VALLEY FORGE TRAIL PROJECTS

The following six project descriptions for Valley Forge trails are organized according to skill level. The first three projects will provide fundamental skills for trail drainage and stabilization work including dips, waterbars, rebenching, checks and trail definition. The last three projects involve more intensive and technical training for trail rehabilitation including checks in steep sections, log terrace steps, retaining wall construction, a short reroute, and massive gully repair. Each project description describes the skills to be taught, the current condition of the teaching site, the work needed, special considerations such as archeology, materials and tools needed, projected work time, and skill level. All projects will involve training by professional trails crew supervisors or leaders, with an ideal ratio of one instructor to six trainees. The first three projects combined can be accomplished in one week or five field days. The fourth and fifth projects combined can be accomplished in two weeks or ten work days, with some preparation and finish up work before and after the projects. The sixth project can be accomplished in two weeks or ten work days, with some preparation and finish up work before and after the project.

1. Mt Joy Trail F Drainage Dip, Benching, and Trail Definition Project

Mount Joy F provides a good section of trail in which to begin training as there are no existing constructed features. Many drainage dips are prescribed for this section. Drainage dips (also known as swales) are the most basic drainage features and the backbone of water bar installation, which will be covered in subsequent training projects. It is vital in trail maintenance to understand the function and proper construction of dips.

Condition:
There are no existing water bars or drainage features on this trail, and though the trail is not severely eroding, it is losing its bench and will continue to deteriorate. Eventually, the bench loss will be irretrievable. There are pooling wet areas in the trail, a minor gully, and water coming from an unauthorized path all contributing to degradation of Mt. Joy Trail F. Users are widening the trail tread in places due to improper drainage and a lack of trail corridor definition.

Work Needed:
(from Mt Joy Trail J heading east)

- Rebench over 120' where gully is occurring
- Install 4 dips just past this section heading west
- Rebench relatively flat terrain just west of intersection with Trail H
- Install small ditches to allow water to drain from puddle areas
- Install dip where unauthorized trail scar is draining water into trail
- Rebench and install dips near Quarry and intersection of Mt Joy G
- Define edges of treadway with brush, duff and logs

This project will require digging in and alongside the trail. In order to appropriately return the outslope of this section of trail it will require that the berm on the outside edge of the trail be dug down to a maximum depth of 4-8 inches gradually decreasing to zero depth as the dip approaches the center of the trail. This material will then be used on the inside edge of the trail, raising its height to achieve an outslope that drops approximately ½-inch per cross sectional foot of trail.

In events of heavy rain and loss of outslope, water must be diverted from the treadway by water breaks. The simplest to install are dips, or swales. Four dips at approximately 30-foot intervals will need to be constructed on this section. This requires excavation of the treadway itself to a maximum depth of 6-8 inches, 18-20 inches wide, at approximately 45 degrees to the direction of travel. The trail tread will be reshaped to gradually ascend into and out of this constructed dip trench.

Due to the significant cross slope of the terrain on this section of trail, very little digging will need to be done outside of the tread itself to successfully divert water and prevent its re-entry into the trail corridor, a maximum of 12 inches horizontally. In areas with shallow cross slope the outlet ditch must be extended off the trail far enough to prevent water from returning to the trail below.

In areas where standing water occurs in the treadway on relatively level sections of trail, hikers and other users avoid the water and contribute to the widening of the trail corridor. These areas are drained through removal of the berm and creation of a shallow swale at 90 degrees to the direction of travel. This is similar to the construction described above with less excavation. Often it is necessary to redefine the edge of the trail corridor through the placement of obstacles and through revegetation.

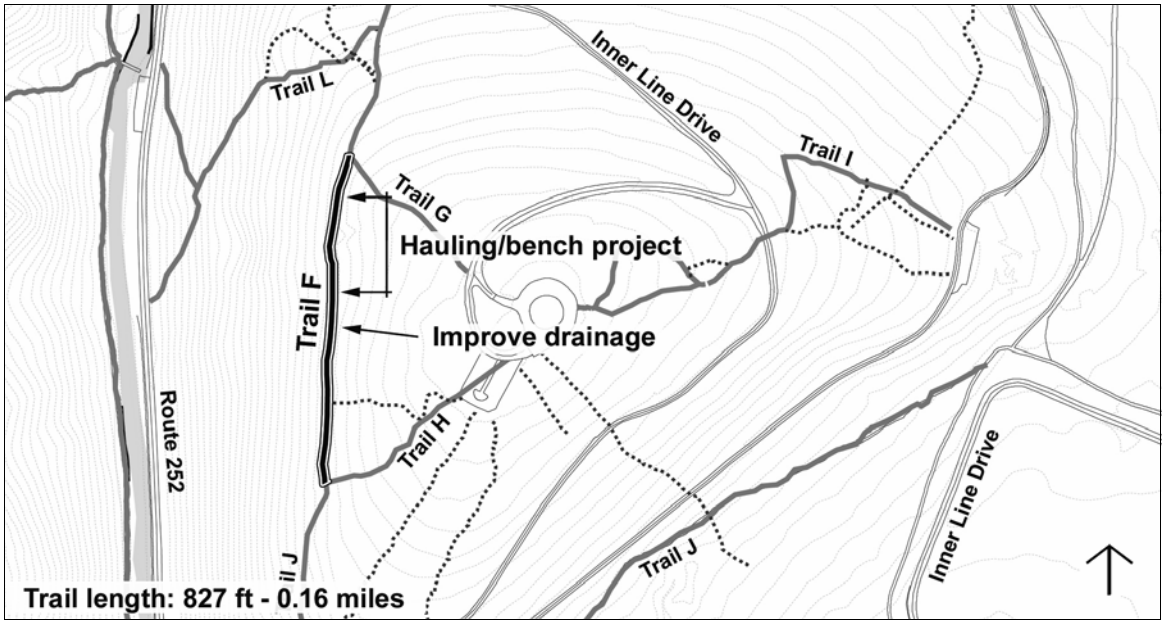
Materials and Tools Needed:

- Measuring tools – tape measure, line level, string line, clinometer. Acadia will provide the necessary measuring tools for the training.
- Digging tools – pulaskis or pick mattocks, spade shovels, landscaping rakes (not flimsy garden ones), rock bar.
- Cutting tools—loppers, short handled axe, bow saw

Projected Work Time and Skill Level:

Approximately 1 day (this project can be combined with more intensive project to follow); one trainer per 6-8 students, additional students would require an additional trainer to ensure the quality of the work being accomplished. Professional trails crew will train park service field maintenance staff and volunteers.

Images for Mt Joy Trail F Drainage Dip, Benching, and Trail Definition Project



Mount Joy Trail F existing condition.

Mount Joy Trail F after proposed work project (altered photo). After the training the trail would be rebenched, outsloped, with the edges of the treadway defined.

Mount Joy Trail F area to be rebenched.

Mount Joy F area to be rebenched with drainage dips.

Mount Joy F section to be rebenched with drainage dips.

2. Mt Misery Trail B Water Bar, Drainage Dip, and Brushing Project

Proper water bar installation is one of the most valuable tools in preventing damage to trails. This project on Mount Misery B involves construction and resetting of water bars and is a good follow-up to Project 1, Mt .Joy F drainage dip and bench training in terms of implementation and the continuing development of skills.

Condition:
This trail has several spots that are not draining properly, but overall the trail takes the most logical route along the mountainside, and can be maintained with proper care. Many log water bars are too high and are being undercut by water on Mt Misery B. These need to be reinstalled, and other sections require new dips or water bars. The trail is losing definition where anchor stones on water bars are not functioning, and users are damaging areas on edges of trail to avoid overgrown brush. Near intersection with the Valley Trail, the trail is eroding severely, but stabilization measures can be taken to halt massive material loss until a professional crew can build crib steps to retain the trail tread.

Work Needed:
(from Mt Misery C intersection down to just short of Valley Creek Trail)

- Install dips to direct drainage off the trail
- Add additional and reinstall exposed water bars-- resettiong to proper anchors such as trees
- Install proper anchor stones and barriers so that hikers don't walk around the water bars
- Brush and define the trail

This project will require digging in and alongside the trail to reestablish the outslope. The berm on the outside edge of the trail needs to be dug down to a maximum depth of 4-8 inches gradually decreasing to zero depth at the centerline of the trail. This material will then be used on the inside edge of the trail, raising its height to achieve an outslope that drops approximately ½" per cross sectional foot of trail.

In events of heavy rain and on steeper slopes water must be diverted from the treadway through the use of water bars, which slow and redirect the flow of water. The log or rock bars built below a dip provide an additional barrier on steeper slopes and in areas of increased water flow. Construction is similar to that of a dip with the added excavation required to bury the log or rocks into the treadway; approximately 8-12" into the uphill embankment to anchor the log or rock, depth and width of 8-12" across the trail tread. Due to the significant cross slope of the terrain on this section of trail, very little digging will need to be done outside of the tread itself to successfully divert water and prevent its re-entry into the trail corridor, a maximum of 12 inches horizontally. In areas with shallow cross slope the outlet ditch must be extended off the trail far enough to prevent water from returning to the trail below. Dips and water breaks will need to be constructed at regular intervals throughout this entire section of trail.

