

Greeter Falls Area Trail Improvement Program

Trail System Assessment

July, 2021

updated September, 2021



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Background

Of all the trailheads in South Cumberland State Park, Foster Falls and Stone Door attract more visitors (on average) than any other trailheads; but the good news is that their highest-traffic trails have all gotten some “love” over the past few years, much of it from outside organized groups such as the Southeast Conservation Corps (“SCC-1”) and Southeast Climbers’ Coalition (“SCC-2”).

As we understand it, some time ago, SCC-1 (working with Rangers) rebuilt much of the staircase going down through Stone Door, and made improvements to the immediately adjacent part of the Big Creek Gulf Trail. So, for the most part, the trails at and near Stone Door are in relatively good shape.

The SCC-2 group, and their allies, the Access Fund, have done a significant amount of work on the Denny East Climbers’ Access Trail, in Denny Cove; and at Fiery Gizzard South, on the Foster Climbers’ Access Trail (the one leading to the bottom of Foster Falls, and beyond). Again, the result is that most of the trails in those two areas are now in relatively good shape.

On the other hand, the #3 most popular trailhead, Savage Gulf West (a.k.a. “Greeter Falls”) has not gotten such “love,” and in spite of recent work such as Ranger Baxter’s excellent box steps project, there are still very significant trail issues on multiple trails in this area of the park; trails that see routinely heavy use.

Thus, it would make sense to prioritize the Trail Team’s trail efforts here. This report attempts to provide an accurate description of the current state of trails in the Greeter Falls area, and make incremental recommendations for remediation, in such a way as to create a series of “do-able” volunteer trail efforts. These, as a whole, could result in a substantial improvement for the safety of visitor access to the area, while doing a great deal to protect and rehabilitate the natural resource in this area of the park (*Figure 1, next page*).

Area History

A brief history lesson should preface this discussion. The Greeter Falls area has been well-known to humans for thousands of years. A Native American trade trail, known today as the Chickamauga Trace, traverses the immediate area. The trail is generally thought to have originated as a means of facilitating long-distance trade between Native American civilizations in the Southeast. Ironically, it is also believed that this route was used in the 1830s as part of the Cherokee peoples’ removal from this region to Oklahoma, creating an alternate identity as the “Trail of Tears”.

Following the removal of the Native American peoples, European settlers began moving into this area, and they, too, found this route a useful way to get across the [then very imposing] Cumberland Plateau.

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- Condition: good to fair (minor repairs?)
- Condition: fair to poor, but could possibly be easily rerouted onto adjoining roadbed
- Condition: fair to poor, requiring extensive repair; not easy to reroute
- Condition: poor; likely requiring extensive reconstruction or reroute
- Condition: poor to very poor in places, with sections requiring rebuild utilizing stonework or other structural construction
- Condition: bad, dangerous or nonexistent, requiring complete rebuild using structural and/or stonework solution



Figure 1 :: The Greeter Falls-area trail system, reflecting current assessment and potential for incremental trail improvements.

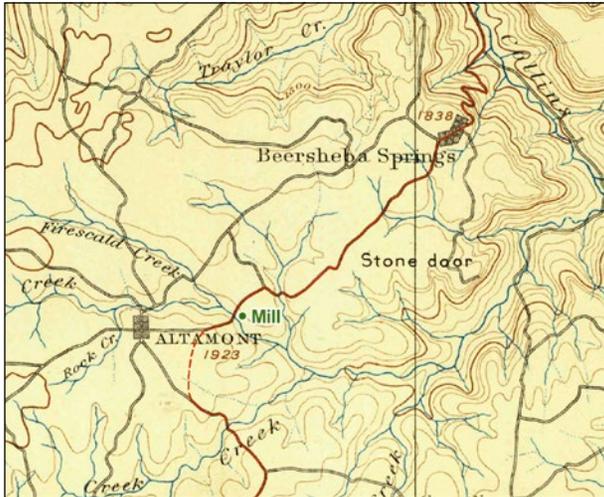


Figure 2 :: The "Trace", shown in red on this 1895 map; the location of Long's Mill is superimposed.

What was turned into a well-known wagon road (*Figure 2*) also became an avenue for commerce; and thus it is not surprising that enterprising settlers established businesses, like mills and stores, at key points along the way.

Local historical records suggest that a mill was built at the "Upper Falls", just above present-day Greeter Falls, in the early 1800s. The name "Hunter's Mill" is the first one associated with this location; later, "Long's Mill" describes the same place (*Figure 3, below*).

In the mid-1800s, the Greeter family, then recent immigrants from Switzerland, purchased the mill, which at the time was configured for grinding corn and grain. Before long, they outfitted the mill with a water-powered saw to produce board lumber, which gave birth to the Greeter Lumber Company, a well-known local business.

