence	600	lf	\$ 3.30	\$ 1,980.00	double along trail	
	d. Silt Fence - maintenance	600	lf	\$ 1.25	\$ 750.00		
	e. Silt Sock		lf	\$ 6.50	\$ -	no needed in wetlands	
	f. Silt Sock - maintenance		lf	\$ 1.00	\$ -		
					\$ -		
5	Grading & Drainage 1250 lf trail						
	a. Trail Area & Gravel Base 600 LF x 12' =	7,200	sf	\$ 1.25	\$ 9,000.00	over old road bed	
	b. 18" RCP	14	Lf	\$ 44.00	\$ 616.00	DOT standard	
	c. Catch Basin	1	ea	\$ 2,500.00	\$ 2,500.00	DOT standard	
	d. headwall	1	ea	\$ 900.00	\$ 900.00	DOT standard	
	e. equalizer pipe 8" pvc 60' oc	6	ea	\$ 100.00	\$ 600.00	60' oc under trail	
6	Hillside Trail Ledge	NIE					
7	Concrete Trail; 600 lf						
	a. Concrete Trail 600 LF x 10' @ (6")	1,200	sf	\$ 6.50	\$ 7,800.00	Access road * see below	
	b. Pervious concrete Trail 0 LF x 6' @ (6")	-	sf	\$ 8.50	\$ -	In buffer areas	
	c. Gravel over root zone	-	sf	\$ 1.05	\$ -	trees to save	
8	Trail Bridge -Aluminum bridge 10' wide.	NIE	lf			None needed	
9	Boardwalk - Permatrac 650 lf					Perm eTrac * see below	
	a. Delivery to storage area		Job	\$ 2,500.00	\$ -	included in unit price	
	b. Erection of boardwalks 650 lf		Job	\$ 4,000.00	\$ -	included in unit price	
	c. Concrete Abutment 2 ea		ea	\$ 2,500.00	\$ -	included in unit price	

	d. Concrete Wing wall 4 ea @ 10'		lf	\$ 100.00	\$ -	not needed
	e. Helical piers - 4 vertical @ 20 lf each		ea	\$ 500.00	\$ -	included in unit price
	f. Helical piers - 2 diagonal @ 20 lf ea		ea	\$ 500.00	\$ -	included in unit price
	g. Boardwalk Deck, concrete 10' wide	6,500	sf	\$ 100.00	\$ 650,000.00	Perm eTrac
	h. 42" Guard Railing	400	lf	\$ 60.00	\$ 24,000.00	see grading
	i. Bumper railing 6"	900	lf	\$ 12.00	\$ 10,800.00	see grading
	j. Foundation Design		Job	\$ 1,500.00	\$ -	included in unit price
	k. Shop Drawings		Job	\$ 2,500.00	\$ -	included in unit price
10	Site Furniture at Parking lot Trail Head					as needed
	a. Benches	1	ea	\$ 1,200.00	\$ 1,200.00	city standard
	b. Trash Receptacle	1	ea	\$ 900.00	\$ 900.00	city standard
	c. Picnic Table		ea	\$ 1,800.00	\$ -	city standard
11	Site Signage;					
	a. Signs on each end of boardwalk	2	ea	\$ 175.00	\$ 350.00	City standard
	b. 3 Bollards on each end of bridge		ea	\$ 350.00	\$ -	Removable
					\$ -	
12	Final Clean Up and Grading	1,750	sf	\$ 0.10	\$ 175.00	See Specifications
13	Unit Price items under trail					
	a. rock excavation	5	cy	\$ 44.00	\$ 220.00	as needed
	b. Unsatisfactory soil removal				\$ -	Included in unit price
	c. replace w GAB or #57 Stone	10	cy	\$ 72.00	\$ 720.00	in soft soils
	d. replace w surge stone		cy	\$ 82.00	\$ -	no wet soils
	Sub - Total				\$ 746,061.00	
	General Conditions, fee, overhead,	10	%	\$ 0.25	\$ 186,515.25	15% Contingency
	Total Section #3 Construction Costs				\$ 932,576.25	
	Pre-design & Design Fee				\$ 145,700.00	Per Section
	SECTION #3 Development Costs				\$ 1,078,276.25	w/o paved trails

