



CYNWYD HERITAGE TRAIL BARMOUTH TRAILHEAD

SCHEMATIC DESIGN REPORT

PREPARED FOR:



FRIENDS OF
THE CYNWYD
HERITAGE TRAIL

PREPARED BY:

SALT
DESIGN STUDIO
LANDSCAPE ARCHITECTURE
PLANNING & URBAN DESIGN



**NEWELL
TERESKA &
MACKAY**
ENGINEERING

ACKNOWLEDGMENTS

SALT Design Studio and NTM Engineering would like to thank everyone who participated in the Schematic Design process for Barmouth Trailhead. The leadership provided by the Steering Committee and collective input from the community were integral to the development of the plan.

STEERING COMMITTEE

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EXECUTIVE SUMMARY

In March 2018, the Friends of the Cynwyd Heritage Trail (FOCHT), along with partners from Lower Merion Township (LMT) and West Laurel Hill Cemetery (WLH), issued a Request for Proposals for Landscape Architectural Design Services at the Barmouth Trailhead. The team of SALT Design Studio and NTM Engineering was selected to lead the Schematic Design effort. Schematic Design is an early stage in the evolution of a project that establishes the general design direction and provides recommendations for site layout, materials, furnishings, and planting, laying the groundwork for development of Construction Drawings.

Barmouth Trailhead was identified as a priority location for trail improvements as part of the Cynwyd Heritage Trail (CHT) Phase II Plan completed by Natural Lands (NL) in 2015. Goals identified in that plan included:

- Repurpose unused, remnant spaces and improve existing spaces to create gathering places, recreation areas, and other appropriate Trailside uses.
- Create an integrated series of places along the Trail, by incorporating similar building and plant materials into new projects and those already in progress.
- Provide additional opportunities for alternate forms of programming to attract new visitors to the Trail.

Over a six-month period, SALT's team facilitated an inclusive, participatory design process to develop an exciting vision for Barmouth. FOCHT requested a flexible site design to accommodate an array of community activities, such as performances, events, outdoor film screenings, and food and craft markets. Guided by input received from the Steering Committee and the community, a plan was developed that provides much needed amenities, increases programming opportunities, and enhances the overall ecological health of the site. The Schematic Design resolves functional issues related to circulation, access, and safety, and enables the Trailhead to serve as an important neighborhood hub and connector for the broader community.

The final deliverables include a Schematic Design Plan, illustrative renderings, and Cost Estimate of the proposed improvements. This Schematic Design report provides an overview of the project process and a summary of recommendations for the Barmouth Trailhead. This report also identifies important project assumptions and parameters that influenced the development of Schematic Design that will guide future improvements at the Trailhead.



Birdseye Rendering of Proposed Design for Barmouth



Photo from Community Meeting, July 2018



Existing Conditions at Barmouth Trailhead

PROJECT BACKGROUND, EXISTING CONDITIONS + ANALYSIS

PROJECT BACKGROUND, EXISTING CONDITIONS + ANALYSIS

SITE ANALYSIS

As part of the Site Analysis phase, critical issues, challenges and opportunities identified during the design process included:

- Lack of a welcoming “front door” to Barmouth at the Belmont Avenue / East Levering Mill Road intersection.
- Unsafe pedestrian and cyclist crossings at the intersection. Pedestrian crosswalk markings are faded or missing.
- Significant grade change from the intersection to the Trailhead creates access and visibility challenges.
- Pedestrian, vehicle, and cyclist conflicts, as all use the same space on East Levering Mill Road to get to the Trail.
- Significant erosion and stormwater runoff, especially along East Levering Mill and the wooded hillside.
- Lack of shade on site.
- Limited seating and other trail amenities on site.
- Existing stone wall remnant provides a link to the site's history.
- Clearance and access requirements for overhead utilities and requirements of the property Lease Agreement.
- User conflicts between cyclists and pedestrians at the intersection of the trail and gathering space.
- Degraded habitat and significant presence of invasive plant species.

STORMWATER MANAGEMENT

Stormwater management is a critical issue to remedy at the Trailhead. A large amount of stormwater runoff is generated near the top of the site on East Levering Mill Road and the Comcast parking lot. There is significant erosion at this location, and water rushes down East Levering Mill Road bringing debris, pollutants, and sediment to the Trailhead and clogging existing storm drains. At the Trail, certain areas do not drain, creating puddles and drainage problems. Additional runoff comes from adjacent commercial properties on Belmont Avenue that discharge into the Trail corridor.

Four exploratory soil test pits were dug at the site to gauge infiltration potential. In general, the potential for water infiltration was found to be low. Due to the limited infiltration potential, it is likely that a Managed Release Facility will be required, such as a bio-retention area.

TOWNSHIP DEVELOPMENT REGULATIONS

Future improvements at the Trailhead shall adhere to Lower Merion Township regulations, including Subdivision and Land Development (SALDO) and parks and recreation standards. The improvement of the Trailhead is exempt from Zoning Code requirements because it is a Township owned property (Township Code, Chapter 155-9). The underlying zoning is Residential R3. The proposed development is intended to be in general conformance with SALDO, and generally compliant with the intent of the zoning code.