But Firescald Creek was fickle, and didn't always offer a reliable source of water-power; so the family invested in a steam-powered saw and moved its operations up and out of the gorge, closer to Altamont, near what is today the Greeter Falls Lodge.

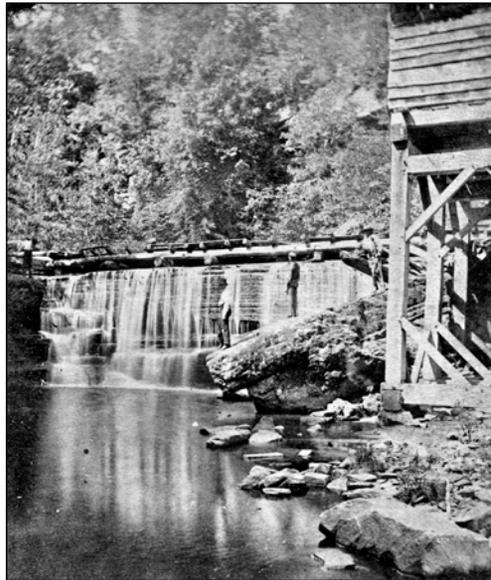
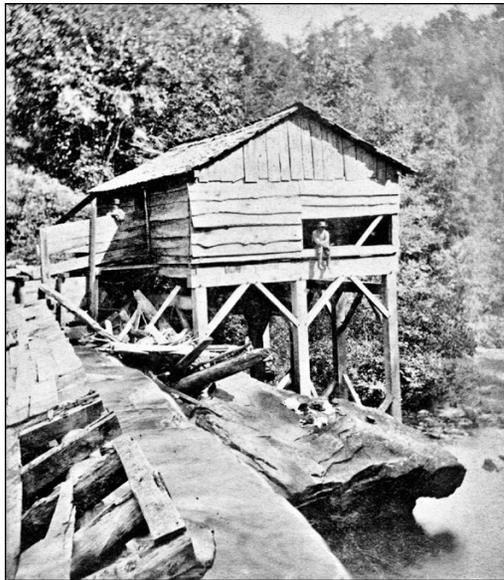


Figure 3 :: Two views of Long's Mill, at the site on the "Upper Falls" of Firescald Creek.

Subsequently, an epic flood swept through the Firescald Creek gorge, wiping clean any trace of the old mill; the result is largely what you see today at the Upper Falls, above the waterfall that now bears the Greeter family name.

Today, the remnant roadbed of the old Chickamauga Trace, as well as another unnamed roadbed in the lower part of the Boardtree Falls canyon, can still be clearly seen from several of the Greeter-area trails; in fact, portions of the park's trails actually run on top of these old roads, and there may be an opportunity to further utilize these historic roadways to rehabilitate and improve some degraded sections of the Greeter area trail network.

Current Trail Assessment

As a result of years of heavy visitor use, combined with topographic and soil conditions, nearly every trail in the study area shows some degree of degradation. As indicated in Figure 1, these trails have been assessed on a six-increment scale, ranging from “good to fair” down to “bad, dangerous or nonexistent”. These increments also suggest what degree of remediation might be necessary (or possible) to bring a trail segment from its existing state up to at least “good” condition.

Cumulatively, the amount of work needed to rehabilitate all of the degraded trail in the study area could be daunting. However, by breaking the work into smaller, incremental tasks, a series of projects could be created that would appeal to volunteers interested in seeing a project to completion over the course of a month or two, consisting of weekly work-days; similar to a method used on the Dog Hole Trail project, in the Fiery Gizzard, which was successfully completed in 2021.

Significant portions of the Greeter Falls Trail (abbreviation “GFL”) rather tightly hug the bluff-line, traversing areas that are both rocky and now, as a result of heavy trail use over many years, also “rooty”.

However, there may be an opportunity to efficiently bypass some of these difficult-to-remediate areas by making use of portions of the historic roadbeds, as there are several sections where old roadbed runs parallel to, and usually just downhill from existing trail (Figure 4).



Figure 4 :: Degraded sections of the Greeter Falls Trail hug the base of the bluff at right; the relatively clear roadbed, at left, may offer an excellent opportunity to quickly relocate the trail.

While there are often sustainability issues associated with running trails in old roadbeds, if the slope of the roadway is sufficiently shallow, these graded areas can allow for trail to be quickly reconstructed, with only a minimum of structural or stone work.

In fact, other portions of the GFL Trail, which already utilize old roadbed, are still in excellent condition (Figure 5a, next page), as compared to trail constructed against the base of the bluff (Figures 5b&c, next page).

However, not all sections of trail in the area have a sufficiently flat piece of roadbed conveniently located nearby; and so the remediation task for those segments will be considerably more difficult.

In fact, because of the often extreme topography along bluff-lines, it may not be possible to reroute or re-locate some trail; the only option may be to rebuild the trail in its existing tread-path. There are at least four such segments, which are described further, below.