* Trails included in USACE Master Plan for Section 3

3a	Trestle Rock Trail Extension						2/11/22
SECTION # 3a River Confluence							
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details	
DESIGN PHASE:							
A	Environmental Assessment		job	\$ 50,000.00	\$ -	In Section 1	
B	USACE Master Plan Revision		Job	\$ 100,000.00	\$ -	In section 2	
C	USACE NWP 42		Job	\$ 9,300.00	\$ -	top down build	
D	EPD Stream Buffer Variance	1	ea	\$ 10,800.00	\$ 10,800.00	In 150' setback	
E	Field topographic / tree survey	0.25	miles	\$ 36,000.00	\$ 9,000.00	cleared route	
F	Design & Construction drawings	8	%	\$ -	\$ 12,000.00	% of Design	
G	Wetland Delineation		Job	\$ 5,200.00	\$ -	Completed	
H	Geotechnical investigation / soils report	12	borings	\$ 1,200.00	\$ 14,400.00	bridge #4 & boardwalk	
I	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County	
J	CCSWA Encroachment permit	1	ea	\$ 1,200.00	\$ 1,200.00	In sewer easement	
K	No Rise Study	1	ea	\$ 4,000.00	\$ 4,000.00	boardwalk & bridge #4	
L	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters	
M	Building Permit	2	ea	\$ 3,500.00	\$ 7,000.00	Bridge #4 & Boardwalk	
N	Biding Project	1	NTE	\$ 3,000.00	\$ 3,000.00	% of construction	
O	Construction Administration		%	\$ -	\$ 7,500.00	Total Phase	
TOTAL #3 Design Phase					\$ 78,900.00	Per Section	
CONSTRUCTION PHASE 1:							
SECTION #3a 650 lf Trail							
1	Pre- Construction - Mobilization	2	%		\$ 9,000.00	General Conditions	
	a. Construction Staking and Layout	1	job	\$ 5,000.00	\$ 5,000.00	In S. Baseball park	
	b. Trail Construction access & protection	1	job	\$ 2,000.00	\$ 2,000.00	along sewer easement	
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	in parking lot	
2	Demolition						
	a. General site debris removal		job	\$ 1,200.00	\$ -	cleared route	
3	Site Clearing & Tree Protection						
	a. Tree Protection fence & maintenance	-	lf	\$ 2.20	\$ -	cleared easement	
	b. Tree Removal	-	ea	\$ 200.00	\$ -	cleared easement	
	c. Site Clearing limits 550 lf x 12'	-	sf	\$ 0.15	\$ -	cleared easement	
	d. Specimen Tree Care - arborist work	-	trs	\$ 250.00	\$ -	cleared easement	
4	Erosion control & Seeding Grass	2,200	sf	\$ 0.50	\$ 1,100.00	disturbed area	
	a. Construction entrance	1	ea	\$ 1,800.00	\$ 1,800.00	on sewer easement	
	b. Construction entrance - maintenance	1	ea	\$ 500.00	\$ 500.00		
	c. Silt Fence	550	lf	\$ 3.30	\$ 1,815.00	along easement	
	d. Silt Fence - maintenance	550	lf	\$ 1.25	\$ 687.50		
	e. silt sock		lf	\$ 6.50	\$ -	12" sock in woods	
	f. Silt Sock - maintenance		lf	\$ 1.00	\$ -		
					\$ -		
5	Grading & Drainage 550 lf trail						
	a. Trail Area & Gravel Base 550 LF x 12'	6,600	sf	\$ 1.90	\$ 12,540.00	soft surface trail	
	b. 18" RCP	28	Lf	\$ 44.00	\$ 1,232.00	DOT standard	
	c. Catch Basin	2	ea	\$ 2,500.00	\$ 5,000.00	DOT standard	
	d. headwall	2	ea	\$ 900.00	\$ 1,800.00	DOT standard	
	e. equalizer pipe 8" pvc 60' oc	10	ea	\$ 100.00	\$ 1,000.00	60' oc under trail	
6	Hillside Trail Ledge	NIE				Not needed	
7	Concrete Trail; 550 lf					Phase 2 boardwalk - below *	
	a. Concrete Trail 550 LF x 10' @ (6")		sf	\$ 6.50	\$ -	Access road	
	b. Pervious concrete Trail 0 LF x 6' @ (6")	-	sf	\$ 8.50	\$ -	In buffer areas	
	c. Gravel over root zone	-	sf	\$ 1.05	\$ -	trees to save	
	d. 4" concrete trail or sidewalk	-	sf	\$ 5.50	\$ -		
8	Trail Bridge #4 -Aluminum bridge 10' wide.	100	lf	\$ 1,200.00	\$ 120,000.00	Across Little River - Prefab	
	a. Delivery to Site	1	Job	\$ 3,500.00	\$ 3,500.00	JJ Biello sewer easement	
	b. Placement and Erection of bridge	1	Job	\$ 12,000.00	\$ 12,000.00	on site	