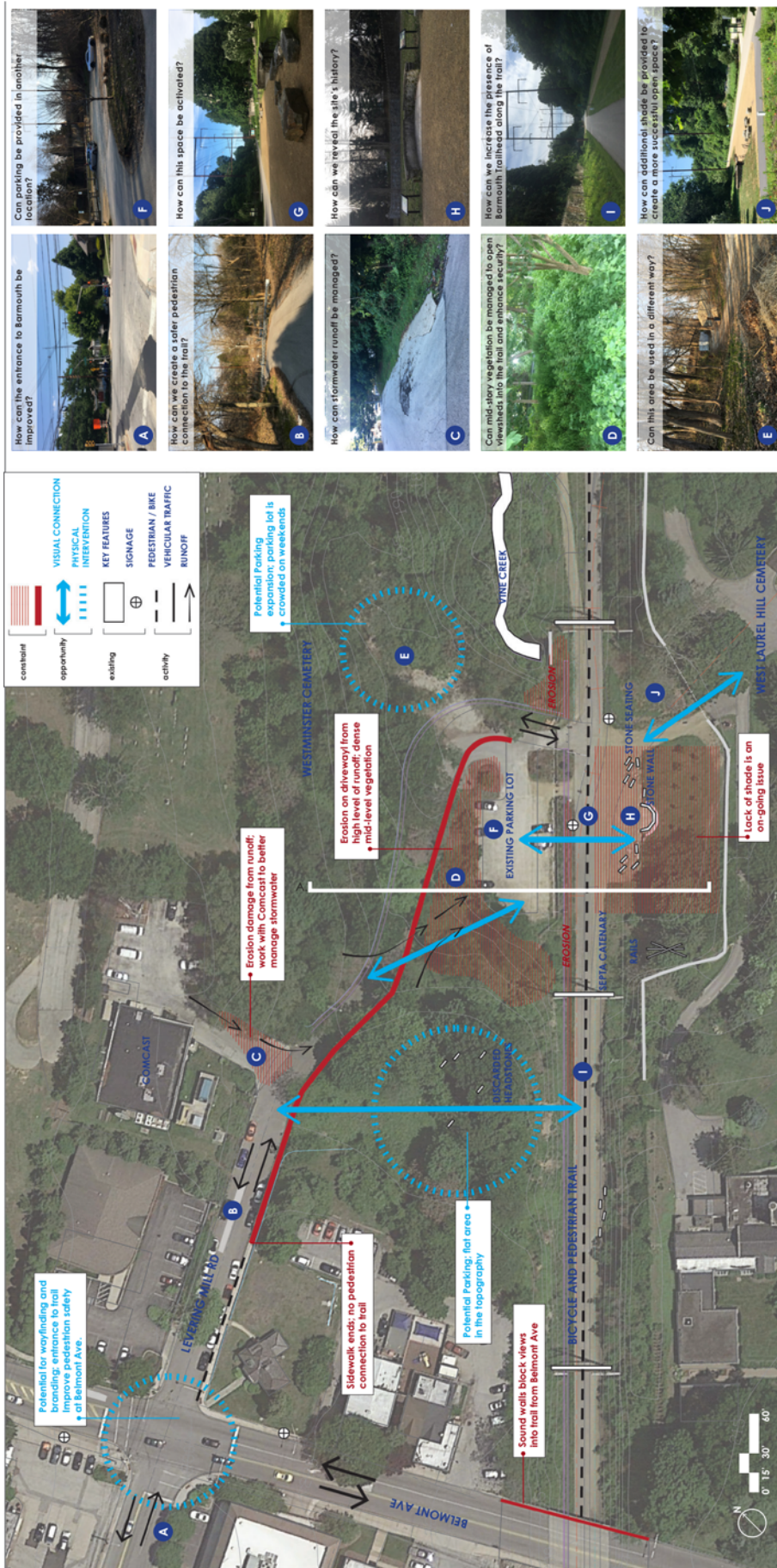


Photograph of existing Belmont Avenue / East Levering Mill Road intersection



Photograph exemplifying lack of shade and amenities at Barmouth

OPPORTUNITIES AND CONSTRAINTS



DESIGN CONCEPTS

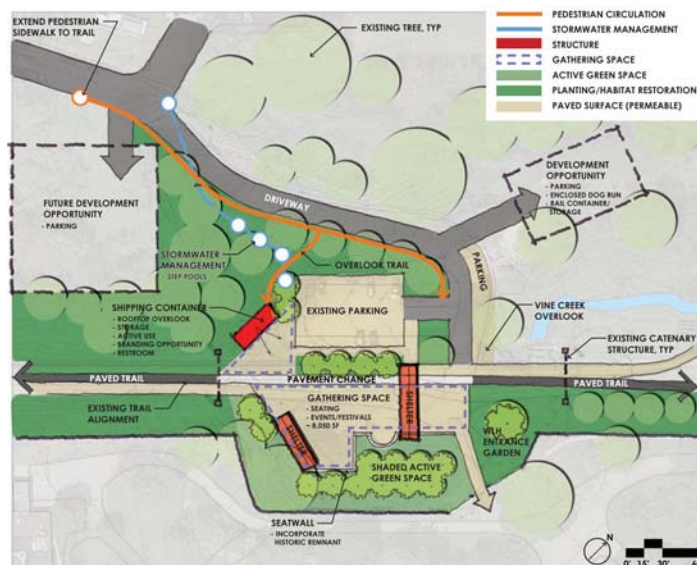
The Design Team presented two concepts at the first community meeting. The concepts, summarized below, presented dramatically different spatial layouts for the Trailhead with the intent to solicit community feedback on a preferred design direction. There were common elements in both schemes, including extending the sidewalk along East Levering Mill Road to the existing parking lot, enhancing the connection to WLH, expanding parking opportunities, and incorporating stormwater step pools along the hillside for stormwater management and erosion control.

Concept 2 received overwhelming support from meeting attendees and the Steering Committee, and eventually served as the basis for the ensuing Schematic Design Plan.

CONCEPT 1: GATEWAY IN-LINE

Concept 1 enhanced the prominence of Barmouth Trailhead by creating a visual gateway along the trail. This concept built off existing improvements at the site and created a gateway through the use of an open structure bridging across the trail. Features included:

- Preserve the existing trail alignment but change the pavement surface within the public gathering space to slow bicycle traffic.
- Provide a shade structure to bridge across the trail, and to create a visual gateway and focal point.
- Provide a small shade structure in a subspace off the primary gathering space.
- Install a small structure near the trail for storage and programming (restroom, vending).
- Create an occupiable overlook on the top of the structure connected to the East Levering Mill Road sidewalk by an at-grade path.
- Establish a tree bosque next to the gathering space for natural shade.
- Provide an overlook at Vine Creek.

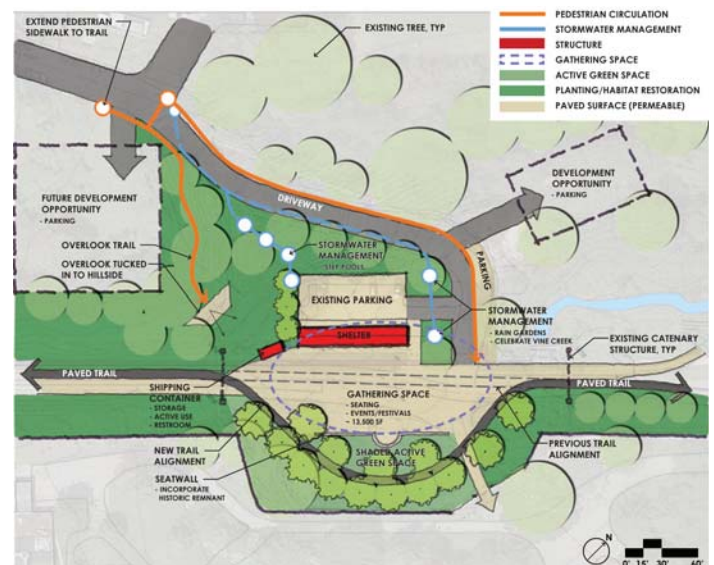


Gateway In-Line Concept

CONCEPT 2: BARMOUTH BEND

Concept 2 created a unified, open, and flexible community space at the Trailhead while reducing conflicts between pedestrians in the core and cyclists along the Trail. The trail was realigned in an arc behind the existing historic stone wall, bypassing the central space to allow for more programming. Features included:

- Realign the trail behind existing half-circle stone wall to reduce pedestrian and cyclist conflicts.
- Locate rain gardens at existing stormwater collection points and surrounding the parking lot.
- Provide a shade structure at parking lot to create a large open gathering space.
- Create an informal stage in front of the existing stone wall.
- Create an at-grade overlook on the hillside with a path connecting to the sidewalk along East Levering Mill Road.
- Provide a small structure for storage or programmed use.
- Plant trees along the trail to provide shade.