In some cases, there are sections, usually at the base of bluff-lines, where reroute is not possible *and* where there is significant tumble-down rock that has collected at the base of the bluff. Here, reconstruction will require the creation of extended stone-works, similar to those created for the Dog Hole Trail rehabilitation (*Figure 6*) for trail tread, armoring, and reinforcing retaining walls along the trail route.

Sequencing the Work

As discussed earlier, it may make sense to break this extensive trail project into a series of short-duration volunteer trail tasks that are more likely to engage and satisfy volunteers, en route to conquering the larger project objective (see *Figure 7, next page*).

With this in mind, the following suggests an order in which the trail segments could be addressed, balancing the need to make most critical improvements as quickly as possible against the goal of giving volunteers a sense of achievement and engagement throughout the life of the larger project.



Figure 5a



Figure 5b



Figure 5c

Figure 5 :: Portions of the GFL Trail which already utilize old roadbed, are still in excellent condition (*Figure 5a*), compared to trail constructed against the base of the bluff (*Figures 5b&c*)



Figure 6 :: Armored trail and trail tread on the Dog Hole Trail, similar to what may be required on sections of the Greeter Falls Trail.

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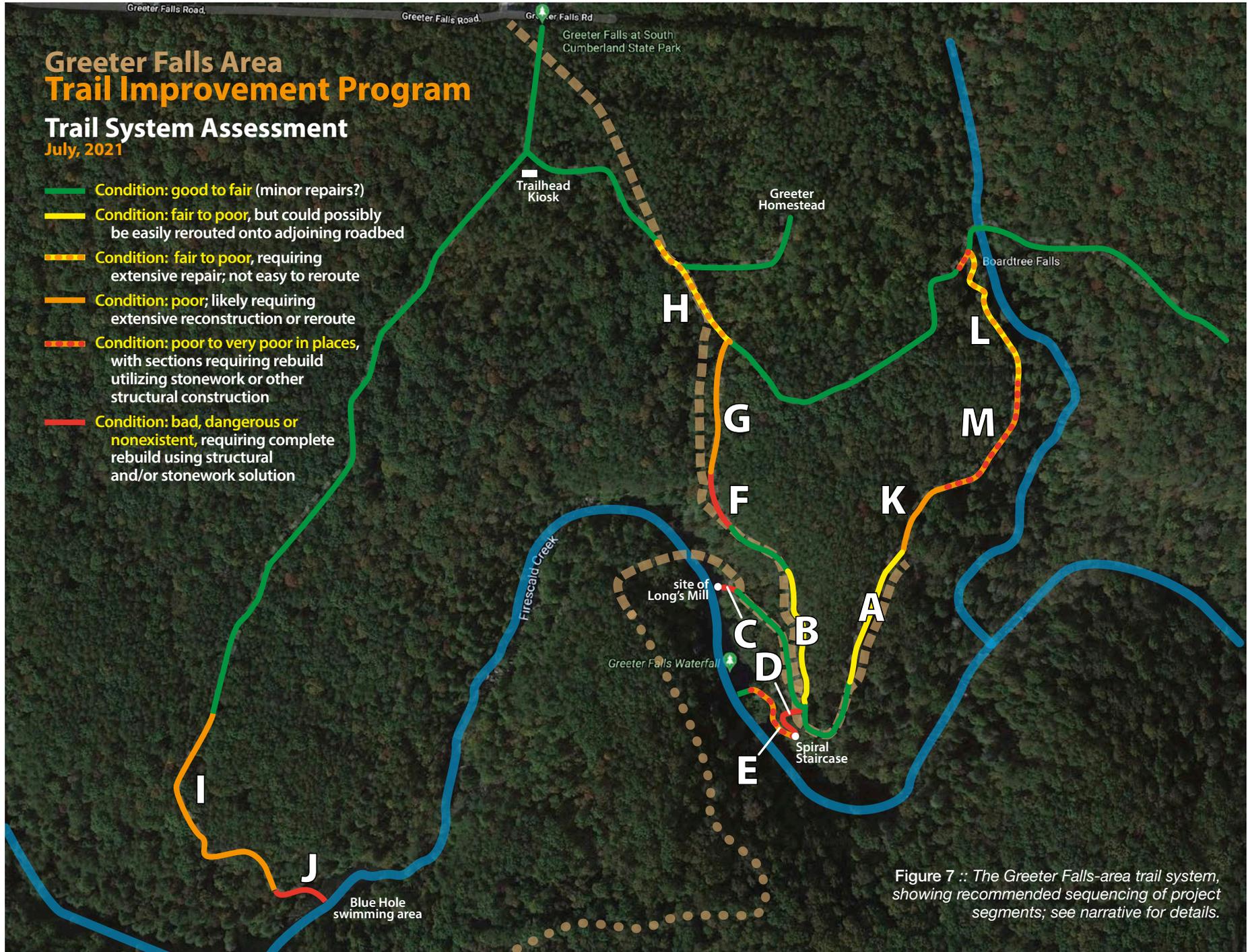


Figure 7 :: The Greeter Falls-area trail system, showing recommended sequencing of project segments; see narrative for details.