	c. Concrete Abutment	2	ea	\$ 14,000.00	\$ 28,000.00	on each end of bridge
	d. Concrete Wing wall 4 ea 20'	80	lf	\$ 100.00	\$ 8,000.00	each side of abutment
	e. Helical piers - 4 vertical @ 40 lf each	160	lf	\$ 25.00	\$ 4,000.00	2 per abutment
	f. Helical piers - 2 diagonal @ 40 lf ea	80	lf	\$ 25.00	\$ 2,000.00	Se1 per abutment
	g. Bridge Deck, concrete 10' wide	1,000	sf	\$ 8.00	\$ 8,000.00	cast in place concrete
	h. Foundation Design	1	Job	\$ 1,500.00	\$ 1,500.00	See soils report
	i. Shop Drawings		Job	\$ 2,500.00	\$ -	by Bridge maker
9	Boardwalk - Perimetric 550 lf					<i>Phase 2 -SEE BELOW</i>
	a. Delivery to storage area		Job	\$ 2,500.00	\$ -	included in unit price
	b. Erection of boardwalks 550 lf		Job	\$ 4,000.00	\$ -	included in unit price
	c. Concrete Abutment 2 ea		ea	\$ 2,500.00	\$ -	included in unit price
	d. Concrete Wing wall 4 ea @ 10'		lf	\$ 100.00	\$ -	included in unit price
	e. Helical piers - 4 vertical @ 20 lf each		ea	\$ 500.00	\$ -	included in unit price
	f. Helical piers - 2 diagonal @ 20 lf ea		ea	\$ 500.00	\$ -	included in unit price
	g. Boardwalk Deck, concrete 10' wide		sf	\$ 100.00	\$ -	PermeTrac
	h. 42" Guard Railing		lf	\$ 60.00	\$ -	see grading
	i. Bumper railing 6"		lf	\$ 12.00	\$ -	see grading
	j. Foundation Design		Job	\$ 1,500.00	\$ -	included in unit price
	k. Shop Drawings		Job	\$ 2,500.00	\$ -	included in unit price
10	Site Furniture					not needed
	a. Benches		ea	\$ 1,200.00	\$ -	city standard
	b. Trash Receptacle		ea	\$ 900.00	\$ -	city standard
	c. Picnic Table		ea	\$ 1,800.00	\$ -	city standard
11	Site Signage;					
	a. Signs on each end of bridge		ea	\$ 175.00	\$ -	City standard
	b. 3 Bollards on each end of bridge		ea	\$ 350.00	\$ -	Removable
				\$ -	\$ -	
12	Final Clean Up and Grading	7,000	sf	\$ 0.10	\$ 700.00	See Specifications
13	Unit Price items under trail					
	a. rock excavation		cy	\$ 44.00	\$ -	none needed Boardwalk
	b. Unsatisfactory soil removal				\$ -	Included in unit price
	c. replace w GAB or #57 Stone		cy	\$ 72.00	\$ -	in soft soils
	d. replace w surge stone		cy	\$ 82.00	\$ -	in wet soils
	Phase 1 Sub - Total				\$ 236,175.00	
	General Conditions, fee, overhead,	10	%	\$ 0.25	\$ 59,043.75	15% Contingency
	Total Section #3 Construction Costs				\$ 295,218.75	
	Pre-design & Design Fee				\$ 78,900.00	Per Section Phase I
	SECTION #3a Construction Costs				\$ 374,118.75	w/o paved trails