Barmouth Bend Concept

COMMUNITY + STAKEHOLDER INVOLVEMENT

Fundamental to the design process was conducting open, interactive meetings for members of the community and key stakeholders to offer input and participate in a dialogue with the Design Team. Meetings were advertised to the public through a variety of outlets, including social media, email and word of mouth.

The development of the Schematic Design Plan responded to the interests and concerns of the community and FOCHT members who attended the meetings. Input by residents was important to resolving key circulation issues, defining the character and aesthetic of the space, and identifying amenities and improvements that would be supported by the community in the long-term.

Selection of images from Community Meetings, including the popular "Say Yes with Your Dots" Exercise below



SCHEMATIC DESIGN PLAN

The following recommendations describe the proposed improvements shown in the Schematic Design Plan (Plan). Specific recommendations for site materials and furnishings are provided later in the document.

BELMONT AVENUE / EAST LEVERING MILL ROAD INTERSECTION (BARMOUTH GATEWAY)

The experience of the CHT begins well before stepping foot on the trail itself. The Belmont Avenue / East Levering Mill Road intersection is the front door to Barmouth and sets the tone for trail users. The primary recommendation is to improve the intersection and create a welcoming and safe entrance for all visitors, whether arriving by car, bike, or on foot.

Improving the intersection will require further study; recommendations in the next phase of design should be geared toward pedestrian and cyclist safety. Future intersection improvements will require coordination between many agencies as Belmont Avenue is under PennDOT jurisdiction and East Levering Mill Road is maintained by LMT. The emphasis should be on pedestrian and cyclist safety getting to and through the intersection. LMT is currently investigating options to provide a continuous pedestrian connection along East Levering Mill Road from the adjacent neighborhoods to access the Trailhead.

The Plan includes a small gathering space at the southeast corner of the intersection on the 400 Belmont Avenue property. The proposed space includes seating and a new decorative sign that announces and welcomes users to Barmouth Trailhead. The Plan proposes new tree plantings along East Levering Mill Road to create a more attractive entrance.

EAST LEVERING MILL ROAD TO TRAILHEAD

Past the intersection, the Plan includes a new 4' wide sidewalk with a curb and gutter along East Levering Mill Road, extending from the end of the existing sidewalk to the parking lot. Due to the steep slopes of the existing road, existing designated ADA parking is retained within the parking lot to provide accessibility to the Trail. To accommodate the proposed sidewalk, the existing guardrail will be removed and replaced with a new guardrail behind the sidewalk.

Shared lane markings (sharrows) and signage that indicate vehicles and bicycles must share the roadway should be installed along East Levering Mill

Road. Speed bumps should be considered along this section to reduce vehicular speeds along the road. A gap may be left at the edges to allow cyclists to pass without going over the speed bumps.

MULTI-USE ASPHALT TRAIL

The Plan removes an existing section of the asphalt trail that runs through the central space and relocates it in an arc behind the existing stone wall remnant. The new trail alignment permits cyclists to freely circulate along the trail without interfering with pedestrians using the central gathering space. The design improves the connection to WLH through redesign of the path/trail interface. The alignment will be designed and engineered according to current trail design standards, such as Pennsylvania Department of Conservation and Natural Resources (PaDCNR) 'Pennsylvania Trail Design and Development Principles' and American Association of State Highway and Transportation Officials (AASHTO) 'Guide for Planning, Design, and Operation of Bicycle Facilities.' Trail signage and pavement markings are suggested to direct cyclists along the trail and to warn of pedestrian trail crossing locations.

GATHERING SPACE

The proposed gathering space is located at the core of the Trailhead. It has been designed for maximum flexibility for both daily use and for special events. The space is largely open to permit a variety of programming uses, such as outdoor concerts and performances, film screenings, small markets, group gatherings, and as the staging area for volunteers on Trail workdays to meet and organize before heading out to work sites. The layout provides access for maintenance and emergency vehicles to enter the Trail.

Site improvements within the gathering space include:

SHADE STRUCTURES

Two shade structures create areas for shade and respite, elements which are currently lacking on site. The structures will provide a degree of enclosure and sun/weather protection for people within the gathering space and will serve as visually interesting architectural elements.

SCHEMATIC DESIGN PLAN

STAGE

A small hardscaped space in front of the existing stone wall functions as an informal stage that can be used for performances and other uses. Seat-height walls extend out from the existing stone wall to provide definition for the space, seating, and separate the gathering space from the trail. On the back side of the walls, a sloped lawn provides a space for passive recreation, such as picnicking and sunbathing. New trees are located in the landscape to provide natural shade and should be selected and sited to not interfere with overhead utility infrastructure. Drainage structures adjacent to the Trail collect stormwater runoff.

SEATING

Multiple seating options encourage people to use the space in a variety of ways and stay at the Trailhead for longer durations. Types of seating within the gathering space include: bench swings, net loungers, a large curved wood bench under the shade structure, seat walls, movable tables and chairs, and salvaged seating boulders.

SITE AMENITIES

Site amenities proposed in the Plan include:

- Waste and litter receptacles
- Combined water fountain / bottle filling / pet drinking station
- Air pump
- Bicycle repair station

Bicycle racks are provided on either end of the space, allowing cyclists to park their bikes before entering the gathering space.

RESTROOM

A restroom facility and area for future expansion is provided near the parking lot. The type of restroom (composting or plumbed) will need to be approved in coordination with LMT. The Schematic Design has provided water, electric, and sanitary sewer connections to this area.

MULTI-USE STORAGE FACILITY

A small storage structure is located near the end of the gathering space and parking lot. This facility would provide additional locked storage, particularly for items (such as movable tables and chairs, FOCHT promotional and advertising materials) that should not be stored with the heavy tools and equipment in the existing storage trailer. This facility should be able to be periodically occupied for active uses on event days at the Trail as an information kiosk or for light vending services. The structure should be decorative and not detract from the character of the space.

PUBLIC ART

A location for a public art piece is shown in the gathering space. The piece should serve as a recognizable focal point at Barmouth and has been sited for visual prominence along the Trail. The Belmont Avenue bridge abutments also provide an opportunity for public art and could serve as a canvas for decorative murals.

WEST LAUREL HILL CEMETERY

West Laurel Hill Cemetery is a significant cultural landmark and has been a valued partner of the CHT. WLH has a prominent entrance at the Trailhead, with a significant sign wall that should be preserved and not obstructed. The Plan provides a trail connection to the entrance gates and creates a vegetated rain garden in front of the existing sign wall as a functional and aesthetic feature that would collect stormwater before releasing it to Vine Creek.

VINE CREEK OVERLOOK

A small occupiable area has been created near the Vine Creek exit culvert. This location provides a place to celebrate the emergence of the Creek. Vine Creek has been severely degraded over the years and the improvements at Barmouth Trailhead provide an opportunity to enhance its condition and prominence. Non-native, invasive and aggressive vegetation should be removed and an overlook established for trail users to see the waterway. Site improvements should not degrade the Creek or adjacent slopes.