Greeter Falls Area Trail Improvement Program ("GFA-TIP")
ACTION PLAN FOR SECTION "D" REMEDIATION

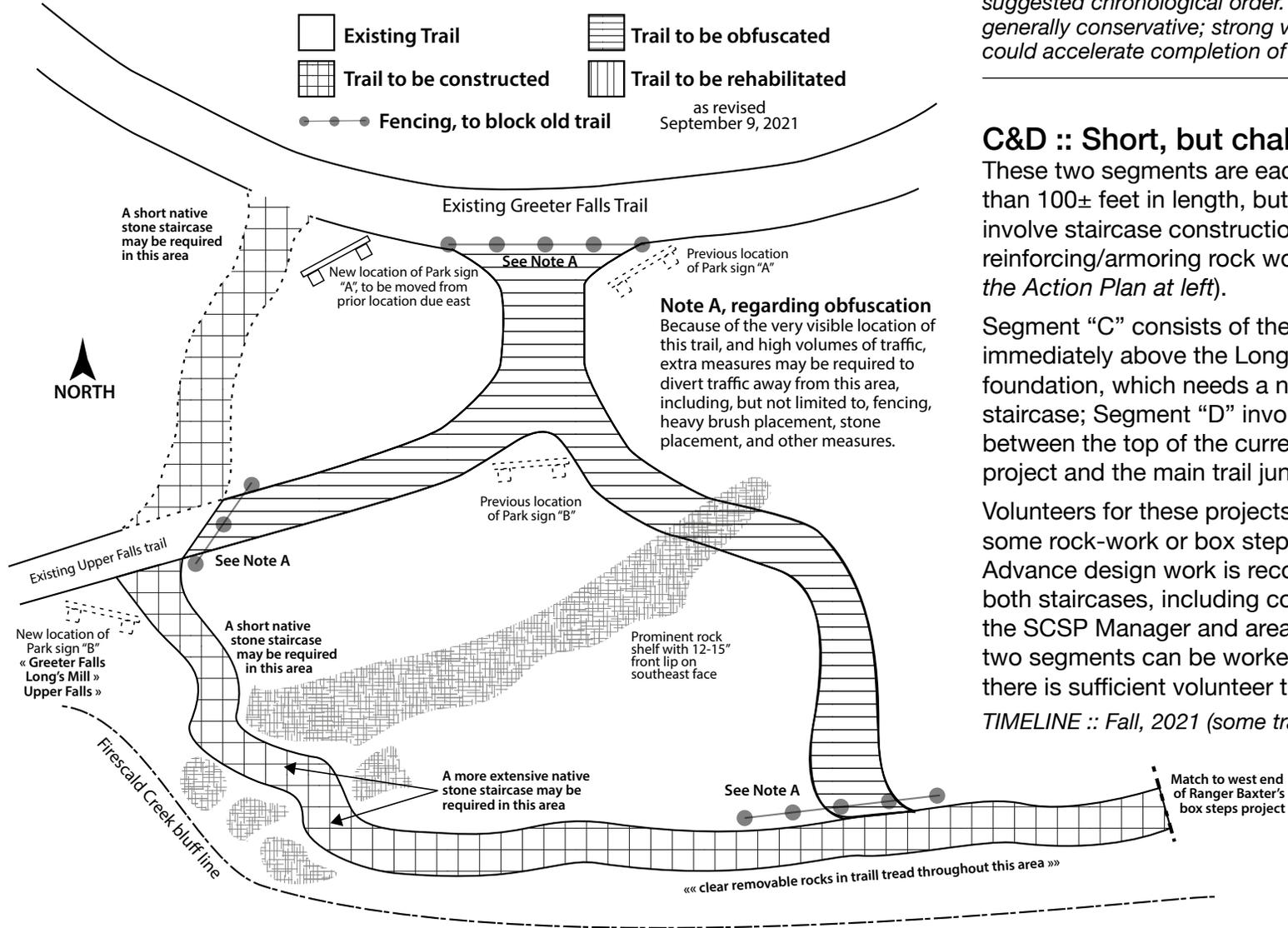


Figure 7, on the prior page, corresponds to the narrative that follows. Projects are presented in suggested chronological order. Timelines are generally conservative; strong volunteer turnout could accelerate completion of some segments.

C&D :: Short, but challenging

These two segments are each not more than 100± feet in length, but both will involve staircase construction and other reinforcing/armoring rock work (please see the Action Plan at left).