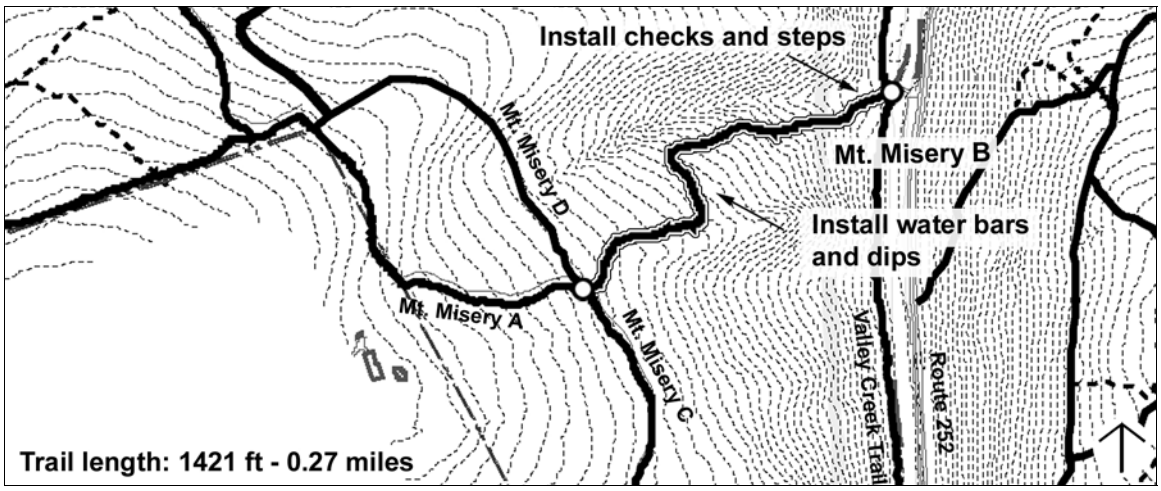
In addition, minor brushing of the trail corridor (vegetation removal) and delineation of the trail corridor through the placement of obstacles and through revegetation will be necessary to decrease widening of the trail tread.

Materials and tools needed:

- Measuring tools – tape measure, line level, string line, clinometer. Acadia staff will provide the necessary measuring tools for the training.
- Diggings tools – Pulaskis or pick mattocks, spade shovels, landscaping rakes (not flimsy garden ones), rock bar.
- Cutting tools—loppers, short handled axe, bow saw, chainsaw
- Additional logs for use in log water bars, may be found locally

Projected Work Time and Skill Level:
Approximately 2 days; one trainer per 6-8 students, additional students would require an additional trainer to ensure the quality of the work being accomplished. Professional trails crew will train park service field maintenance staff and volunteers.

Images for Mt Misery Trail B Water Bar, Drainage Dip, and Brushing Project



Mount Misery Trail B site for water bar project.

3. Chapel Trail A and B Drainage Dip, Bench, Check, and Trail Definition Project

Checks are essential in retaining tread material on trails with moderate to steep slopes and in places where water cannot be removed from the treadway. With proper installation and maintenance, trails with checks will incur less erosion. Checks are a necessary addition to a trail in situations where water travels down the trail corridor and cannot be removed through traditional drainage, and in areas of increased slope. The slope of the trail dictates the number of required checks in a given area to prevent further erosion of the tread. Checks often work in conjunction with drainage features, so this project is a good opportunity to combine skills and introduce additional trail maintenance features in a moderately eroding area.

Condition:
This project treats the central section of the contiguous Chapel Trail A and B. West of this section the trail is narrower and more steeply sloped, and east of this section past the Baptist Trace Road, the trail is more road-like in character. The central section is in fair condition but needs dips, checks, and rebenching to prevent severe damage in the future. The area most in need of checks is the 10% slope segment that descends north from the mowed field as the trail bends around a steep ravine, and the trail makes additional but gentler ascents and descents that require checks as well. Throughout the project section, there are numerous wet areas and places where outslope of the bench has been lost, and horses are walking on the berm and widening the trail.

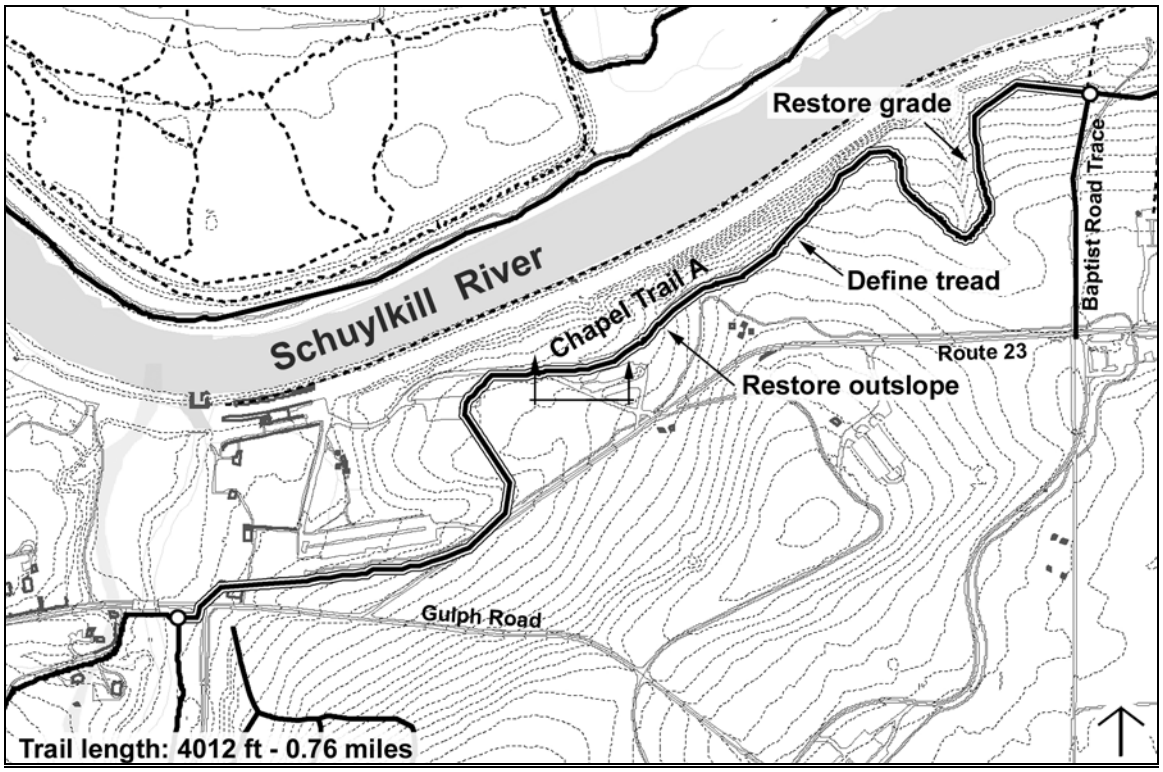
Work Needed:
- Install dips to direct drainage off trail in wet spots
- Rebench areas that have lost outslope
- Sixteen log checks per 100 feet at a 10% slope. To retain tread on steeper slopes more checks will be needed per linear foot of trail.
- Bring tread level to grade
- Define tread width with vegetation, duff and logs randomly placed along trail edges

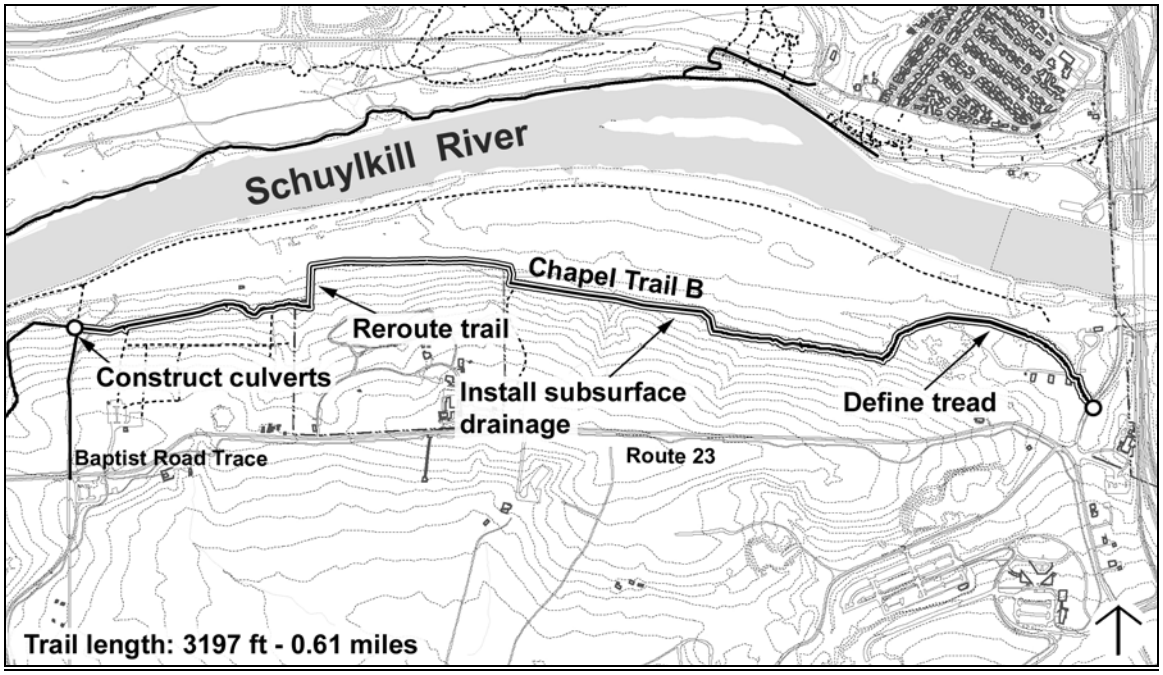
This project will require digging in and alongside the trail. Checks require excavation of the tread 8-10" wide by 8-10" deep across the width of the trail with an additional 8-12" into the embankment on each side of the eroded treadway to anchor the check. In areas of severe erosion and tread loss, additional material may need to be hauled in to restore the tread to a proper height and grade.