PHASE 2 - BOARDWALK - OPTION

9	Boardwalk - Perimetric 550 lf					PermeTrac
	a. Delivery to storage area		Job	\$ 2,500.00	\$ -	included in unit price
	b. Erection of boardwalks 550 lf		Job	\$ 4,000.00	\$ -	included in unit price
	c. Concrete Abutment		ea	\$ 2,500.00	\$ -	included in unit price
	d. Concrete Wing wall 4 ea @ 10'		lf	\$ 100.00	\$ -	included in unit price
	e. Helical piers - 4 vertical @ 20 lf each		ea	\$ 500.00	\$ -	included in unit price
	f. Helical piers - 2 diagonal @ 20 lf ea		ea	\$ 500.00	\$ -	included in unit price
	g. Boardwalk Deck, concrete 10' wide	5,500	sf	\$ 100.00	\$ 550,000.00	PermeTrac
	h. 42" Guard Railing	400	lf	\$ 60.00	\$ 24,000.00	see grading
	i. Bumper railing 6"	700	lf	\$ 12.00	\$ 8,400.00	see grading
	j. Foundation Design		Job	\$ 1,500.00	\$ -	included in unit price
	k. Shop Drawings		Job	\$ 2,500.00	\$ -	included in unit price
	Total Boardwalk costs				\$ 582,400.00	
	Overhead profit, fee	10	%	\$ 0.25	\$ 145,600.00	15% contingency
	Phase 2 Subtotal				\$ 728,000.00	
	Design		%		\$ 45,000.00	Per Section Phases 2
	Total Section 3a w Boardwalk Option				\$ 773,000.00	w paved trails & Boardwalks
	Total Section #3a Development w Boardwalk				\$ 1,147,118.75	

* Hard surface trails not included in USACE for Section 3c

4 Trestle Rock Trail Extension						2/11/22
SECTION# 4 JJ Biello						
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details
PREDESIGN & DESIGN PHASE:						
A	Environmental Assessment	1	job	\$ 50,000.00		In Section 1
B	USACE Master Plan Revision	1	Job	\$ 100,000.00		In section 2
C	USACE NWP 42	1	Job	\$ 9,300.00		Section 2 costs
D	EPD Stream Buffer Variance	1	ea	\$ 10,800.00	\$ 10,800.00	Little River Setback
E	Field topographic / tree survey	0.75	miles	\$ 35,000.00	\$ 26,250.00	cleared easement
F	Design & Construction drawings	8	%		\$ 39,000.00	% of Design
G	Wetland Delineation		Job	\$ 5,200.00	\$ -	Completed
H	Geotechnical investigation / soils report	4	borings	\$ 2,500.00	\$ 10,000.00	Bridge # 5
I	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County
J	No Rise Study	1	ea	\$ 4,500.00	\$ 4,500.00	Bridge #5
K	Utility Encroachment permits	1	ea	\$ 1,200.00	\$ 1,200.00	CCWSA
L	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters
M	Building Permit	1	ea	\$ 3,500.00	\$ 3,500.00	Bridge #5
N	Biding Project	1	NTE	\$ 4,400.00	\$ 4,400.00	% of construction
O	Construction Administration	2	%		\$ 14,400.00	Total Phase
TOTAL #4 Design Phase					\$ 124,050.00	Per Section
CONSTRUCTION PHASE:						
SECTION # 4 4000 lf Trail						
1	Pre- Construction - Mobilization	2	%	\$ 2,500.00	\$ 5,000.00	On sewer easement
	a. Construction Staking and Layout	1	job	\$ 4,600.00	\$ 4,600.00	General Conditions
	b. Trail Construction access & protection	1	job	\$ 8,000.00	\$ 8,000.00	General Conditions
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	along sewer easement JJ Biello Parking lot
2	Demolition					
	a. General site debris removal	1	job	\$ 200.00	\$ 200.00	CCWSA easement is clear
3	Site Clearing & Tree Protection					
	a. Tree Protection fence & maintenance	3,800	lf	\$ 2.20	\$ 8,360.00	Bridge #5 area
	b. Tree Removal	4	ea	\$ 500.00	\$ 2,000.00	one side only
	c. Site Clearing limits 12 x 200'	2,400	sf	\$ 0.15	\$ 360.00	At Rubes Creek Bridge Rubes Creek bridge
4	Erosion control & Seeding Grass	48,000	sf	\$ 0.50	\$ 24,000.00	disturbed area
	a. Construction entrance	1	ea	\$ 1,800.00	\$ 1,800.00	JJ Biello Park
	b. Construction entrance - maintenance	1	ea	\$ 500.00	\$ 500.00	
	c. Silt Fence	7,600	lf	\$ 3.30	\$ 25,080.00	double
	d. Silt Fence - maintenance	400	lf	\$ 1.25	\$ 500.00	
	e. Silt Sock	400	lf	\$ 6.50	\$ 2,600.00	12" Rubes Bridge 5
	f. Silt Sock - maintenance	400	lf	\$ 1.00	\$ 400.00	
					\$ -	
5	Grading & Drainage					<i>See note below *</i>
	a. Trail Area & Gravel Base 4000 LF x 12' =	48,000	sf	\$ 1.90	\$ 91,200.00	Soft surface trail
	b. 18" RCP		Lf	\$ 44.00	\$ -	DOT standard
	c. Catch Basin		ea	\$ 2,500.00	\$ -	DOT standard
	d. headwall		ea	\$ 900.00	\$ -	DOT standard
	e. Equalizer Pipe 6" pvc @ 60' oc	50	ea	\$ 100.00	\$ 5,000.00	60' oc under trail base
6	Hillside Trail Ledge	NIE				not needed
7	Concrete Trail;					JJ Biello Park *
	a. Concrete Trail 750 LF x 10' @ (6")	7,500	sf	\$ 6.50	\$ 48,750.00	Phase 1 in Park
	b. Future concrete Trail 3250 LF x 6' (6")		sf	\$ 7.50	\$ -	Phase 2 if approved