Segment "C" consists of the area immediately above the Long's Mill foundation, which needs a new native stone staircase; Segment "D" involves the area between the top of the current box steps project and the main trail junction sign.

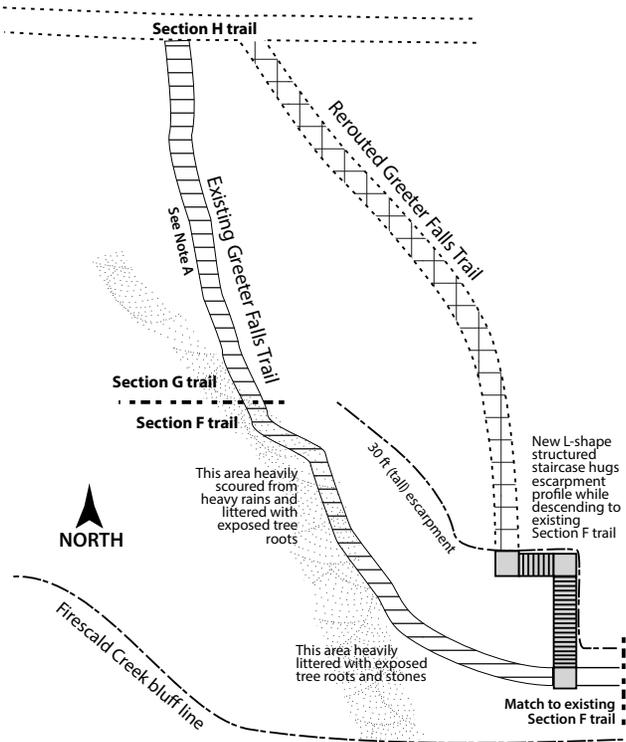
Volunteers for these projects should have some rock-work or box step experience. Advance design work is recommended for both staircases, including coordination with the SCSP Manager and area Ranger. These two segments can be worked together if there is sufficient volunteer turnout.

TIMELINE :: Fall, 2021 (some trail closure req'd.)

Greeter Falls Area
Trail Improvement Program ("GFA-TIP")
**ACTION PLAN FOR
SECTION F & G REMEDIATION**

-  Existing Trail
-  Trail to be constructed
-  Trail to be obfuscated
-  Trail to be rehabilitated
-  New structured staircase

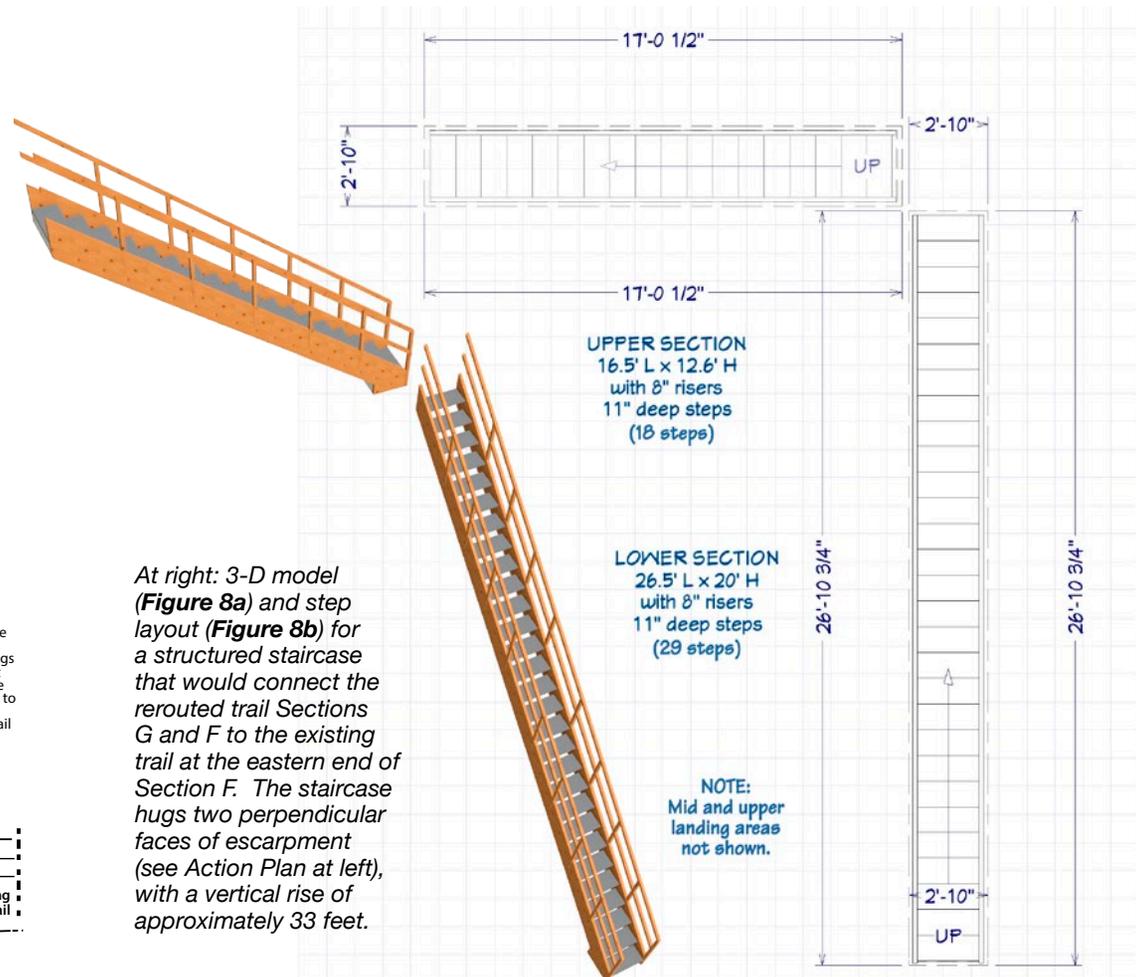
Note A, regarding obfuscation
Because of the very visible location of this trail, and high volumes of traffic, extra measures may be required to divert traffic away from this area, including, but not limited to, fencing, heavy brush placement, stone placement, and other measures.