Materials and tools needed:
- Total number of logs need to be determined by taking measurements
- Measuring tools
- Diggings tools – Pulaskis or pick mattocks, spade shovels, landscaping rakes (not flimsy garden ones), rock bar.
- Cutting tools—loppers, short handled axe, bow saw, chainsaw

Projected Work Time and Skill Level:
Approximately 1-2 days; one trainer per 6-8 students, additional students would require an additional trainer to ensure the quality of the work being accomplished. Professional trails crew supervisor will train park service field maintenance staff and volunteers.

Images for Chapel Trail A and B Drainage Dip, Bench, Check, and Trail Definition Project





Chapel Trail A drainage dip and rebenching project area. Loose soil on the left side of the trail has washed down a spur road on the upper left and deposited on the benched trail eliminating the outslope.

4. Mount Misery Trail B Check and Terrace Step Project

This project is a more intensive check exercise and is a good follow-up to the Chapel Trail check training. The installation of water bars above this project section (see Project 2: Mt. Misery B waterbars) and the stabilization of the gully below (see Project 5: Mt. Misery B trailhead reroute) will greatly improve Mt Misery B as well as provide a well-rounded trail maintenance education.

Condition:
The last section of Mt Misery B, prior to reaching the trailhead at Valley Creek, has a steep slope up to 30% and is severely gullied. Numerous checks or terrace steps are needed here to support the trail tread. Treating this area will help alleviate some of the erosion conditions that are causing the massive gully below this project section.

Work Needed:
- Checks and Steps project: install 200 log checks and build log terrace steps in badly eroded section near beginning of trail - raise side walls (training session doesn't need to involve all 200 checks)
- Incorporation of drainage structures into construction of checks and terrace steps.
- Gathering of local surface rock to be used in construction and as fill material.

This project will require digging in and alongside the trail. Checks are a necessary addition to a trail in situations where water travels down the trail corridor and cannot be removed through traditional drainage, and in areas of increased slope. The slope of the trail dictates the number of required checks in a given area to prevent further erosion of the tread. Checks require excavation of the tread 8-10" wide by 8-10" deep across the width of the trail with an additional 8-12" into the embankment on each side of the eroded treadway to anchor the check. In areas of severe erosion and tread loss, additional material may need to be hauled in to restore the tread to a proper height and grade. In the near vicinity of these projects there is an abundance of surface rock. It may be possible to use some of this rock in the construction of checks (need archaeological clearance).

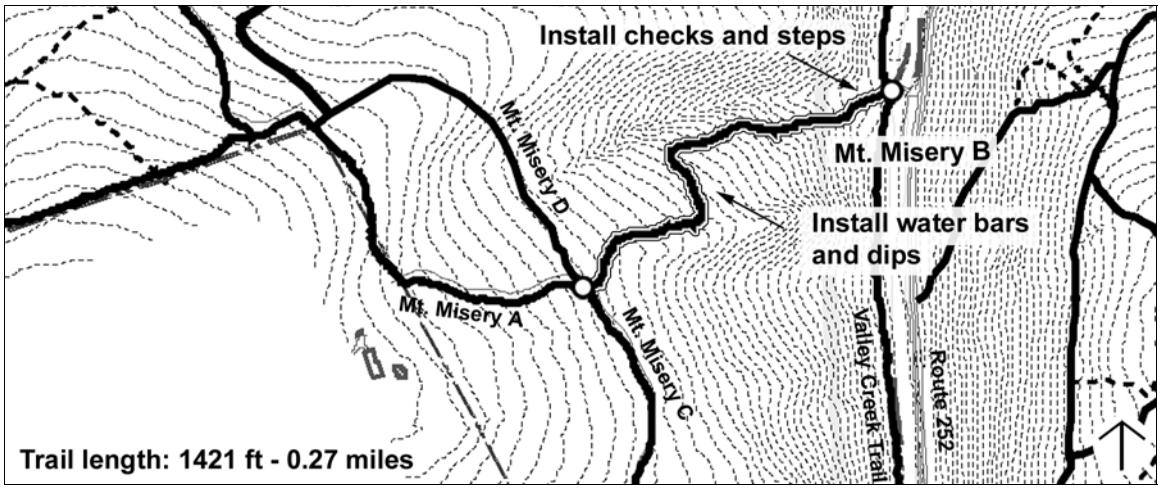
In addition, minor brushing of the trail corridor (vegetation removal) and delineation of the trail corridor through the placement of obstacles and through revegetation will be necessary to decrease widening of the trail tread.

Materials and tools needed:
- Logs – 200 - 8' x 8" (min diameter)
- 10-inch spikes, 12-inch spikes, or sharpened and pointed re-bar, lumber crayons
- Measuring tools - levels tape measure, line level, string line, clinometer. Acadia will provide the necessary measuring tools for the training.
- Diggings tools – Pulaskis or pick mattocks, spade shovels, landscaping rakes (not flimsy garden ones), rock bar, gurney
- Cutting tools—loppers, short handled axes, bow saws, chainsaw

The number of materials can be scaled down to fit the size of the group and the actual duration of training.

Projected Work Time and Skill Level:
Approximately 2-4 days; one trainer per 6 students, additional students would require an additional trainer to ensure the quality of the work being accomplished. Professional trails crew supervisor will train park service field maintenance staff and volunteers.

Images for Mount Misery Trail B Check and Terrace Step Project



Mount Misery B check and terrace step project area.

5. Mt Misery Trail B Trailhead Reroute, Bench, Check, Retaining Wall and Revegetation Project at Junction with Valley Creek Trail

A stabilization and reroute is a great project for a more advanced training session as it builds on benching skills and tackles an extreme, localized problem at the lower trailhead of Mount Misery Trail B. It is vital in trail maintenance education to witness the layout considerations and implementation of reroutes and major fill projects.

Condition:
This very end of Mt Misery Trail B is completely eroded and requires major step construction if present route is to be maintained. Massive amounts of material have been lost and will continue to be lost due to the steep grade. A less costly and more sustainable approach is to reroute the trail to avoid the existing gully. A feasible reroute would bend the trail east towards the Upper Forge interpretive sign area, using what is likely the original route of this trail. In addition to this, the gully must be stabilized. Log checks need to be installed to retain the new fill and vegetation as Mt Misery B drains directly into this area, and a stone retaining wall should be constructed at the turn in the trail reroute. A swale can help steer some of the water from Mt Misery B away from the rehabilitated section, and with the construction of checks and water bars on Mt Misery B above this area, drainage will be greatly improved.

An old trailhead signpost is located across Valley Creek Trail from the suggested trailhead reroute, so it seems the Mt Misery B trail originally took this route. Archaeological review is needed before beginning work in this area.

Work Needed:
- Haul in material to fill massive gully and bring area to grade
- Build checks to retain gully fill material
- Rebench new spur from Mt Misery B as it makes turn away from gully
- Build roughly crafted stone retaining wall of heavy batter, import rocks for construction and for back fill.
- Dig swale to direct Mt Misery B trail drainage away from rehabilitated area and assess for the need of inside drain with culvert.
- Revegetate reroute area
- Obscure scar and define new trail edge with brush and duff to keep users from cutting through rehabilitated area to Valley Creek Trail

This project will require digging in and alongside the trail throughout the first 150 feet of the ascent from Valley Creek on Mt. Misery Trail B. In addition it will be necessary to treat this project as two separate exercises: Stabilization and rehabilitation of the current eroded entrance to the trail and the proper grading and drainage construction of the new route. The grading of the re-route will require the addition of new base and surface material, as well as the construction of a retaining wall and the addition of several dips. Rehabilitation of the old route will require the addition of fill base material and suitable surface material for re-planting. It will also need log checks and plants to further stabilize the slope. See previous projects for the details associated with these activities.