EDUCATION + INTERPRETATION

Showcasing the region's history is an integral aspect of the CHT and sets it apart from many other trail networks. Information and interpretive signage exists at the site; the Plan identifies opportunities to utilize salvaged materials and additional signage to strengthen the interpretive message at Barmouth.

SIGNAGE

Existing interpretive and information signage should be relocated on-site (as seen on Plan) as part of the redesigned Trailhead. The Plan includes suggestions for new interpretive signage, including:

- At the Vine Creek overlook with information related to natural (pre-development) history of the site or information on local habitat and watersheds.

SCHEMATIC DESIGN PLAN

- Near the stormwater step pools describing how the system functions and how it improves the water quality of stormwater.

SALVAGED STEEL RAILS

Salvaged steel rails are used as a direct link to the site's rail history. The rails are shown as a pavement treatment embedded in the aggregate surface to form visual thresholds between different spaces. [Parallel sets of rails can be installed at the standard rail gauge to relate to the site's history.] Salvaged rails are also shown in the parking lot to act as parking stripes to maximize the efficiency of the existing parking lot.

PARKING

Accessible and convenient parking is critical to the success of the Trailhead. The Plan largely retains the existing parking lot as is, including the ADA compliant spaces. One space is removed from the end of the lot to better facilitate vehicular turning movements at the dead-end side of the parking area.

As shown on the Plan, Parking Lot 'A' provides expanded parking near the bottom of the Trailhead. Head in parking spaces are shown along of East Levering Mill Road after the curve in the road. An improved driveway connection leads to the area near the existing shipping container, where a single loaded row of parking is proposed.

Should the demand arise, a future parking lot is shown at the rear of the 400 Belmont Avenue property (Parking Lot 'B1' on the Plan). This area has relatively gentle slopes and a new parking lot could be lightly graded in to the site, providing up to 24 additional spaces. The development of this lot is contingent upon negotiations with the property owner.

Another opportunity exists to develop an agreement with Comcast to utilize its existing parking lot for trail parking on weekends and for special events.

GRADING

In general, the proposed improvements are intended to work with the existing site grades. Grading for proposed parking areas should limit the extent of site disturbance. One area of raised grade is proposed behind the existing stone wall remnant to form a gently sloped lawn; achieving this may require imported soil.

For excavation of the area near the proposed restroom- and multi-use storage facility, a contingency for rock excavation has been included. The intent is to limit the amount of site disturbance required to achieve the design.

STORMWATER MANAGEMENT

The Plan recommends a multi-faceted approach to stormwater management. Due to the limited infiltration potential of the site, the stormwater management goals include controlling and slowing the velocity of stormwater runoff and improving the quality of the water before it is released to Vine Creek.

REGENERATIVE STEP POOLS

A regenerative step pool system is proposed along the East Levering Mill Road hillside to slow the velocity of stormwater runoff and provide water quality benefits, reducing the erosion and sedimentation problems along the roadway. Storm drain and inlets are proposed along East Levering Mill that allow water to enter the top of the step pool system, where the high velocity surface-flow is slowed and controlled as it passes through the system. A rain garden is located at the bottom of the step pools to help manage small rain events; drains at the bottom convey water to other rain gardens throughout the site.

RAIN GARDENS

A rain garden is a depressed landscape area that receives stormwater and is planted with vegetation. They perform multiple functions; collecting stormwater and filtering it through vegetation and soil as it percolates through the soil. Rain gardens are typically dry, only having water following a rain event and are designed to drain within 72 hours. The site stormwater is directed to rain gardens that serve as Managed Release Facilities before outletting into Vine Creek. A large rain garden is proposed adjacent to the entrance sign wall of WLH.

STORM DRAIN

Storm drain and inlets are proposed to manage runoff from East Levering Mill Road, Belmont Avenue, and to collect runoff along the Trail. The inlets collect stormwater, while the drains direct the water to specified locations on site.

SCHEMATIC DESIGN PLAN



BIRDS-EYE RENDERING LOOKING SOUTHEAST



PERSPECTIVE RENDERING LOOKING NORTH (TOWARD MANAYUNK)



PERSPECTIVE RENDERING LOOKING SOUTH (TOWARD BALA CYNWYD)



SCHEMATIC DESIGN PLAN

The following recommendations describe the proposed utility improvements shown in the Utility Diagram and provides information regarding Permitting and Regulatory Requirements.

UTILITIES

POTABLE WATER SERVICE

A potable water connection is proposed at the Trailhead. Water service in LMT is provided by Aqua PA. For the purposes of this study, a 3-inch or 4-inch water service was assumed.

FIRE SERVICE

The nearest fire hydrant is at East Levering Mill Road and Rolling Road. For the purposes of this study, it was assumed that the intensity of the proposed development is small and does not, in and of itself, warrant the extension of the watermain and the installation of a fire hydrant.

ELECTRIC SERVICE

Underground electrical service is proposed to reach the bathrooms, shade structure, and stage area. For the purposes of this study, 200 Amps of power was assumed. 220v power is assumed to be needed at the stage and restrooms. 110v power is assumed to be needed at the shade structure and maintenance shed. Electric power is available near the site on East Levering Mill Road. PECO maintains three phase power on poles at this location.

SANITARY SEWER

A sanitary sewer connection to East Levering Mill Road is proposed to service the Trailhead. It must collect from potable water sinks, fountains, and may be required for restrooms, if a composting restroom is not selected. Because the elevation of the sanitary sewer is higher than the Trailhead, a grinder pump connected to a sewer line will be required. The sewer line from the Trailhead to the sewer will be a small diameter forcemain (1.5-inch to 2-inch pressure sewer pipe.) LMT operates the sanitary sewer system in the Township under an agreement with Philadelphia for wastewater treatment. To connect to the sanitary sewer, an amendment of the Township Act 537 Plan may be required, because the site is not currently in a designated sewer district (An Act 537 Plan is a joint agreement between the Township and Department of Environmental Protection on how any property shall be permitted to dispose of sewage.)

LIGHTING

The lighting recommendations for this Plan include festive commercial grade string lighting mounted between the supports of the two shade structures. Lights at this location would highlight the core of the space and provide a softly lit atmosphere.

Funding has been secured to provide lighting for the trail along the Manayunk Bridge. Additional trail lighting should be considered to extend from the bridge to Barmouth Trailhead as this stretch of trail is not adjacent to residential properties and additional lighting would enhance the site's safety, security, and usability.

PERMITTING + REGULATIONS

OWNERSHIP OF THE SITE: LEASE AND EASEMENT

Much of the land included at Barmouth is owned by the Southeastern Pennsylvania Transportation Authority (SEPTA). SEPTA has granted LMT the right for surface development for the extent needed to construct a recreational trail and limited subsurface rights through a lease executed in 2007. Based on the lease, SEPTA reserves access to the powerline transmission towers and reserves the right to install and maintain additional utilities above- and below ground. There is a PECO-owned 230kv electric power line and communication lines that are installed on the transmission towers.