	c. Gravel over root zone	-	sf	\$ 1.05	\$ -	trees to save
8	Trail Bridge #3 -Aluminum bridge 10' wide.	100	lf	\$ 1,200.00	\$ 120,000.00	Rubes Creek - Prefab
	a. Delivery to Site	1	Job	\$ 2,000.00	\$ 2,000.00	Substation access rd.
	b. Placement and Erection of bridge	1	Job	\$ 12,000.00	\$ 12,000.00	See Specifications
	c. Concrete Abutment	2	ea	\$ 14,000.00	\$ 28,000.00	Bridge #5 Rubes Crk
	d. Concrete Wing wall 4 ea 15	60	lf	\$ 100.00	\$ 6,000.00	2 per abutment
	e. Helical piers - 4 vertical @ 30 lf each	120	lf	\$ 25.00	\$ 3,000.00	2 per abutment
	f. Helical piers - 2 diagonal @ 20 lf ea	40	lf	\$ 25.00	\$ 1,000.00	1 per abutment
	g. Bridge Deck, concrete 10' wide	1,000	sf	\$ 8.00	\$ 8,000.00	cast in place concrete
	h. Foundation Design	1	Job	\$ 1,500.00	\$ 1,500.00	See soils report
	i. Shop Drawings		Job	\$ 2,500.00	\$ -	Included w bridge
9	Boardwalk - Permatrac	NIE				Permatrac
10	Site Furniture at JJ Biello Trail Head					at parking lot
	a. Benches	1	ea	\$ 1,200.00	\$ 1,200.00	city standard
	b. Trash Receptacle	1	ea	\$ 900.00	\$ 900.00	city standard
	c. Picnic Table	1	ea	\$ 1,800.00	\$ 1,800.00	city standard
11	Site Signage;					
	a. Signs on each end of bridge	2	ea	\$ 175.00	\$ 350.00	City standard
	b. 3 Bollards on each end of bridge	6	ea	\$ 350.00	\$ 2,100.00	Removable
	c. trail information signage	1	allow	\$ 1,000.00	\$ 1,000.00	on trail
					\$ -	
12	Final Clean Up and Grading	15,000	sf	\$ 0.10	\$ 1,500.00	See Specifications
13	Unit Price items under trail					
	a. rock excavation	10	cy	\$ 44.00	\$ 440.00	as needed
	b. Unsatisfactory soil removal				\$ -	Included in unit price
	c. replace w GAB or #57 Stone	30	cy	\$ 72.00	\$ 2,160.00	under soft soils
	d. replace w surge stone	10	cy	\$ 82.00	\$ 820.00	under wet soil
	Phase 1 Sub - Total				\$ 427,120.00	
	General Conditions, fee, overhead,	10	%	\$ 0.25	\$ 106,780.00	15% contingency
	SECTION #4 Construction Costs				\$ 533,900.00	
	Predesign & Design Fees				\$ 124,050.00	Per Section
	SECTION #4 Development Costs				\$ 657,950.00	Phase 1 soft trails

PHASE 2 PAVEMENT OPTION

7	Concrete Trail;					
	a. Concrete Trail 750 LF x 10' @ (6")	7,500	sf	\$ 6.50		Phase 1 permitted
	b. Future concrete Trail 3250 LF x 6' (6")	32,500	sf	\$ 7.50	\$ 243,750.00	Phase 2 if approved
	Overhead profit, fee	10	%	\$ 0.25	\$ 60,937.50	15% contingency
	Phase 2 Total - Paved Trails Option				\$ 304,687.50	w paved trails
	Section #4 w paved trails				\$ 962,637.50	w paved trails