Materials and tools needed:

- Logs – 12-14 logs as wide as the scar (approx. 8-10 feet)
- 4 cubic yards of building rock
- 1 to 1.5 yards of random backfill (random sized rocks, with fractured faces, not field stones)
- 2 to 3 yards of top soil
- 100 plants and 100 plugs of grass
- Measuring tools - Acadia will provide
- Digging tools - pulaskis, pick mattocks mattocks, spade shovels, landscaping rakes (not flimsy garden ones), rock bar, gurney
- Cutting tools—loppers, short handled axes, bow saws, chainsaw

Projected Work Time and Skill Level:

Approximately 4-8 days; one trainer per 6 students, additional students would require an additional trainer to ensure the quality of the work being accomplished. Professional trails crew supervisor will train park service field maintenance staff and volunteers.

Images for Mt Misery Trail B Trailhead Reroute, Bench, Check, Retaining Wall and Revegetation Project at Junction with Valley Creek Trail

Existing Gully at Mount Misery B trailhead as seen from Valley Creek Trail.

Mount Misery B trailhead existing condition.

Mount Misery B trailhead after proposed repair and reroute (altered photo).

6. Mt Joy Trail D Check, Log Cribbing, Pipe Drain, Revegetation and Gully Repair Project

The gully on Mt Joy D is one of the most severely damaged sections of the Valley Forge trail system. This project requires a professional trail crew that can train skilled workers or experienced volunteers. The major crib construction should be carried out by professionals, but this is still a great opportunity to train a more skilled trail crew in advanced trail care. Less skilled groups can still provide assistance: volunteers can haul in materials or plants before project begins, and after the intensive construction phase is finished, they can perform follow-up work by obscuring social paths, surfacing finished steps and checks, and planting vegetation.

Condition:
The damaged section of trail is on the steepest slope of Mt Joy D. A massive gully has developed, and users are taking an unauthorized spur to avoid the treacherous area. The gully is 5' deep and erosion will continue to deteriorate the trail if the current problem is not arrested and stabilized.

Work Needed:
- Construct 12 log checks below gully to stabilize tread, 12' logs, at least 8"diameter
- Construct log cribbing throughout remainder of gully
- Imbed perforated pipe beneath cribbing to aid in subsurface drainage.
- Import material to fill and surface cribbing
- Construct drains to divert water wherever possible.
- Replant and define trail corridor
- Stabilize and Close unauthorized spur

The construction of a series of log cribs with incorporated drainage structures will need to be built to repair this damaged area of trail. A large amount of fill will need to be imported to restore the trail to a usable grade and width. The amount of digging involved in this project will be fairly minimal, as most of the construction will be done above existing ground as the loss of tread is so severe. In places it will be necessary to dig into the terrain surrounding the gully to periodically anchor the cross checks of the log cribbing and to limit erosion beside the cribs. A depth of one foot of digging on each side would be necessary in some places. In addition the first sets of log cribbing will be buried in the existing trail tread down grade from the gully area. If possible it would be best to have this entire area of trail cleared by an archeologist for digging to one foot outside the trail tread area.

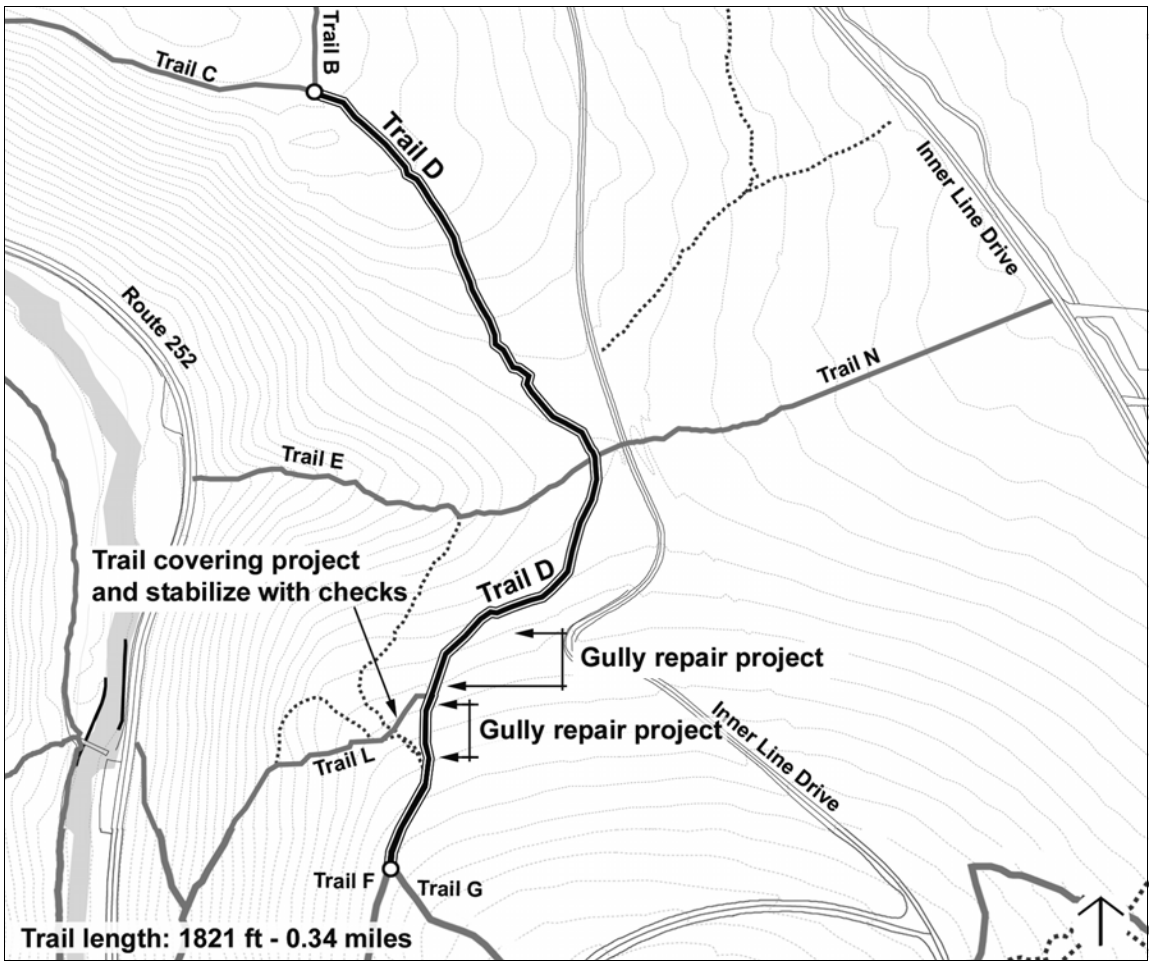
Materials and tools needed:
- 300' of 4" perforated pipe
- Roll of geotextile fabric
- 50 lb box 12" spikes
- 3 lb hammers (3)
- 1400 linear feet of 8" min. diameter cedar logs
  40 – 10' logs
  62 – 12' logs
- 90 cubic yards of fill material, e.g. blasted ledge, crushed rock of various size up to 8"
- 17 yards surface material, e.g. "modified"
- 2-3 cubic yards of loam
- Digging tools - Pulaskis or pick mattocks, spade shovels, landscaping rakes (not flimsy garden ones), rock bar, gurney
- Cutting tools—loppers, short handled axes, bow saws, chainsaw

NOTE: The recommended amount of fill for this project is only enough to half fill the eroded gully. At this point bank stabilization will not be needed around the cribbing and the desired trail width can be achieved. It mitigates the difference between not providing any fill resulting in the need for bank stabilization and hauling the entire amount to fill the gully.

Trail equipment and or small trucks will easily fit on this path if vehicles are needed to haul in material from Inner Line Drive. Example: an ATV can haul in blown ledge.

Projected Work Time and Skill Level:
Approximately two weeks of intensive log work by 4 professionals and assistants (two groups of three, perhaps). Volunteers would be best utilized 1 week before and 1 week after and maybe a few during the project. Professional trails crew supervisor will train park service field maintenance staff and volunteers.

Images for Mt Joy Trail D Check, Log Cribbing, Pipe Drain, Revegetation and Gully Repair Project



Mount Joy Trail D gully existing condition.

Mount Joy Trail D gully after proposed repair (altered photo).

Mount Joy D gully project area as viewed from above.

Mount Joy D depth of existing gully.

Mount Joy D gully (left) and unauthorized Mount Joy L to be obscured.

Mount Joy D, hikers walking around gully.

GLOSSARY OF TRAIL TERMS

Abutment: A stone masonry, wooden, or concrete substructure supporting the ends of a bridge.

Alignment: The trail's route between its origin and its destination. It can vary tremendously in character, based on the decisions of the trail designers and builders.

Associated structures: Small-scale features associated with the trail system, including benches, shelters, picnic facilities and towers, which offer places for rest and appreciation of the surrounding landscape.