WLH has leased land to LMT to develop and maintain a trail for recreational purposes along its property. This easement was executed in 2010.

Installation of trail improvements will need to be coordinated and approved with SEPTA, PECO, WLH, and LMT.

It will be necessary to negotiate with SEPTA regarding the construction of the proposed shade structures as a surface development under the lease agreement. In addition, installation of utilities needed to serve the Trailhead must be identified as a subsurface installation necessary for the recreational trail. SEPTA reserves the right to review and comment on all development plans.

SCHEMATIC DESIGN PLAN

SEPTA and WLH will need to review and agree to any proposed development or stormwater management maintenance agreements. In addition, the current easement requires that LMT install and maintain Trail improvements, and also requires LMT to remove any improvements if the lease is terminated.

PECO HIGH TRANSMISSION LINES

The Trail is located beneath the existing catenary structures carrying PECO transmission lines. All work under the lines, including an area adjacent to the lines, is regulated by PECO and will require review and approval within the easement. PECO transmission line requirements are regulated by the Public Utility Commission (PUC) due to the contribution to the public electric supply grid. PECO is required to follow PUC regulations for all transmission lines.

The layout of the space was developed with careful consideration of the overhead utility wires. Any improvements shall provide the required clearances for this infrastructure and comply with PECO's vegetative management plan.

OTHER ANTICIPATED PERMITTING

A permit for earth disturbance will be required through the Pennsylvania Department of Environmental Protection regarding erosion and sediment control and stormwater management.

Belmont Avenue is a PennDOT owned road (SR 3045). The intersection is signalized with ADA curb ramps crossing all legs of the intersection with the exception of the southern crossing of Belmont Avenue. Any work performed that will impact Belmont Avenue will require PennDOT approval. Any work performed that will impact East Levering Mill Road will require LMT approval.

An opportunity exists to increase the visibility of the Trail at the Belmont Avenue Bridge. Metal panels are on top of the concrete sidewalls, blocking any view into the trail corridor. These were required when it was as an active rail corridor with electrified wires running below the bridge. Now that rail power has been removed, the panels could be removed and replaced with a more decorative or permeable fencing treatment to provide views into the trail. The fencing could incorporate trail signage and/or logos. Any project working within the Belmont Avenue right-of-way, including installation of signage, crosswalks, curb or sidewalk modifications, will require PennDOT approval.



SITE FURNISHINGS AND MATERIALS

The following section provides recommendations and design precedents for the site furnishings and materials.

SEATING

Wood and metal are the primary proposed materials to create a link to the industrial railroad heritage of Barmouth. The variety of seating is intended to appeal to a diversity of users.

CURVILINEAR WOOD BENCH

Large-scale curved bench under shade structure provides covered seating, reinforces the form of the gathering space and creates an elegant edge.

BENCH ON CORTEN STEEL WALL

Chunky wood platforms attached to the metal retaining wall creates a comfortable and natural seat.

SWINGS

Swinging benches add a playful element at the Trailhead for adults and children.

NET LOUNGERS

Wood framed structures filled with netting give Trail users the chance to recline and relax in the shade. The nets should be a heavy duty material appropriate for this type of exterior application.

BOULDERS

Salvage existing on-site boulders and reuse for informal seating around site.

MOVABLE TABLES AND CHAIRS

Stackable metal chairs and small tables that can be easily set up in the gathering space. Tables and chairs should be stored in the multi-use storage facility.

SHADE STRUCTURES

Two tensile fabric shade structures of similar materials and form are designed to embrace the gathering space. The structures should be fully designed and engineered to accommodate anticipated wind and snow loads. Fabric should be fire-retardant material selected from the manufacturer's range and have an easy to remove fastening system. Fabric awnings may be removed in winter to extend the lifespan of the material.

RESTROOM

A plumbed restroom facility was preferred by the FOCHT for functionality and ease of maintenance. SALT recommends FOCHT consider a composting toilet as it offers a significant opportunity to demonstrate sustainability in the community. Installation of either type of restroom will require further design and engineering, and require approval and permitting from LMT.

WALLS

The Schematic Design proposes seat walls to increase seating options and retain a small amount of earth for a sloped lawn behind the historic semi-circular wall remnant.

STONE VENEER

Seat walls adjacent to the existing stone wall shall have a stone veneer and cap similar to the walls in front of the CVS at the Rock Hill Road Trailhead.

CORTEN STEEL WALLS

Corten steel walls adjacent to the stone veneer walls are designed with bench seating and intended to hold back a small amount of grade.

PUBLIC ART

A sculptural feature is proposed for Barmouth, one that is visible from up and down the Trail. SALT suggested a large, stylized 'B' to enhance Trail recognition and branding.

RAILINGS

Metal or wood framed railings are proposed to create an edge to the Vine Creek overlook without blocking views of the Creek.

DECORATIVE CROSSWALKS

Decorative pavement is proposed at the Belmont Avenue / East Levering Mill Road intersection to designate pedestrian crosswalks across the streets. This could be unit paving or decorative stamped asphalt, and is proposed to include text or a decorative graphic announcing the Trailhead. Final materials and design must obtain PennDOT and LMT approvals.



ASPHALT
MULTI-USE TRAIL



AGGREGATE SURFACE
GATHERING SPACE



CONCRETE PAVEMENT
SIDEWALK + STAGE



STAMPED ASPHALT
DECORATIVE CROSSWALKS



BIKE RACK



WATER FOUNTAIN,
BOTTLE FILLING STATION +
PET BOWL ATTACHMENT



LITTER + RECYCLING
RECEPTACLES



ICON SIGN / ART



CURVILINEAR WOOD BENCH



BENCH ATTACHMENT
TO WALL



MOVABLE TABLES AND
CHAIRS



SALVAGED SEATING
BOULDERS



SWINGS



NET LOUNGER



TENSILE SHADE STRUCTURE WITH
FABRIC AWNING



RESTROOM



RAILING



STONE VENEER WALL



CORTEN STEEL WALL

MATERIALS + FURNISHINGS PALETTE

BARMOUTH TRAILHEAD



SALT
DESIGN STUDIO

LANDSCAPE STRATEGY AND PLANT PALETTE

The landscape strategy for the Barmouth Trailhead concentrates on improving the native biodiversity of the site, enhancing the space for Trail users, and utilizing plants as a distinctive site language. The site's previous use as a rail corridor has resulted in a disturbed and compromised landscape that does not resemble the indigenous ecological or hydrological conditions.

SALT recommends discrete vegetation removal and selective landscape restoration of disturbed areas. Removing non-native, invasive and aggressive plant material on site will improve opportunities for native plants to reestablish within the landscape. Plant material that is adverse to the health and safety of Trail users should also be removed, such as diseased or unhealthy trees, or vegetation that presents a conflict with Trail use or other occupiable space. It is also suggested to remove vegetation with prominent thorns if close to areas where people may come in contact with them. Targeted landscape restoration near Vine Creek and in the woodland areas is suggested to help recreate a healthy woodland and floodplain habitat consistent with native plant communities of southeastern Pennsylvania. Removal and restoration efforts should be closely coordinated with overall site design efforts.