F & G :: Bypass rock ledges, seasonal stream; add a staircase

Sections F and G involve rerouting a challenging section where the existing GFL Trail peels away from the Firescald Creek canyon and begins ascending toward its junction with the Greeter Trail. The current trail requires visitors to scale several large natural rock outcroppings. It is heavily worn and has captured the flow of a seasonal stream, making visitor travel slippery and hazardous in wetter seasons. The reroute would move the trail to the top of the ridge, just east of the current route (*Action Plan at left*); and reconnect to the trail at the south end of Segment F via a new, structured staircase (*Figures 8a and 8b, below*).

TIMELINE :: Winter, 2022 (no trail closures req'd.)

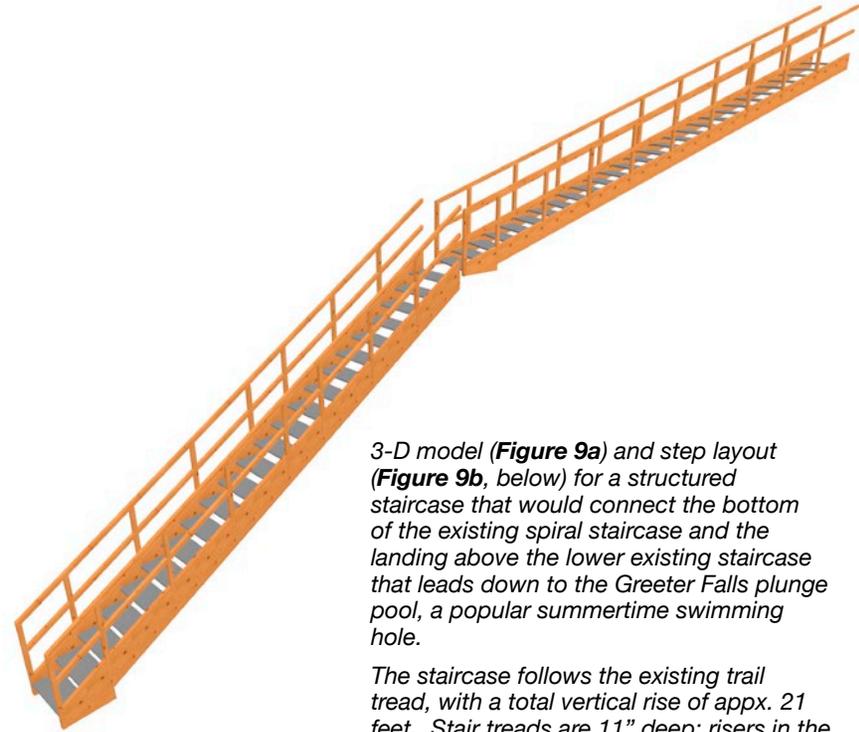


At right: 3-D model (**Figure 8a**) and step layout (**Figure 8b**) for a structured staircase that would connect the rerouted trail Sections G and F to the existing trail at the eastern end of Section F. The staircase hugs two perpendicular faces of escarpment (see *Action Plan at left*), with a vertical rise of approximately 33 feet.