Authorized Trail: A trail identified in the park's General Management Plan or compendium.

Backcountry trail: A backcountry trail leads to a remote area that is typically not accessible by vehicle and associated with large wilderness areas and overnight camping. Backcountry trails do not exist at Valley Forge NHP.

Backed water bar: See **water bar**.

Bench cut: A flattened portion of trail created by the removal of earth from a hillside, the fall line of which runs perpendicular to the trail direction. A bench cut may be a **full bench**, a **half bench**, or a **three-quarter bench**. These terms refer to how much of the treadway is placed in the cut area and how much of it is placed in the fill area on the downslope side of the trail. A **full bench** consists of the trail corridor fully placed in the cut area, while a **three-quarter bench** has three quarters of the tread in the cut, and a **half bench** has half of the tread in the cut and half in the fill.

Blaze: A mark used to identify a trail and reassure hikers that they are following the route.

Blocking: See **shim**.

Bogwalk: A wooden walkway consisting of a **treadlog** or **treadlogs** with flattened walking surfaces, laid parallel with the trail and set on **bedlogs** or **cribs.** Bogwalks provide a raised, even, and dry tread through wet spots, over exposed roots and areas with fragile vegetation. Wider bogwalks that are used to cross water channels are considered **bogwalk bridges**.

Bridge: A structure providing passage over an impediment such as a waterway, gully, or crevice. It is typically a series of bars used to span gaps between ledges and is composed of **abutments**, **piers**, **stringers**, **decking**, **curbrails**, and **handrails**.

Bullrail: See **curbrail**.

Cairn: A rounded, pyramidal, or stacked pile of stones used as a trail marker.

Cake style: The term "cake" indicates a stone-setting style in which each stone is set lying down.

Capstone culvert: Closed culvert topped with one or more flat stones that also serve as the treadway.

Catch basin: A dry well or inlet, located where a ditch meets a culvert. The basin "catches" debris carried by fast-flowing water, preventing the debris from flowing into and clogging the culvert.

Causeway: A constructed treadway raised above the level of the surrounding area. A causeway is commonly used to provide a durable, dry tread through a wet, swampy, or meadow area. See **walled causeway** and **wall-less causeway**.

Checks: Rows of stones used to retain the treadway on an evenly sloped section of trail with a grade less than twenty percent.

Clinometer: An optical instrument used to measure vertical angles, slope, or an object's height. In this assessment, a clinometer was used to measure the slope of trail segments.

Closed culvert: A culvert constructed with sides, a base, and top, allowing water to pass underneath the trail while providing an uninterrupted treadway. See **capstone culvert**, **graveled-over culvert** and **pipe culvert**.

Commemorative bench, plaque, or marker: An engraved stone or tablet cast in bronze or other metal which is mounted on a large boulder or other location to commemorate an individual, group, or event associated with the property.

Control point: See **route**.

Coping retaining wall: A low, single tier wall that retains the treadway or steps and rises above it to act as a coping wall. It holds the tread higher than the ground on the other side of the coping and may retain gravel, stone pavement or soil.

Coping stones: Stones set along the edge of a trail, slightly higher than the tread surface. These stones may be piled or laid on the top course of a wall or partially into the ground; they are usually gapped, but sometimes abut. Coping defines the edge or edges of the tread, provides guidance to hikers, and in some cases, supports tread material, stone paving or steps.

Coping wall: Any section of coping stones near or touching each other, and forming a retaining or side wall.

Corduroy: Decking composed of whole or split logs laid side-by-side, perpendicular to the stringers, giving the finished treadway a textured or corduroy appearance.

Crib: An enclosure built of logs, usually three sides or more, containing fill. Crib logs are typically notched and stacked "Lincoln Log" style. Cribs can be used both for retention of embankments or supports for bridges and bogwalk.

Culvert: A a stone, pipe, or log structure built to carry water under or across a trail. See **closed culvert** and **open culvert**.

Curbrail: A low barrier, usually not over four inches, placed along the side edges of a bridge, parallel to the treadway. Typically a single log is used. This feature guides walkers across the bridge and often provides structural support. Also called a **bullrail**.

Decking: The walking surface of a bridge, typically consisting of milled boards or logs attached to the stringers. The decking is laid perpendicular to the stringers.

Ditch: A simple drain that collects and directs water adjacent or near the side of trails. Ditches can be constructed quickly but are susceptible to scouring and collapse. The practice of **ditch and fill** can be used to restore a wet area by ditching along one or both sides of the treadway to create drains, and using the resultant material (fill) to build up a raised treadway.

Drain dip: See **water dip**.

Engraved Stone: A boulder, step, or cut stone into which text has been engraved.

Earthen water dip: See **water dip**.

Fall-line: The route which water flows down a hillside. Trails that follow the fall-line are more susceptible to erosion and require stabilization by checks or rerouting.

Fitted wall: A rubble wall with stones that are fit into spaces left by existing stones or larger stones that have been set, such as in a talus slope.

Full bench: See **bench cut**.

French drain: A type of subsurface drain, consisting of a covered-over channel of stone laid underneath the trail surface or the surrounding ground. A French drain may run along the uphill side of the treadway and/or underneath the treadway, extending across to the downhill side of the treadway. The stones allow water to percolate through them; however, French drains may fill with silt eventually and become ineffective.

Fully constructed side drain: A side drain in which both sides and the floor of the drainage are laid stone. The drain may be V-shaped, in which flat stones are laid with a heavy batter such that their bottoms meet, or U-shaped, in which a shallow, rounded ditch is reinforced with small stones set rip-rap style.

Grade dip: See **water dip**.

Graveled-over culvert: A closed stone culvert overlaid with a gravel treadway.

Half bench: See **bench cut**.

Handrail: A waist-high barrier that aids or guides walkers across a bridge. Individual situations may call for no handrail, a single handrail, or one on each side of the bridge.

Header-style: The term "header" refers to a stone-setting style in which each stone is set vertically with the greatest length of the stone extending back into the trail.

Informational signage: Signage that conveys information about trail routes, conditions, and safety. Informational signs educate trail users about cultural and natural history, resource protection, and associated rules and regulations.

Interpretive signs: Signs intended to enhance users' understanding of a site. They may be located at scenic overlooks, cultural features, natural features, or at the beginning of self-guided nature trails.

Ironwork: A constructed iron trail feature, generally of rolled steel, affixed to stone, for the purpose of either supporting structures or aiding hikers. See **pin, rung, rail, ladder,** and **bridge**.

Ladder: A structure for climbing that consists of two sidepieces joined at intervals by crosspieces on which a hiker may step or hold. A series of ascending or descending rungs, without sidepieces, is also often described as a ladder.

Laid coping: Coping walls built along the trail above the level of the tread that are laid rather than piled. Laid coping is similar to a "stone fence."

Laid wall: A retaining, or other wall constructed with stones set beside and on top of one another, and having a vertical or substantially vertical face. The construction of laid walls uses established dry-laid stonework methods: maintaining tight contacts between stones, breaking the joints, and filling the core of the wall. Although laid walls are the most difficult to build properly, they are the strongest and most durable retaining walls. See **tiered wall**.

Log closed culvert: A culvert composed of logs and log abutments covered with gravel. In this document, log closed culverts are classified as small bridges with short spans.

Log water bar: See **water bar**.

Log turnpiking: A raised tread that consists of a series of log cribs laid contiguously.

Modified surface material: A mix of gravel and "quarry fines" (residue from the crushing process) that packs well to form a hard surface. Mixes are specified as "2A," which has 3/4" stone with grayish-black quarry fines; or "2RC," which also has ¾" stone with more brown quarry fines and dirt in the mix.

Muck: A layer of rich organic matter, often saturated with water, typically associated with wetland areas.

Open culvert: A culvert with built sides and usually a stone base, but no top, resulting in an interrupted treadway. The sides may be of stones or wood. See **open stone culvert** and **stepstone culvert**.

Open stone culvert: An open culvert constructed entirely of stone, with a stone base and sides. Some open stone culverts have sides of single-tier walls, or even single stones, while some sides are small retaining walls.

Organics: Surface consisting of leaf litter, duff, fine routes, dark rich soil, typically found on lightly used trails with unconstructed tread. May erode with heavy trail use or turn to muck when wet.

Outslope: The grade from the upslope edge of the treadway to the downslope edge. Trails, especially sidehill trails, should have an outslope of three percent to allow for proper sheet drainage. (From Demrow and Salisbury)

Packing: See **shim**.

Pavers: Flat stones used for stone pavement. See **stone pavement**.

Perforated pipe drain: Sections of perforated plastic pipe surrounded by stone or gravel and wrapped in geotextile material. Perforated pipe drains may run parallel to the trail on its uphill side,

functioning as side drains, or they may cross underneath the treadway, functioning as culverts. Plastic perforated pipes and geotextile material allow unimpeded flow of water with minimal siltation and, therefore, are a preferable alternative to French drains.