PLANT PALETTE

SALT recommends that the plant palette for Barmouth focus on a native, short-grass meadow and woodland edge typology. Meadows in southeastern Pennsylvania consist primarily of herbaceous, perennial forbs and grasses, and are significant sources of food and habitat for birds, small mammals, and insects. Meadows most often occur in sunny-partly sunny locations, and can be wet or dry (or a combination of the two) depending on the soil conditions and amount of water they receive. Meadow landscapes generally require little annual maintenance after establishment when compared to traditional turfgrass or intensively designed gardens.

Historically, the area of the CHT was likely comprised of an Oak-Hickory Forest prior to the railroad. The slopes along the Trail exhibit mature stands of trees that evoke the former woodland. SALT recommends that future tree planting reinforce the composition of this native forest and typical woodland edge species.

Behind the site walls, the Schematic Design plan designates an area of Low-Mow turf. This is a blend of cool-season grasses that serve as a soft

groundcover suitable for passive recreation. Low-Mow turf is more drought tolerant than traditional lawn grasses, does not need to be fertilized, and requires minimal maintenance as mowing is only necessary 2-3 times throughout the growing season.

The following lists identifies a range of suggested deer-tolerant plant species for the Trailhead. The intent is to create a visual plant "signature" that is distinctive to Barmouth. Light and soil conditions vary across the site, and will change further as site improvements are implemented. As such, SALT strongly recommends that FOCHT continue to engage a landscape architecture professional to assist with planting design to ensure a cohesive and site-specific approach at Barmouth.

CANOPY TREES

Acer saccharum (Sugar Maple)
Carya ovata (Shagbark Hickory)
Liriodendron tulipifera (Tulip Poplar)
Nyssa sylvatica (Black Tupelo)
Quercus alba (White Oak)
Quercus rubra (Northern Red Oak)
Sassafras albidum (Sassafras)

UNDERSTORY TREES

Amelanchier sp. (Serviceberry)
Cercis canadensis (Eastern Redbud)
Chionanthus virginicus (Fringetree)
Crataegus pennsylvanica (Tatnall's Hawthorne)
Hammamelis virginiana (Witch hazel)
Magnolia virginiana (Sweetbay Magnolia)

SHRUBS

Aronia arbutifolia (Red Chokeberry)
Lindera benzoin (Spicebush)
Rhus aromatica (Fragrant Sumac)

VEGETATED SWALES & MEADOWS

Amsonia hubrichtii (Blue Star)
Asclepias syriaca (Common Milkweed)
Aster novae-angliae (New England Aster)
Carex appalachia (Appalachian Sedge)
Deschampsia cespitosa (Tufted Hair Grass)
Eragrostis spectabilis (Purple Lovegrass)
Eupatorium coelestinum (Hardy Ageratum)
Eupatorium fistulosum (Joe-Pye Weed)
Liatris spicata (Blazing Star)
Lobelia syphilitica (Cardinal Flower)
Monarda fistulosa (Wild Bergamot)
Panicum virgatum (Switchgrass)
Schizachyrium scoparium (Little Bluestem)
Tiarella cordifolia (Foam Flower)
Vernonia noveboracensis (New York ironweed)

POTENTIAL FUNDING SOURCES

Fundraising for the proposed improvements at Barmouth will likely require a variety of funding resources and strategies. We support FOCHT continuing to advance the fundraising goals articulated in NL's Phase II Plan, which include:

- FOCHT membership-building,
- Campaigns for specific projects to attract additive gifts and new support from individuals, corporations, and foundations, and
- Event-based fundraising to generate interest and awareness of the CHT.

In addition, FOCHT and LMT should explore other funding sources available through grant programs from various foundations, non-profit organizations, and state and local government agencies. Each grant has specific eligibility, match, and submission requirements; it is important that FOCHT and LMT work together to maximize grant opportunities. The following is a list of potential grant sources and sites where grant opportunities are advertised.

PA Department of Conservation and Natural Resources (PaDCNR)

- Community Conservation Partnership Program
www.dcnr.state.pa.us/brc/grants/index.aspx
- PA Recreational Trails Program
www.dcnr.pa.gov/Communities/Grants/TrailGrants/Pages/default.aspx

PA Department of Community and Economic Development (PaDCED)

- Greenways, Trails, and Recreation Program (GTRP)
<https://dced.pa.gov/programs/greenways-trails-and-recreation-program-grtp/>
- Multi-modal Transportation Fund Program (MTF)
<https://dced.pa.gov/programs/multimodal-transportation-fund/>

PA Department of Environmental Protection (PaDEP)

- Growing Greener
www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/default.aspx
- Pollutant Reduction Plan Credit (MS4 Requirement)
www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater/Pages/Funding-Opportunities.aspx

PA Department of Transportation (PennDOT)

- Traffic Safety Grants
www.penndot.gov/TravelInPA/Safety/Pages/Safety-Grants.aspx

Delaware Valley Regional Planning Commission

- Regional Trails Program
www.dvrpc.org/Trails/RegionalTrailsProgram/

Montgomery County

- Montco 2040 Implementation Grant Program
www.montcopa.org/2453/Montco-2040-Implementation-Grant-Program
- County Transportation Program (CTP)
<https://www.montcopa.org/2971/County-Transportation-Program-CTP>

COST ESTIMATE

SALT's team developed a series of Cost Estimates that detail the improvements shown in the Schematic Design Plan. The Estimate was separated into Primary and Additional Scopes. These scope areas are delineated on the Schematic Design Plan.

PRIMARY SCOPE: TRAILHEAD ACCESS, DESIGN, UTILITIES & AMENITIES

SITE DEMOLITION & PREPARATION.....	\$ 119,950
SITE MATERIALS (PAVING, WALLS, RAILINGS).....	\$ 147,275
PLANT MATERIALS.....	\$ 103,350
STORMWATER & SITE UTILITIES.....	\$ 344,970
SITE FURNISHINGS (STRUCTURES, SEATING, SIGNAGE & LIGHTING)....	\$ 394,850
ADDITIONAL ESTIMATED PROJECT COSTS*.....	\$ 486,366
TOTAL	\$1,596,761

*Additional Estimated Project Costs include 25% Construction Contingency, 12% Professional Design Fees, 5% Survey and Geotechnical Fees, and an allowance for Permit and Mobilization Fees.

ADDITIONAL SCOPE: NEIGHBORHOOD GATEWAY & PARKING EXPANSION

BARMOUTH GATEWAY**.....	\$ 176,570
PARKING LOT 'A'***.....	\$ 146,431
PARKING LOT 'B1'***.....	\$ 166,370

**Each individual Additional Scope item includes 25% Construction Contingency, 12% Professional Design Fees, 5% Survey and Geotechnical Fees, and an allowance for Permit and Mobilization Fees.