E :: New staircase over wet, slick, icy trail

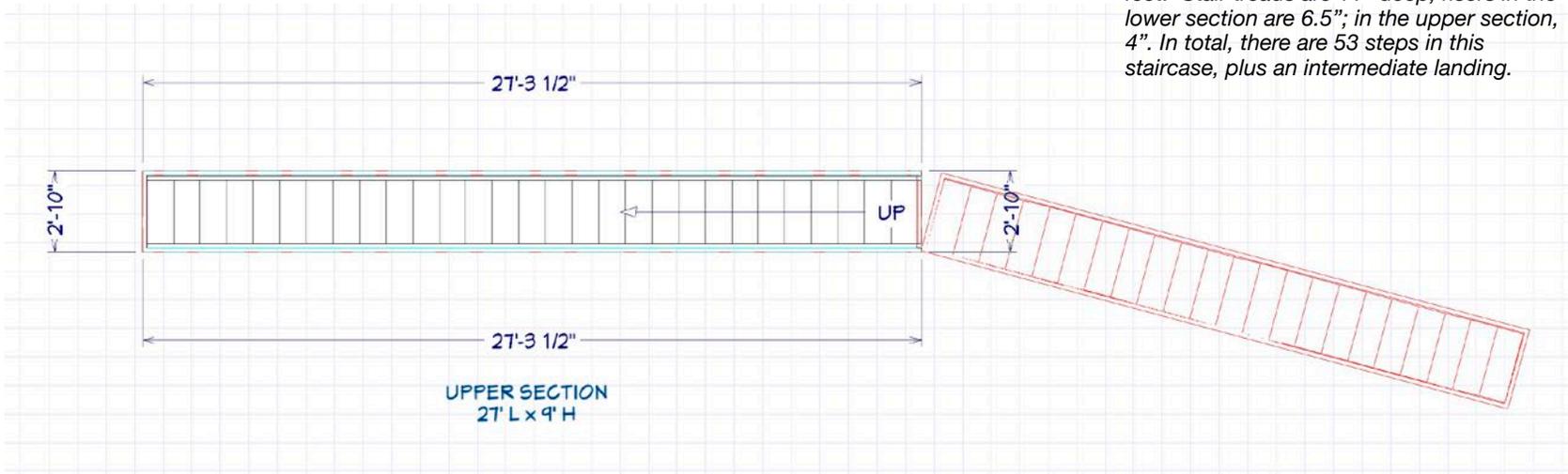
This segment echoes the box step work presently being done immediately above the spiral staircase; except that a structured staircase, constructed with grid-style metal treads (Figures 9a/9b), supported by pressure-treated stringers mounted on pressure-treated posts [sunk into the ground] would be used instead of box steps, both for reasons of utility (more durable/better in wet and icy weather), and because construction of this type of stairway would be significantly easier and faster than additional box steps. This segment, extending from the bottom of the spiral staircase to the top of the [existing] lower staircase, should be done either in fall or spring, outside of “swimming season” and peak visitation times. Winter ice would make work at that time of year inadvisable.

TIMELINE :: Spring, 2022 (some trail closure req'd.)



3-D model (Figure 9a) and step layout (Figure 9b, below) for a structured staircase that would connect the bottom of the existing spiral staircase and the landing above the lower existing staircase that leads down to the Greeter Falls plunge pool, a popular summertime swimming hole.

The staircase follows the existing trail tread, with a total vertical rise of appx. 21 feet. Stair treads are 11” deep; risers in the lower section are 6.5”; in the upper section, 4”. In total, there are 53 steps in this staircase, plus an intermediate landing.



H :: Reroute near existing segment

Design decisions for Segment H need to be made about whether to attempt to rehabilitate existing trail, or construct a new reroute alongside (or near) the existing route.

Segment H is already running on top of old Chickamauga Trace roadbed, which has scoured down to bedrock in many, though not all places (*Figure 10*), leaving rock outcrops and roots exposed. This project would keep volunteer crews busy for several months. A great project for VISTAs, Scouts and other groups, alongside the Trails Team.

TIMELINE :: Summer, 2022 (no trail closure required)



Figure 10a



Figure 10b

Figure 10 :: Segments G (left) and H (right), both show signs of scouring from water using the trail tread as a sluice. Segment H is built on top of the historic Chickamauga Trace roadbed. If trail cannot be rerouted, some effort would be required to narrow the tread. The tread on Segment H is very wide, which may be encouraging the excessive runoff that is contributing to the significant volume of scouring.

I & J :: Avoiding water, and yet dealing with it

Project Segment “I”, the lower portion of the Blue Hole Trail (primarily an access to the Blue Hole swimming area) becomes compromised whenever a seasonal stream finds the trail tread and merges with it. From there to the river, the trail and stream are one; thus, a complete reroute of that segment will be needed, including a small (10-foot) bridge to cross the seasonal stream. There is an essentially flat, suitable area to the right of the existing stream/trail that could accept the reroute without significant technical difficulty.

Project Segment J extends from where the existing stream/trail drops into the Firescald Creek floodplain, to the actual bank of the river – a distance of perhaps 100-150 feet. This area is subject to frequent flooding, and any sign of existing trail is obliterated, leading to the creation of multiple social trails during times of low water.