Pick Mattock: A heavy tool for trail digging, grubbing, and prying roots and stones. The pick mattock is particularly useful for prying out and even breaking rocks. (From Demrow and Salisbury

Pier: A support structure between bridge spans, typically constructed of rock or log cribbing.

Piled coping: A row of piled stones laid on top of the ground along the side of a trail. Piled coping is similar to scree, but with a more subtle, and less rigid appearance than scree typically has. Piled coping is lower to the treadway than scree and piled with more care to the exact edge of the treadway.

Piled wall: The least structured style of retaining wall, consisting of a row or group of randomly piled stones that retains material. Piled walls depend on steep batter to maintain their position and are usually less than three feet tall to avoid collapse.

Pin: Any piece of solid metal used for fastening, holding, or supporting steps, wall, coping, overhanging boulders, bridge stringers, or any other constructed feature. Pins may be iron or steel. May also refer to a stone shim. See **shims**.

Pipe culvert: A closed culvert with a pipe or pipes set underneath the tread surface for the drainage channel.

Plank or **planking:** Bridge decking consisting of milled boards of regular sizes.
Pulaski: A single-bit ax with a small grub-hoe blade. Though designed for fire control, the tool is useful for sidehill grubbing, cutting roots, removing blowdowns, cleaning drainages, and other trail maintenance (From Demrow and Salisbury).

Rail or **railing:** A section of ironwork, generally rolled steel, extending from one point or support to another, that serves as a guard, barrier, or support. Some railings are supported on iron stanchions, which serve as posts.

Retaining wall: Any wall that holds one portion of ground higher than another. On a trail, a retaining wall may retain the treadway itself or the ground on the uphill side of the treadway.

Rip-rap steps: A series of tiers built of randomly laid, abutting stones. Each tier or step consists of many stones laid so their tops form a single smooth stepping surface. See **step**.

Route: The alignment between trail origin and destination. Trail route can vary tremendously in character, based on the decisions of the trail designer and builders. The route may vary in length, experiential difficulty and degree of enclosure, depending on the designer's choice of **control points**. Control points are the places where the trail must go, including termini, ridges, saddles, stream crossings, rock outcrops, and scenic features; they are also determined by areas that must be avoided. By identifying the control points along a historic trail alignment, one may determine the trail designer's intent and, from that point, study corresponding construction techniques.

Rubble wall: A wall constructed of stones set quickly in the most convenient places, with little regard to established stonework methods.

Rung: A piece of ironwork used as a foot perch, crosspiece of a ladder, or a handhold.

Safety signs: Signs that include information concerning hiker safety. Examples include signs posted at trailheads of ladder trails, near shoreline caves that are flooded at high tide, or by areas accessible only at low tide.

Scree: Randomly piled stones, or other material, placed along the sides of a trail to define treadway, direct and restrict hikers, and to protect trailside vegetation and soil. Scree should be placed carefully so it does not retain water on the trails. See **coping.**

Set-behind steps: Steps where each stone is set contiguously behind the back of the step immediately below it, so that the bottom of the upper step sits well below the top of the step that precedes it in the staircase. See **step**.

Shim: A small, flat stone placed underneath a larger stone to eliminate wobble, fill gaps, or to raise the overall height of a larger stone. It is called a shim if it is exposed. If the stone is used in the interior of a structure, where it is locked in place, it is called **blocking**, **packing**, or a **pin**.

Side drain: An open drain that collects sheet water from the uphill side of the trail before it reaches the treadway. The drain directs water parallel to the trail on one or both sides of the treadway, then away from the trail, or, across or under it through a culvert. When a trail follows the fall line, side drains collect water running parallel to the trail. A side drain is usually directly adjacent to the trail and built as a part of the overall construction of the treadway. If the drain is located ten or more feet from the trail, it may be referred to as "off-trail drainage". A side drain may be stone-lined, a simple earthen ditch, or the resultant drainage path created by a raised tread. See **ditch**, **fully constructed side drain** and **walled side drain**.

Sidewall: A low, single-tier retaining wall that retains a gravel treadway. It is the type of wall used in conjunction with causeways.

Sill or **sleeper:** The timber set perpendicular to the trail on each end of the bridge. Sills serve as a base on which the stringers rest.

Slab-laid steps: Steps that are are set on top of each other, so that the bottom of the upper step sits on top of the back of the step immediately below it. See **step.**

Social trail: A trail created by repeated use of an undesignated route; often a desire line or short-cut between two points. When unmanaged, social trails become more apparent, and are sometimes maintained and marked by unauthorized individuals. These routes can lead to confusion causing people to become lost, safety concerns, and resource damage.

Step: A constructed feature that is a vertical drop or rise in grade onto a horizontal surface suitable for a hiker's foot. A series of steps is referred to as a **staircase**. **Set-behind** and **slab-laid** refer to steps in which each step is an individual stone, though in some cases two or more stones side-by-side may form a single step. See **set-behind steps**, **slab-laid steps,** and **rip-rap steps**.

Stepping stones: Stones set in a single row, a stepping distance apart. They provide an elevated walking surface for crossing streams and wet areas. Stones usually have a flat upper surface, are comfortable for stepping, and are gapped, allowing water to flow through. Stepping stones that are placed in combination with sidewalls or abutments are described as **stepstone culverts**. Stones that abut or are more than one stone-width across are described as **stone causeways**.

Stepstone culvert: An open culvert with a stepstone placed between the sides to lengthen the width of the water passage. It may be simple, consisting of three large stones with a gap for water to flow through them, or it may have sides that are built retaining walls. A water crossing with more than three stepstones in the channel is considered a set of **stepping stones**.

Stone causeway: A causeway with a stone pavement surface.

Stone pavement: A constructed, continuous stone treadway with individual stones, often called **pavers**, serving as the tread. Stone pavement used to traverse talus fields is called **talus pavement**. Stone pavement used to harden the surface of a soil treadway, typically on a woodland trail, is called **tread pavement**.

Stone water bar: See **water bar**.

Stringers: span the distance between abutments or piers, support the decking, and are usually cedar logs.

Subgrade drainage is non-channeled subsurface drainage that moves through the subgrade of entire lengths of trail sections. The subgrade is constructed of clean stone rubble that allows percolation through the trail beneath the surface of the treadway.

Subsurface drain: A covered drain, also termed "hidden" or "blind drain," that allows water to percolate alongside and/or under the trail. This type of drain can absorb large volumes of slow moving, seeping water. See **French drain**, **perforated pipe drain** and **subgrade drainage**.

Swale: See **water dip**.

Talus pavement: See **stone pavement**.

Three-quarter bench: See **bench**.

Tiered wall: A wall laid with stones set in even, horizontal rows.

Toast-style: A phrase that refers to a stone-setting style in which stones are set vertically with at least half of their mass below grade to prevent tipping.

Trailhead exhibit: A trailhead exhibit may consist of embedded fiberglass panels that provide the trail name, a map, "Leave No Trace," other resource protection messages, and safety information. They are typically located near at popular trailheads.

Trail name: The name ascribed to each trail from its origin to its destination or the point where it intersects another trail. The name is used on trail signs, maps, in guidebooks, and associated documents.

Tread pavement: See **stone pavement**.

Unauthorized trail: A trail not identified or closed in the park's General Management Plan or compendium.

Unconstructed tread: A section of trail on which there has been no alteration of the landscape and no construction of a trail surface. Also called "natural treadway."

Veneer wall: Any laid or rubble wall in which the stones are set so that they do not penetrate the core of the wall. Typically, veneer walls have limited strength and are not suitable for trail construction.

Views: Expansive or panoramic prospect offered by a broad range of vision, which is naturally occurring or deliberately contrived.

Vista: The controlled prospect of a discrete range of linear vision, which is deliberately contrived.

Walled causeway: A raised gravel or soil treadway supported on both sides with retaining walls.

Walled side drain: A partially constructed drainage channel consisting of a stone wall on the side adjacent to the trail, and no construction on the side of the drain away from the trail. The stone wall may be a single or multi-tier wall. The wall retains the trail tread and ensures the integrity of the drain. The floor of the drain may be flat-laid stones, packed stone rubble, or earthen.

Wall-less causeway: A raised gravel or soil treadway, which is constructed without retaining walls. In wall-less causeway, soil and vegetation serve the retaining function.

Water bar: A structure consisting of a depression crossing a treadway that is reinforced by a log or row of abutting stones on the downhill side. The main function of a water bar is to divert water that is flowing on a sloped treadway. **Stone water bars** consist of a row of abutting stones. **Log water bars** use a single log for reinforcement. A **backed water bar** is a water bar "backed" or held in place by steps or checks constructed below it to help retain the water bar on steep grades.

Water dip: An angled depression in the trail that diverts water off the trail. It may also be called an **earthen water bar** (AMC), a **drain dip** (AMC), a **swale** (western) or **grade dip** (Hooper).

Wingwalls: The retaining walls associated with a culvert, located on either side of the culvert inflow and outflow to both hold the slope and direct water.

Sample of Trail Inspection and Maintenance Form, (reduced in size).