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BARMOUTH TRAILHEAD AT THE CYNWYD HERITAGE TRAIL

Schematic Design

OPINION OF PROBABLE CONSTRUCTION COST - PUBLIC GATHERING SPACE & AMENITIES

Description	Quantity	Unit	Unit Cost	Amount
SITE DEMOLITION / PREPARATION				
REMOVALS				
Remove Asphalt Pavement	4,150	SF	\$ 2.00	\$ 8,300
Remove and Relocate Boulders	12	EA	\$ 300.00	\$ 3,600
Remove and Relocate Bike Racks	4	EA	\$ 300.00	\$ 1,200
Remove and Stockpile Gravel Surface and Base	215	CY	\$ 10.00	\$ 2,150
Remove Guardrail	1	LS	\$ 4,000.00	\$ 4,000
Remove and Relocate Bike Pump	1	LS	\$ 200.00	\$ 200
Remove Soundwall on Belmont Ave	1	LS	\$ 10,000.00	\$ 10,000
Remove and Relocate Existing Informational Signage	1	LS	\$ 2,500.00	\$ 2,500
VEGETATION & ROUGH GRADING				
Grading - Allowance	1	LS	\$ 7,500.00	\$ 7,500
Air Spade/Hand Excavation for Planting Areas (24" Depth) by Cemetery Wall	200	CY	\$ 50.00	\$ 10,000
Remove and Transplant Existing Trees to elsewhere on Trail	10	EA	\$ 1,100.00	\$ 11,000
Clear and Grub - west end of ex pkg lot	3,500	SF	\$ 1.00	\$ 3,500
Selective Vegetation Removal for Step Pools & Understory Trees	1	LS	\$ 10,000.00	\$ 10,000
Contingency: Rock Excavation on Hillside	1	LS	\$ 12,000.00	\$ 12,000
Subgrade Compaction (for Pavement)	28,000	SF	\$ 0.50	\$ 14,000
Erosion and Sedimentation Control	1	LS	\$ 10,000.00	\$ 10,000
Construction Fence	1	LS	\$ 5,000.00	\$ 5,000
Utility Locating Service	1	ALLOW	\$ 5,000.00	\$ 5,000
SITE DEMOLITION / PREPARATION SUBTOTAL				\$ 119,950
SITE MATERIALS				
PAVEMENTS & CURBS				
Asphalt Pavement and Base for Trail	610	SY	\$ 35.00	\$ 21,350
Gravel Surface and Base for Main Space	550	TON	\$ 60.00	\$ 33,000
Wood Platform for Vine Creek Overlook	200	SF	\$ 25.00	\$ 5,000
New Concrete Pavement for Stage	755	SF	\$ 6.50	\$ 4,908
Concrete Sidewalk along Driveway	1,815	SF	\$ 6.50	\$ 11,798
Concrete Curb and Gutter Along Driveway	330	LF	\$ 24.00	\$ 7,920
WALLS & RAILINGS				
Salvaged Train Rails in Gravel (excavation & install)	1	LS	\$ 15,000.00	\$ 15,000
Stone Veneer Seat Walls	55	LF	\$ 150.00	\$ 8,250
Corten Seat Walls	35	LF	\$ 250.00	\$ 8,750
Guide Rail along new sidewalk	280	LF	\$ 85.00	\$ 23,800
Wood-Steel cable Railing at Vine Creek Overlook	50	LF	\$ 150.00	\$ 7,500
SITE MATERIALS SUBTOTAL				\$ 147,275
PLANT MATERIALS				
Canopy Trees	16	EA	\$ 800.00	\$ 12,800
Understory Trees	9	EA	\$ 500.00	\$ 4,500
Low Mow Seed Mix	4,000	SF	\$ 1.00	\$ 4,000
Herbaceous Perennial Planting	4,000	EA	\$ 15.00	\$ 60,000
Planting Soil (18" Depth) for all new plant beds	710	CY	\$ 30.00	\$ 21,300
Mulch (2" Depth) for all new plant beds	25	CY	\$ 30.00	\$ 750
PLANT MATERIAL SUBTOTAL				\$ 103,350

STORMWATER & SITE UTILITIES

Main Site Drainage

15 catch basins	15	EA	\$	3,500.00	\$	52,500
510 LF 18" HDPE	510	LF	\$	55.00	\$	28,050
100 LF Step pool	100	LF	\$	450.00	\$	45,000
Replace/clean existing drainage	1	LS	\$	5,000.00	\$	5,000
Fix drainage coming from hillside (East side of Belmont Ave)	1	LS	\$	27,900.00	\$	27,900
Rain Gardens & Other SW Management	1	LS	\$	32,000.00	\$	32,000

UTILITIES

ELECTRIC SERVICE (Includes Transformer, Underground in Conduit, 200-AMP 220V, Box and Protected Cabinet)	1	LS	\$	23,025.00	\$	23,025
WATER SERVICE (Includes Tap, Pipe, Valves, Meter Pit, Anti-freeze Pit)	1	LS	\$	55,260.00	\$	55,260
SEWER (Includes Grinder Pump, Forcemain, Manhole, Capital recovery fee, Connection fee, Inspection)	1	LS	\$	51,235.00	\$	51,235
Solar Panels (to be considered for Restroom or Multi-Use Storage Facility)	1	ALLOW	\$	25,000.00	\$	25,000

SITE UTILITIES + STORMWATER SUBTOTAL \$ 344,970

SITE FURNISHINGS

STRUCTURES

Shade Structure - at parking lot	1	LS	\$	100,000.00	\$	100,000
Shade Structure - over historic seat wall	1	LS	\$	75,000.00	\$	75,000
Restroom	2	LS	\$	30,000.00	\$	60,000
Multi-Use Storage Facility	1	LS	\$	15,000.00	\$	15,000

SEATING

Benches on Corten Steel Seat Wall	3	EA	\$	2,500.00	\$	7,500
Curved Wood Bench	1	LS	\$	15,000.00	\$	15,000
Moveable Tables	8	EA	\$	600.00	\$	4,800
Moveable Chairs	16	EA	\$	300.00	\$	4,800
Resting Nets	2	EA	\$	10,000.00	\$	20,000
Swings	2	EA	\$	15,000.00	\$	30,000

MISC.

