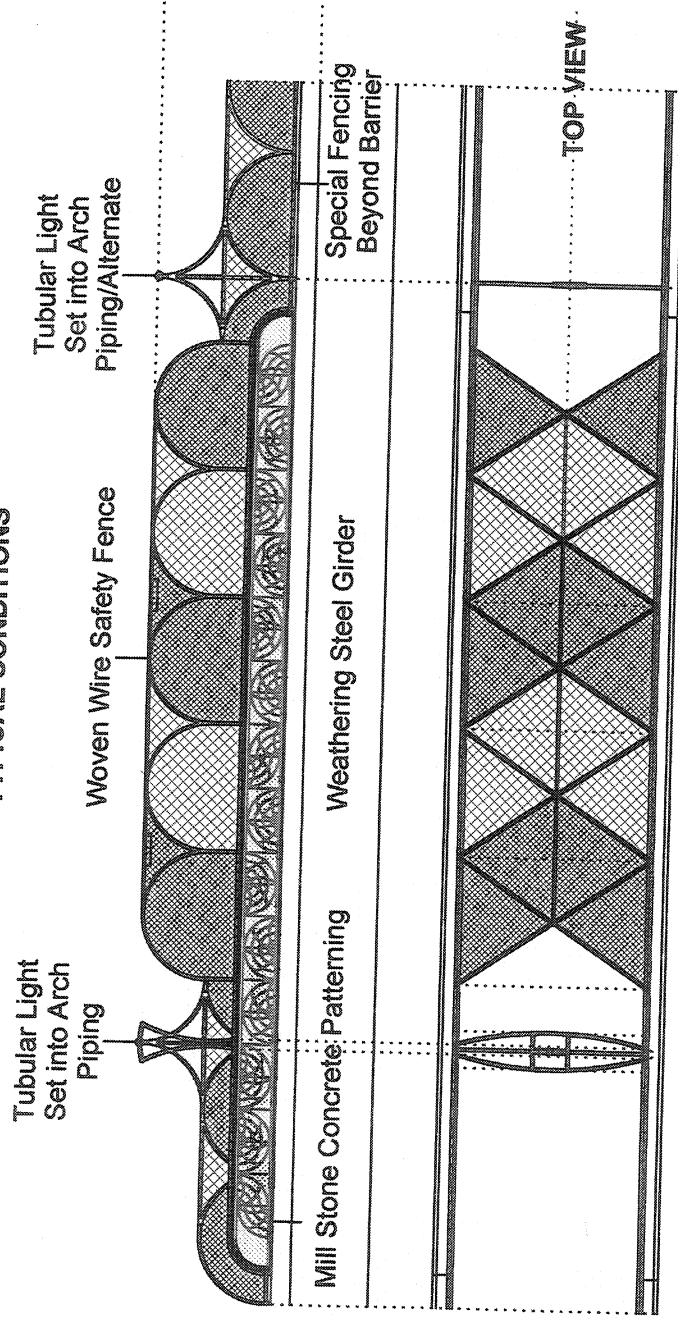


EXTERIOR VIEW TYPICAL CONDITIONS



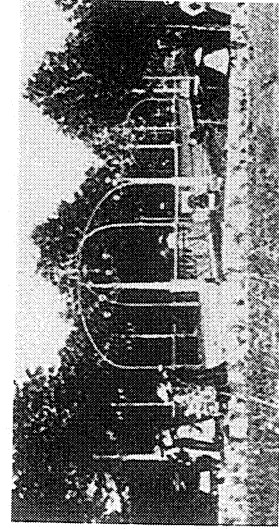
Top, fence patterning typical details for Rock Creek Trail Bridge. Fencing is fabricated in pre-galvanized woven wire cloth, of two mesh sizes, 1" and 2" weave, to provide contrast and pattern opportunity, suggesting an overhead awning or tree canopy.

Overhead lighting is mounted into tubular members to provide a safe, cost-effective lighting solution, providing a consistent rhythmic element and enhancing the bridge's graceful curves. The overhead arches, and windows-to-the-woods, recall the Victorian romanticism of garden trellis structures, gazebos, and the overhead structure of the Cabin John Hotel Ornate Iron Bridge.

Veirs Mill flourished during the Victorian era. It seems most appropriate to contrast the Rock Creek Trail Bridge design with inspiration derived from Victorian romanticism and muscular iconography from the mills. Mill wheels, mill stones, and various related hardware, such as saw blades and gears can provide pattern opportunities, landscape ornaments and sculptural opportunities at bridge entries.

Also, ornamental grasses may be planted to suggest a mill pond, at one or more bridge entries.

Below, a historic photograph of Cabin John Hotel Iron Bridge is inspiration for Rock Creek Trail Bridge. Classic designs are timeless, and provide fertile ground for imaginative updates.