Valley Forge National Historical Park - Trail Inspection and Maintenance Form

Mt. Joy Trail Network

Trail Segment: J

Date: 03/2003

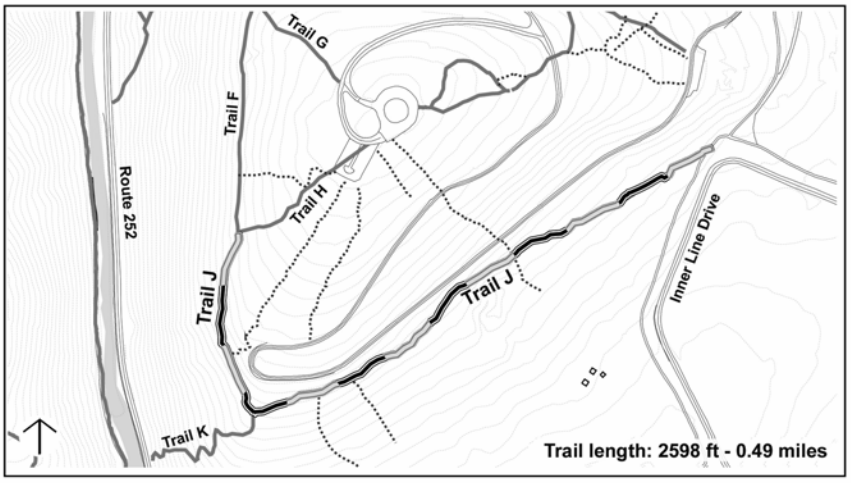
Report by: OCLP

Crew: VAFO Staff/OCLP

Archeological sites:
YES NO

Trail map is divided into 200' segments

Note location of photos on map and key with feature list below



FEATURE						WORK REQUIRED				
PHOTO I.D.	DIST.	TO	TYPE	DATE OF ORIGIN	SOURCE	CONDITION	WORK NEEDED	PROJECT TYPE	HOURS	COST ESTIMATE

Feature Types:

1. Route
2. Treadway (2.1 Bench cuts, 2.2 Causeway, 2.3 Gravel Tread, 2.4 Stone Pavement, 2.5 Unconstructed Tread)
3. Vegetation (3.1 Brushing, 3.2 Grubbing, 3.3 Trimming, 3.4 Weeding)
4. Retaining Structures (4.1 Checks, 4.2. Coping, 4.3 Retaining Walls)
5. Drainage (5.1 Rocks, 5.2 Water Bars, 5.3 Dips, 5.4 Swales, 5.5 Culverts)
6. Steps (6.1 Stone, 6.2 Wood)
7. Crossings (7.1 Bridges, 7.2 Bog Walks, 7.3 Stepping Stones, 7.4 Stone Causeway)
8. Guidance (8.1 Blazes, 8.2 Cairns, 8.3 Directional Signs, 8.4 Info signs, 8.5 Coping, 8.6 Trail name)
9. Iron Work (9.1 Pins, 9.2 Railway, 9.3 Gates)
10. Monuments and Associated Structures
11. Other

Condition categories:

A. Eroding
B. Running Water
C. Wet Areas
D. Gullies Along Trail
E. Gullies Across Trail
G. Berms Along Gullies
H. Outslope Lost on Benches
I. Irretrievable Benches
J. Loss of Crown
K. Exposed Waterbars
L. Eroding Waterbars
M. Unstable Stone Work
N. Damaged Stone Work
O. Collapsing Stone Work
P. Unauthorized Trails
Q. Trail Widening.
R. Trail braiding
S. Deferred maintenance
T. Poor Signage
U. Overgrown Vegetation.
W. Hazardous area
X. Trespassing
Y. Litter
Z. Vandalism

Work Needed:

BR Trail Bridge
BW Bogwalk
CA Causeway
CK Culvert
CU Culvert
CW Coping Wall
DG Ditching
GN Other
GP Gravel Pave
IS Intersection Sign
LC Log Check
LR Ladder
LS Log Sign
PL Plaque
RF Reference Point
RL Relocation
RR Iron Rung
RW Retaining Wall
SD Stone Side Drain
SN Sign
SP Stone Paving
SR Safety Rail
SS Stepstones
ST Rock Step
SW Sidewall
TP Turnpiking
TW Treadway
WB Waterbar
WD Water Dip
WN Miscellaneous

CIRCUIT RECOMMENDATIONS

As part of the trails assessment, the project team devised loops in order to cover as much ground as possible without retracing our steps. Park users often seek out circuit trips to enjoy as much of the park as possible. To aid the park in developing circuit hikes as part of the General Management Planning process, the following circuits are recommended. These recommendations are based on the project team's ten days of hiking selected trails within the park.

Circuit 1: Mount Misery and Valley Creek

Route: Mount Misery C, to Mount Misery A, to Horse-Shoe A, and back on Valley Creek Trail
Trailheads: Yellow Springs Parking Area, Valley Creek Parking Area by Rt 23.
Terrain: Varied, steepest slope is 27 percent, on Horse-Shoe A

Justification:
- Based on heavy use of the Yellow Springs Parking Area, this is already a popular circuit. In contrast, the Valley Creek Parking Area by Rt. 23 is poorly marked and underutilized.

Considerations:
- Safety should be improved for a short section of the circuit, from the south end of the Valley Creek Trail to the Yellow Spring Parking Area.
- Overflow parking is common for the Yellow Springs Parking Area, even on weekdays. Trail users should be encouraged to use other trailheads.
- Trailhead signs showing a map of the area, trail rules and trail ethics could be installed at both parking areas.

Circuit 2: Mount Joy

Route: Mount Joy I, to Mount Joy G, to Mount Joy D, and Mount Joy N
Trailheads: Artillery Park Parking Area, Mount Joy Observation Parking Area.
Terrain: Varied, steepest slope is 20 to 30 percent, where there are steps on Mount Joy I

Justification:
- At present there are very few circuits on Mount Joy, so using the currently unauthorized Mount Joy N presents a new opportunity for a circuit. The route passes through historical and natural areas with summit and woodland views.

Considerations:
- A connector between the Artillery Park Parking Area and Mount Joy I would be necessary.
- A structure may be necessary to allow trail users to cross over the historic entrenchment without damaging it.
- Trailhead signs showing a map of the area, trail rules and trail ethics could be installed at both parking areas.
- A section of trail will need to be established running parallel to Inner Line Drive.

Circuit 3: Mount Misery and Mount Joy Loop

Route: From parking area at Knox's Quarters along bike path to Mount Joy J, H, G, D, C, and A, to Route 23, to Valley Creek Trail, to Mount Misery B, to C, to Yellow Springs Road, across covered bridge and back to Knox's Quarters.

Trailheads: Yellow Springs Parking Area, Valley Creek Parking Area by Rt. 23, Washington's Headquarters, Mount Joy Observation Parking Area, and Knox's Quarters Parking Area

Terrain: Varied, steepest slopes of 20 to 30 percent are on Mount Misery B, and Mount Joy G and H.

Justification:

- This circuit would allow users to take an extended journey through the steepest terrain in the park, the route could be expanded or varied by incorporating the two circuits previously described. The circuit offers a woodland and creek views with several historical points of interest.

Considerations:

- Safety should be improved for sections of the circuit that cross or travel along busy roads, including the road by the covered bridge, from Knox's quarters, over the bridge to the Yellow Spring Parking Area.
- Overflow parking is common for the Yellow Springs Parking Area, even on weekdays. Trail users should be encouraged to use other trailheads.
- Trailhead signs showing a map of the area, trail rules and trail ethics could be installed at several parking areas.
- Well-maintained trailhead signs and intersections signs would be very important as this long circuit requires travel between trails and roads, plus passing through several trail intersections.

Circuit 4: Chapel and South River Trails

Route: Chapel Trails A, B and C and back on South River Trails A and B

Trailheads: Washington's Headquarters, Varnum Picnic Area, and Park Housing Area

Terrain: Relatively flat with most grades less than 10 percent, with one exposed embankment on the South River Trail

Justification:

- The circuit provides views of the river, with woodland and open field sections. The route also passes near historic sites and facilities at Washington's Headquarters and the Chapel area.

Considerations:

- Safe connections need to be created between the two trails which are located on either side of the active railroad line. At times the South River Trail appears to pass within the rail line right-of-way.
- There is a steep embankment on the South River Trail, which may be too exposed for some trail users.
- Trailhead signs showing a map of the area, trail rules and trail ethics could be installed at parking areas.
- Clear guidance with respect to connections between the two trails as well as warnings not to cross the railroad track would be needed.

Circuit 5: Mount Joy and Wayne's Woods Loop

Route: Park Visitor Center, to Yellow Trail (along southern boundary), through Wayne's Woods, to Mount Joy J, F, D, B, A, across Rt. 23 to Washington's Headquarters, to Chapel Trail B, and A, and back to Park Visitor Center
Trailheads: Park Visitor Center, Waynes Woods, Mount Joy Observation Parking Area, Washington's Headquarters, or Varnum Picnic Area.
Terrain: Varied, steepest slope is 17 percent, on Mount Joy

Justification:
- This circuit would provide a lengthy, possibly all day, recreational excursion, offering some the historical highlights of the park, as well as opportunities to enjoy woodland areas, and scenic views.