Perhaps the best approach for dealing with this segment is to define the trail by creating stepping-stones and/or twin strands of rock armoring, to define the trail for the visitor. Obviously, the rock used for these purposes will need to be large stones, not likely to be swept downstream during times of high water (*Figure 11*).



Figure 11 :: Firescald Creek at high water; trail terminus is just to the right. The floodplain area, also to the right, is indicative of the terrain through which Segment J would need to be constructed.

There will also need to be some stone staircase work where the trail drops into the floodplain, depending on exactly where the reroute makes that descent.

TIMELINE :: Segment J, Fall 2022; Segment I, Winter 2023; (no trail closure req'd).

A&B :: Reroute or repair trailbed

Project Segments A and B should be assessed to see which segments may be able to be relocated onto adjoining old roadbed, and which should remain on existing tread, with roots and rocks removed. Working these two segments at the same time could provide an opportunity to utilize large volunteer turnout; encourage Scout troops, church groups, etc. to participate.

TIMELINE :: Spring and Summer, 2023 (no trail closure required)

K, L & M :: The Big Finish

Project Segments K, L and M, on the “far side” of the Greeter Falls Trail, likely see less traffic than the remainder of the trail network, because they are beyond the trail junction that leads down to the swimming hole at the base of Greeter Falls.

Nevertheless, existing trail tread exhibits signs of significant use, and many social trails have been formed to avoid areas where existing trail has degraded, exposing many rocks and roots. These segments of the trail appear to have been originally designed with the intent of staying as close to the base of the bluff as possible; thus putting much of each segment in areas with the most rock-fall material (*Figure 12*).

For Segments K and M, there are opportunities to reroute the trail, a bit further downhill and away from degraded trail tread below the bluff.



Figure 12 :: *At left, typical section of existing Greeter Falls Trail at the base of the bluff. At center, a view from existing trail near the junction of Segments A and K (existing trail at left, on roots); showing how a social trail has been created on a portion of the old roadbed, in an attempt to avoid the roots. Where roadbed can be found, it is typically nearby (within 30-50 feet of existing trail). At right, a heavily-worn social trail, created to access the base of Lower Boardtree Falls. Because visitors invariably want to “get to the waterfalls,” it may be prudent to “legitimize” social trails such as these, by rebuilding them with more sustainable design features, such as stone staircases and/or raised landings. There are at least three of these heavily-used social trails at various points in the Boardtree Falls canyon, not only at the the lower falls, but also at Upper Boardtree Falls, and at a smaller, unnamed falls in the middle of the Boardtree canyon. These potential spur-trails are not shown on Figures 1 or 7, but should be addressed at the same time as their adjacent Project Segments.*

However, for Segment L, reroute options are limited, as the terrain drops off steeply into the Boardtree Falls canyon; thus, a rebuild-in-place, with significant box steps or stone work, is more likely here. There is also a need for new stone steps just above the junction of the Greeter Trail with the GFL, to replace a series of washed-out water bars.

Sections K and M are very similar to the Dog Hole Trail project, in terms of terrain and degree of rock-work required.

TIMELINE :: Segment M, having potential reroute terrain, could be done slowly, in the Fall of 2023 and Winter or early Spring of 2024. Segments K and L should be tackled, respectively, during Summer and Fall, 2024, when Scout and other groups might be available. Possible trail closure may be required for work on Segment L, particularly for the stone staircase at the Greeter Trail junction.

Conclusions and Recommendations

A thorough on-site assessment of each project segment should be made, working with an SCSP Manager and/or Ranger, to determine if the initial assessment and suggested remediations are reasonable and viable approaches; as needed, alternate approaches should be fleshed out.

Careful evaluation should also determine specific materials needs, whether using native or cut stone, or, as a last resort, wood (e.g., for box steps). Sustainability (i.e., for long-term, low maintenance) should be a primary goal for all evaluations.

The sequencing of segment work as we have recommended here attempts to first address areas of greatest foot traffic, thus greatest need. It also attempts to take into account seasonality, i.e., when are the segments least likely to be wet, muddy or inaccessible; as well as when some of the larger segments could benefit from summertime volunteer availability (e.g., VISTAs, Scouts, etc.).

Because of the multi-year timeline for this project, it is recommended that FSC consider applying to organizations like the South Cumberland Community Fund (“SCCF”), which runs the local VISTA program, for seasonal help; as well as reaching out to the local school system to see if a program of summer work in the park for local teens could be created. Other volunteer service groups, such as the Mennonites, and even stipend-driven programs, such as the Southeast Conservation Corps (“SCC”), are possible partners in a project of this scope. Creative solutions will carry the day!

*Submitted to the Trails Team and SCSP Managers • July 29, 2021
Reviewed on-site with SCSP Manager Aaron Reid • Sept. 9, 2021*