* Some multiuse trails were not included in the USACE Master Plan for Section 4

4a	Trestle Rock Trail Extension					2/11/22
SECTION #4a Corps Trail						
#	Construction Items	Quantity	Unit	Unit Cost	Total \$	Details
DESIGN PHASE: 4a						
A	Environmental Assessment (EA)		job	\$ 50,000.00	\$ -	Phase 1 costs
B	USACE Master Plan Revision		Job	\$ 100,000.00	\$ -	Not needed
C	USACE - NWP 42		Job	\$ 9,300.00	\$ -	Top down construction
D	EPD Stream Buffer Variance		ea	\$ 10,300.00	\$ -	no encroachment
E	Field topographic / tree survey	1.5	miles	\$ 42,000.00	\$ 63,000.00	Forest route
F	Design & Construction drawings	8	%	\$ -	\$ 110,000.00	% of Design
G	Wetland Delineation	1	Job	\$ 6,500.00	\$ 6,500.00	New Area
G	Geotechnical investigation / soils report	4	borings	\$ 2,000.00	\$ 8,000.00	Boardwalk
H	Permitting LDP	2	ea	\$ 3,500.00	\$ 7,000.00	City and County
I	DOT Encroachment permits	1	ea	\$ 1,200.00	\$ 1,200.00	local DOT
J	No Rise Study	1	ea	\$ 4,000.00	\$ 4,000.00	Boardwalk Rubes Wetland
K	GSWCC Plan Review Approval	1	ea	\$ 3,000.00	\$ 3,000.00	State Waters
L	Building Permit	1	ea	\$ 3,500.00	\$ 3,500.00	Boardwalk
M	Bidding the Project	1	NTE	\$ 4,000.00	\$ 4,800.00	% of construction
N	Construction Administration		%		\$ 16,500.00	Total Phase
TOTAL 4a Design Phase I					\$ 227,500.00	Per Section
CONSTRUCTION PHASE 4a:						
SECTION # 4a 7650 lf Trail						
1	Pre- Construction - Mobilization	2	%	\$ 2,500.00	\$ 5,000.00	General Conditions
	a. Construction Staking and Layout	1	job	\$ 85,000.00	\$ 85,000.00	General Conditions
	b. Trail Construction access & protection	1	job	\$ 8,000.00	\$ 8,000.00	From adjacent roadway
	c. Staging area	1	job	\$ 5,000.00	\$ 5,000.00	Existing at end of road
2	Demolition					
	a. General site debris removal	1	job	\$ 1,200.00	\$ 1,200.00	See Specifications
3	Site Clearing & Tree Protection					
	a. Tree Protection fence & maintenance	8,000	lf	\$ 2.20	\$ 17,600.00	forested areas only
	b. Tree Removal	100	ea	\$ 100.00	\$ 10,000.00	as noted
	c. Site Clearing limits 5500 x 12	66,000	sf	\$ 0.15	\$ 9,900.00	See Specifications
	d. Specimen Tree Care - arborist work	6	trs	\$ 250.00	\$ 1,500.00	Prescription
4	Erosion control & Seeding Grass	30,800	sf	\$ 0.50	\$ 15,400.00	disturbed area
	a. Construction entrance	2	ea	\$ 1,800.00	\$ 3,600.00	each side of Rubes Creek
	b. Construction entrance - maintenance	2	ea	\$ 500.00	\$ 1,000.00	Park and adjacent road
	c. Silt Fence	2,000	lf	\$ 3.30	\$ 6,600.00	double
	d. Silt Fence - maintenance	2,200	lf	\$ 1.25	\$ 2,750.00	
	e. Silt Sock	5,500	lf	\$ 6.50	\$ 35,750.00	12" in wooded areas
	f. Silt Sock - maintenance	5,500	lf	\$ 1.00	\$ 5,500.00	
					\$ -	
5	Grading & Drainage					
	a. Trail Area & Gravel Base 6700 LF x 12' =	73,200	sf	\$ 1.90	\$ 139,080.00	sub base grading
	b. 18" RCP	40	Lf	\$ 44.00	\$ 1,760.00	DOT standard
	c. Catch Basin	2	ea	\$ 2,500.00	\$ 5,000.00	DOT standard
	d. headwall	2	ea	\$ 900.00	\$ 1,800.00	DOT standard
	e. Rip Rap	6	cy	\$ 100.00	\$ 600.00	DOT standard
	f. Equalizer pipes 6" PVC 12' long 60' oc.	120	ea	\$ 100.00	\$ 12,000.00	Under the trails
6	Hillside Trail Ledge	NIE				Not Needed
7	Concrete Trail;					
	a. Concrete Trail 6700 LF x 10' @ (6")	67,000	sf	\$ 6.50	\$ 435,500.00	over gravel base
	b. Pervious concrete Trail 120 LF x 6' (6")	-	sf	\$ 8.50	\$ -	In buffer areas
8	Trail Bridge -	NIE	lf	\$ 1,200.00		None needed
9	Boardwalk - Rubes Creek 250 lf concrete					Boardwalk over- Rubes Creek
	a. Delivery to storage area		Job	\$ 500.00	\$ -	included in deck costs
	b. Erection of boardwalk		Job	\$ 4,000.00	\$ -	included in deck costs