Considerations:
- The Yellow Trail along the southern boundary of the park was marked by the Valley Forge State Park in the 1960s and 70s. It was not examined as part of this assessment and may no longer exist.
- Crossing Route 23 at Washington's Headquarters requires a cross walk.
- Trailhead signs showing a map of the area, trail rules and trail ethics could be installed at several parking areas.
- Well-maintained trailhead signs and intersections signs would be very important as this long circuit requires travel between trails and roads, plus passing through several trail intersections.

Circuit 6: Walnut Hill and River Trails

Route: From Walnut Hill Parking Area, west to Walnut Hill Connector, to River Trail B, and back by Superintendent's Trail
Trailheads: Walnut Hill Parking Area, River Trail Parking Area (western end)
Terrain: Varied, steepest slope is possibly 10 percent, on Superintendents Trail

Justification:
- A very easy loop to implement, a relatively flat, wide, and accessible route, excellent views of the river and woodland areas, and no road crossings.

Considerations:
- Soft wet sections on the Superintendent's should be improved with wall-less causeway or additional drainage features.
- A trailhead sign at the Walnut Hill Parking Area can show a map of the area, plus post trail rules and ethics.

Circuit 7: Schuylkill River Rail Trail and River Trail

Route: From Betzwood west on rail trail, then along Fatland Trail, (or alternatively to boundary of park, then along road or new trail to Walnut Hill Road-- eastern half of loop road), to Walnut Hill Connector, and back by River Trail A, B, C and D.

Trailheads: Betzwood Parking Area, Walnut Hill Parking Area, and River Trail Parking Area (west end)

Terrain: Relatively flat

Justification:

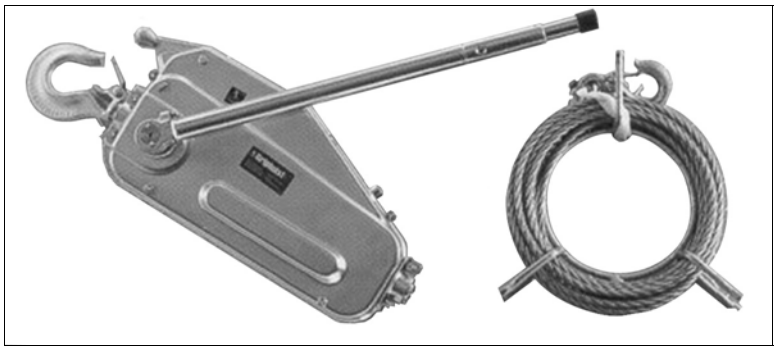
- A log loop suitable for bikers that uses improved, hardened, and stable surfaces. Also a relatively flat, wide, and accessible route, with excellent views of the river and woodland areas, and no road crossings.

Considerations:

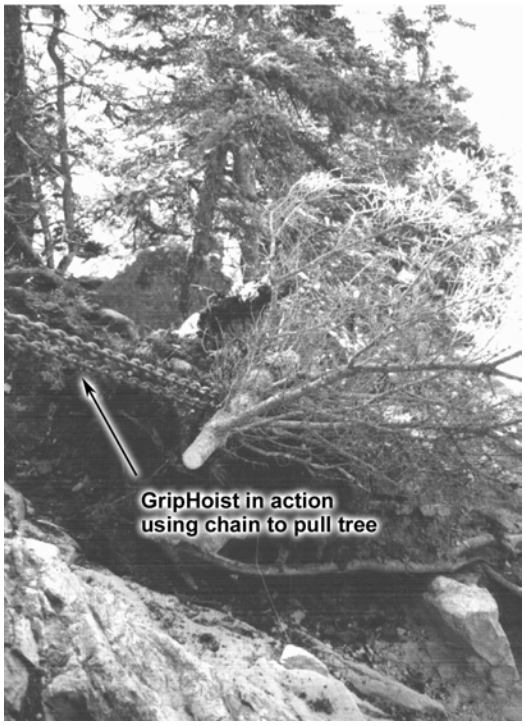
- The project team did not examine the potential connection between the Schuylkill River Rail Trail as it exits the park, and the eastern end of the Walnut Hill loop road.

EQUIPMENT RECOMMENDATIONS

Griphoist Pulley System



The Griphoist is for projects that involve moving large objects (such as building walls or obscuring tread areas).



For obscuring unauthorized trails or defining treadway, Griphoists allow crews to move mature fallen trees or reposition boulders.

Slings are also available that are lighter and cheaper than chains but just as proficient as pulling logs.

TRAIL DATA

South Side Trails

TRAIL_NAME	TRAIL_STAT	CONDITION	LENGTH - FEET	LENGTH – MILES
Baptist Road Trace	Bikers/Hikers/Horses	Poor	1109	0.21
Chapel Trail A	Bikers/Hikers/Horses	Fair	777	0.15
Chapel Trail B	Bikers/Hikers/Horses	Fair	11099	2.10
Horse-shoe Trail A	Hikers/Horses	Fair	7863	1.49
Horse-shoe Trail B	Hikers/Horses	Good	1041	0.20
Horse-shoe Trail C	Closed	Poor	2753	0.52
Mt. Joy Trail A	Hikers/Horses	Fair	675	0.13
Mt. Joy Trail B	Hikers/Horses	Fair	2125	0.40
Mt. Joy Trail C	Hikers/Horses	Good	1937	0.37
Mt. Joy Trail D	Hikers/Horses	Poor	1821	0.34
Mt. Joy Trail E	Closed	Fair	845	0.16
Mt. Joy Trail F	Hikers/Horses	Fair	827	0.16
Mt. Joy Trail G	Hikers/Horses	Fair	792	0.15
Mt. Joy Trail H	Hikers/Horses	Poor	798	0.15
Mt. Joy Trail I	Hikers/Horses	Fair	1637	0.31
Mt. Joy Trail J	Hikers/Horses	Fair	2598	0.49
Mt. Joy Trail K	Not marked	Fair	634	0.12
Mt. Joy Trail L	Not marked	Good	1526	0.30
Mt. Joy Trail M	Hikers/Horses	Fair	1304	0.28
Mt. Joy Trail N	Bikers/Hikers/Horses	Fair	1304	0.28
Mt. Misery Trail A	Hikers	Fair	1337	0.25
Mt. Misery Trail B	Hikers	Fair	1421	0.27
Mt. Misery Trail C	Hikers	Fair	2587	0.49
Mt. Misery Trail D	Hikers	Poor	1337	0.25
South River Trail A & B	Not marked	Fair	Approx. 12144	Approx. 2.30
Valley Creek Trail	Bikers/Hikers/Horses	Good	7582	1.44
Valley Creek Connector	Bikers/Hikers/Horses	Fair	1270	0.24
Wayne's Woods	Hikers	Good	Approx. 1056	Approx. 0.20
Wayne's Woods Connector	Bikers/Hikers/Horses	Fair	Approx. 528	Approx. 0.10
Yellow Springs Network	Bikers/Hikers/Horses	Fair	Approx. 15840	Approx. 3.00

South Side Trails

TRAIL_NAME	TRAIL_STAT	CONDITION	LENGTH - FEET	LENGTH – MILES
Betzwood Area Network	Bikers/Hikers/Horses	Fair	Approx. 7920	Approx. 1.50
Catfish Lane	Vehicles/Bikers/Hikers /Horses	Fair	847	0.16
Fatland Trail	Bikers/Hikers/Horses	Fair	Approx. 6336	Approx. 1.20
Impoundment Trail	Bikers/Hikers	Fair	Approx. 6864	Approx. 1.30
Nursery Network	Bikers/Hikers/Horses	Fair	Approx. 10560	Approx. 2.00
River Trail A	Bikers/Hikers/Horses	Good	1601	0.30
River Trail B	Bikers/Hikers/Horses	Fair	6520	1.24
River Trail C	Bikers/Hikers/Horses	Fair	5974	1.13
River Trail D	Bikers/Hikers/Horses	Good	1571	0.30
Superintendent's Trail	Bikers/Hikers/Horses	Poor	2651	0.50
Vernal Pools Network	Bikers/Hikers	Fair	Approx. 15840	Approx. 3.00
Walnut Hill Connector	Bikers/Hikers/Horses	Fair	675	0.13

APPENDIX G

EXISTING CONDITIONS PLAN

As part of the project an existing conditions plan for the trails network was developed (Drawing 6). This plan includes Baptist Road and Quarry Road, which are not trails, but are used by hikers, bikers and horses.

National Park Service
U.S. Department of the Interior

Olmsted Center for Landscape Preservation
99 Warren Street
Brookline, Massachusetts 02445
617.566.1689
www.nps.gov/frla/oclp.htm