Bike Racks	7	EA	\$	750.00	\$	5,250
Trash & Recycling Receptacles	4	EA	\$	1,000.00	\$	4,000
"B" Public Artwork	1	LS	\$	20,000.00	\$	20,000
Water Bottle Filling Station	1	LS	\$	8,500.00	\$	8,500

LIGHTING

Catenary String Lighting	200	LF	\$	40.00	\$	8,000
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SIGNAGE

New Informational Signage	2	EA	\$	2,500.00	\$	5,000
Relocate Existing Signage	3	EA	\$	1,500.00	\$	4,500
Interpretive Signage - at Vine Creek Overlook, at Step Pools	1	LS	\$	7,500.00	\$	7,500

SITE FURNISHINGS SUBTOTAL \$ 394,850

PROJECT SUBTOTAL \$ 1,110,395

ADDITIONAL ESTIMATED PROJECT COSTS

Professional Consulting Fees	12%	\$	133,247
Survey, Geotech, Infiltration Testing, Layout, Inspection	5%	\$	55,520
Mobilization / Permit Fees		\$	20,000
Contingency	25%	\$	277,599

PROJECT TOTAL \$ 1,596,761

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BARMOUTH TRAILHEAD AT THE CYNWYD HERITAGE TRAIL

Schematic Design

OPINION OF PROBABLE CONSTRUCTION COST - BARMOUTH GATEWAY

Description	Quantity	Unit	Unit Cost	Amount
SITE DEMOLITION / PREPARATION				
Remove and Salvage Wall Stone	25	LF	\$ 50.00	\$ 1,250
Hand Excavation for Pavement (12" Depth)	8	CY	\$ 60.00	\$ 480
Clear and Grub	215	SF	\$ 1.00	\$ 215
Subgrade Compaction (for Pavement)	215	SF	\$ 0.50	\$ 108
Grading - Allowance	1	LS	\$ 2,500.00	\$ 2,500
SITE DEMOLITION / PREPARATION SUBTOTAL				\$ 4,553
SITE MATERIALS				
Rebuild Stone Wall	25	LF	\$ 150.00	\$ 3,750
Special Paving	215	SF	\$ 20.00	\$ 4,300
Stamped Asphalt Pavement	1,710	SF	\$ 10.00	\$ 17,100
SITE MATERIALS SUBTOTAL				\$ 25,150
SITE FURNISHINGS				
Benches	1	EA	\$ 2,000.00	\$ 2,000
Signage	1	EA	\$ 5,000.00	\$ 5,000
SITE FURNISHINGS SUBTOTAL				\$ 7,000
PLANT MATERIAL				
Canopy Trees	7	EA	\$ 800.00	\$ 5,600
PLANT MATERIAL SUBTOTAL				\$ 5,600
SITE UTILITIES + STORMWATER				
Intersection Repairs, Stormwater & Misc. Utility Work	1	LS	\$ 50,000.00	\$ 50,000
Lighting - upgrade or additional pedestrian lights	1	LS	\$ 25,000.00	\$ 25,000
SITE UTILITIES SUBTOTAL				\$ 75,000
PROJECT SUBTOTAL				\$ 117,303
ADDITIONAL ESTIMATED PROJECT COSTS				
Professional Consulting Fees (Site Survey and Design Fees)			12%	\$ 14,076
Survey, Geotech, Infiltration Testing, Layout, Inspection			5%	\$ 5,865
Mobilization / Permit Fees				\$ 10,000
Contingency			25%	\$ 29,326
PROJECT TOTAL				\$ 176,570

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BARMOUTH TRAILHEAD AT THE CYNWYD HERITAGE TRAIL

Schematic Design

OPINION OF PROBABLE CONSTRUCTION COST - PARKING LOT A

Description	Quantity	Unit	Unit Cost	Amount
SITE DEMOLITION / PREPARATION				
Selective Tree Removal	1	LS	\$ 6,000.00	\$ 6,000
Clear and Grub	5,000	SF	\$ 1.00	\$ 5,000
Remove and Stockpile Existing Gravel Base	261	CY	\$ 10.00	\$ 2,610
Subgrade Compaction (for Gravel Base)	7,050	SF	\$ 0.50	\$ 3,525
Rock Contingency	1	LS	\$ 8,000.00	\$ 8,000
Grading - Allowance	1	LS	\$ 5,000.00	\$ 5,000
SITE DEMOLITION / PREPARATION SUBTOTAL				\$ 30,135
SITE MATERIALS				
Gravel Surface and Base for Container Parking Area	425	TON	\$ 60.00	\$ 25,500
Parking Blocks	9	EA	\$ 300.00	\$ 2,700
SITE MATERIALS SUBTOTAL				\$ 28,200
SITE UTILITIES + STORMWATER				
1500 sf Bioretention	1,500	SF	\$ 12.00	\$ 18,000
Plantings	1,500	SF	\$ 10.00	\$ 15,000
18" HDPE	150	LF	\$ 55.00	\$ 8,250
SITE UTILITIES + STORMWATER SUBTOTAL				\$ 41,250
PROJECT SUBTOTAL				\$ 99,585
ADDITIONAL ESTIMATED PROJECT COSTS				
Professional Consulting Fees			12% \$	11,950
Survey, Geotech, Infiltration Testing, Layout, Inspection			5% \$	4,979
Mobilization / Permit Fees			\$	10,000
Contingency			20% \$	19,917
PROJECT TOTAL				\$ 146,431

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BARMOUTH TRAILHEAD AT THE CYNWYD HERITAGE TRAIL

Schematic Design

OPINION OF PROBABLE CONSTRUCTION COST - PARKING LOT B1 (CONNECTION TO E. LEVERING MILL)

Description	Quantity	Unit	Unit Cost	Amount
SITE DEMOLITION / PREPARATION				
Selective Tree Removal	1	LS	\$ 5,000.00	\$ 5,000
Subgrade Compaction (for Pavement)	8,055	SF	\$ 0.50	\$ 4,028
Clear and Grub	9,000	SF	\$ 0.50	\$ 4,500
Rock Contingency	1	LS	\$ 4,000.00	\$ 4,000
Grading - Allowance	1	LS	\$ 7,500.00	\$ 7,500
SITE DEMOLITION / PREPARATION SUBTOTAL				\$ 25,028
SITE MATERIALS				
Gravel Surface and Base for Parking	470	TON	\$ 60.00	\$ 28,200
Concrete Sidewalk	245	SF	\$ 6.50	\$ 1,593
Parking Blocks	24	EA	\$ 300.00	\$ 7,200
SITE MATERIALS SUBTOTAL				\$ 36,993
PLANT MATERIAL				
Canopy Trees	2	EA	\$ 800.00	\$ 1,600
PLANT MATERIAL SUBTOTAL				\$ 1,600
SITE UTILITIES + STORMWATER				
2000 sf Bioretention	2,000		\$ 12.00	\$ 24,000
Plantings	2,000		\$ 10.00	\$ 20,000
SITE UTILITIES SUBTOTAL				\$ 44,000
SITE FURNISHINGS				
Signage	1	EA	\$ 2,500.00	\$ 2,500
SITE FURNISHINGS SUBTOTAL				\$ 2,500
PROJECT SUBTOTAL				\$ 110,120
ADDITIONAL ESTIMATED PROJECT COSTS				
Professional Consulting Fees (Design Fees)			12%	\$ 13,214
Survey, Geotech, Infiltration Testing, Layout, Inspection			5%	\$ 5,506
Mobilization / Permit Fees				\$ 10,000
Contingency			25%	\$ 27,530
PROJECT TOTAL				\$ 166,370

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