	c. Concrete Abutment - each end		ea	\$ 2,000.00	\$ -	Included in deck costs
	d. Concrete Wing wall 4 ea at 8'		lf	\$ 100.00	\$ -	none needed
	e. Helical piers - vertical 2 @ 8' oc 20' deep	76	ea	\$ 440.00	\$ 33,440.00	each pier 20' deep
	f. Helical piers - diagonal 16' oc @ 20'	18	ea	\$ 440.00	\$ 7,920.00	each pier 20' long
	g. Boardwalk Deck, concrete 10' wide	2,500	sf	\$ 105.00	\$ 262,500.00	Perm eTrac
	h. 42" Guard Railing 100' x 2	200	lf	\$ 60.00	\$ 12,000.00	see grading
	i. Bumper railing 6" 300 x 2	600	lf	\$ 12.00	\$ 7,200.00	see grading
	j. Foundation Design		Job	\$ 1,500.00	\$ -	included in deck costs
	k. Shop Drawings		Job	\$ 2,500.00	\$ -	included in deck costs
10	Site Furniture at Trail Head	NIE				as needed
11	Site Signage;					
	a. Signs on each end of boardwalk	2	ea	\$ 175.00	\$ 350.00	City standard
	b. 3 Bollards on each end of boardwalk	6	ea	\$ 350.00	\$ 2,100.00	Removable
	c. Trail information signage	1	allow	\$ 1,200.00	\$ 1,200.00	on trail
					\$ -	
12	Final Clean Up and Grading	107,000	sf	\$ 0.10	\$ 10,700.00	finished site
13	Unit Price items under trail					
	a. rock excavation	20	cy	\$ 44.00	\$ 880.00	as needed
	b. Unsatisfactory soil removal				\$ -	Included in unit price
	c. replace w GAB or #57 Stone	50	cy	\$ 72.00	\$ 3,600.00	in soft soils
	d. replace w surge stone	30	cy	\$ 82.00	\$ 2,460.00	in wet areas
	Sub - Total Phase I				\$ 1,153,890.00	
	General Conditions, fee, overhead,	10	%	\$ 0.25	\$ 288,472.50	15% contingency included
	SECTION #4a Construction Costs				\$ 1,442,362.50	
	Pre-design and design fees				\$ 227,500.00	Per Section
	SECTION #4a Development Costs				\$ 1,669,862.50	w paved trails

* Paved trails & Boardwalk approved in USACE Master Plan for area 4



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1. Allatoona Lake Project Master Plan (Etowah River, Bartow County, GA), 2017
Prepared by the USACE, Mobile District.
2. City of Woodstock Park and Recreation Trail Priorities Map, 2019
3. City of Woodstock Greenprints Trails System Map, 2021
4. Manual for Erosion and Sediment Control in Georgia, 2016 Edition,
Published by the Georgia Soil and Water Conservation Commission
5. Master Plan Update for Rope Mill Park, Ross Consulting Engineers, P.C., Nov. 2009
Prepared for the Dept. of Army Mobile District, Corps of Engineers
6. FEMA National Flood Insurance Program Panel 13057C0244E
7. U.S. Fish and Wildlife Service National Wetlands Inventory
8. USDA Natural Resources Conservation Service Soil Survey