Rock Creek Pedestrian Bridge -- No. 048703

Category **M-NCPPC**
 Agency **M-NCPPC**
 Planning Area **Aspen Hill**
 Relocation Impact **None.**

Date Last Modified
 Previous PDF Page Number
 Required Adequate Public Facility

September 5, 2003
 NONE
 NO

EXPENDITURE SCHEDULE (\$000)

Cost Element	Total	Thru FY02	Remain. FY02	Total 6 Years	FY03	FY04	FY05	FY06	FY07	FY08	Beyond 6 Years
Planning, Design and Supervision	1,025	0	0	1,025	0	0	300	250	325	150	0
Land											
Site Improvements and Utilities	4,486	0	0	4,486	0	0	0	0	3,140	1,346	0
Construction	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Total	5,511	0	0	5,511	0	0	300	250	3,465	1,496	0

FUNDING SCHEDULE (\$000)

TEA-21	2,243	0	0	2,243	0	0	0	0	1,570	673	0
G.O. Bonds	3,268	0	0	3,268	0	0	300	250	1,895	823	0

ANNUAL OPERATING BUDGET IMPACT (\$000)

DESCRIPTION

The Rock Creek Hiker-Biker Trail extends 15 miles from Beach Drive at the District of Columbia line to Lake Needwood in Rock Creek Regional Park. The trail currently crosses Veirs Mill Road at grade at its signalized intersection with Aspen Hill Road. To the north of Veirs Mill Road, the trail is on street for approximately 0.2 miles traversing Aspen Hill Road, Adrian Street, Baltic Avenue, and finally the access drive to Aspen Hill Local Park before continuing northward as a trail.

The proposed pedestrian bridge would provide a grade separated crossing for the Rock Creek Hiker-Biker Trail over Veirs Mill Road and remove the need for the on street section described above. It would also provide the opportunity for local residents of the Aspen Hill community to cross Veirs Mill Road on the bridge to access bus transit or other destinations without crossing at grade at the busy intersection of Veirs Mill Road and Aspen Hill Road.

The project includes a 28-foot high stair tower on the south side of Veirs Mill Road to access the elevated bridge structure. It is envisioned that residents of Aspen Hill will use the stair tower to access relocated transit stops via the pedestrian bridge as opposed to the at-grade intersection of Aspen Hill Road and Veirs Mill Road.

The frequency of use of the stair tower will depend on pedestrian's choice between a more direct route involving crossing at-grade at a busy intersection vs. a grade separated crossing involving a more circuitous route and climbing stairs.

JUSTIFICATION

The 15-mile Rock Creek Hiker-Biker Trail is one of the most popular trails in the Washington metropolitan area. A section of the trail near the Aspen Hill Road/Veirs Mill Road intersection is discontinuous, relying on local streets within the Aspen Hill community to access the present trail termini. Further, this route requires trail users to cross Aspen Hill Road at an unsignalized crosswalk and cross Veirs Mill Road at a signalized crosswalk. Trail users encounter high levels of vehicle traffic when using both crosswalks, which are also used by transit users accessing and transferring between adjacent WMATA and County Ride-On bus stops.

On February 13, 2001, the County Council adopted Resolution 14-773 pertaining to the improvement of Veirs Mill Road/Aspen Hill intersection. Listed among the County Council's recommendations was "accommodation of a potential Rock Creek Hiker-Biker Trail bridge over Veirs Mill Road. The Council will seek State funding for this pedestrian/bicycle bridge."

Plans and Studies

The Planning Board approved the facility plan on September 11, 2003.
 Aspen Hill Master Plan, approved 1994.
 Countywide Plan of Trails, approved 1998.

Specific Data

Design

STATUS

The Maryland Department of Transportation (MDOT) is currently awaiting reauthorization of the six-year federal surface transportation legislation, currently known as TEA-21, that expires September 30, 2003. As early as Fall 2003, MDOT may invite submission of new project proposals for review and consideration for Transportation Enhancement Program (TEP) funding. Matching funds must be committed and documented in the local jurisdiction's budget prior to approval of TEP funding. The TEP application requires evidence that preliminary design has been completed and that the County Council has approved funding for the project.

APPROPRIATION AND
EXPENDITURE DATA

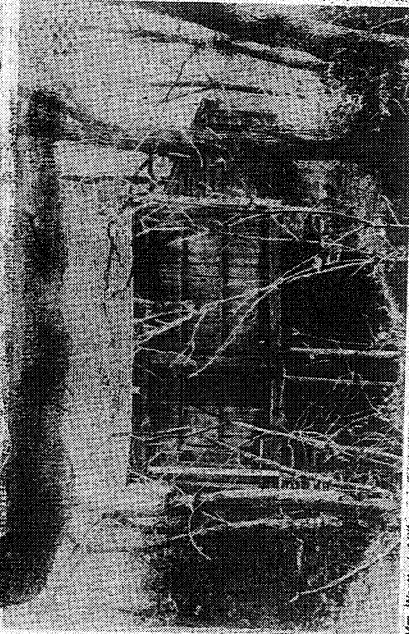
Date First Appropriation	FY03	(\$000)
Initial Cost Estimate		0
First Cost Estimate		
Current Scope	FY03	0
Last FY's Cost Estimate		0
Present Cost Estimate		5,511
Appropriation Request	FY04	0
Supplemental Approp.		
Req.	FY03	0
Transfer		0
Cumulative Appropriation		0
Expenditures/		
Encumbrances		0
Unencumbered Balance		0
Partial Closeout Thru	FY01	0
New Partial Closeout	FY02	0
Total Partial Closeout		0

COORDINATION

Facility Planning: Non-Local Parks PDF 958776
 Trails: Hard Surface Design and Construction PDF 768673
 Montgomery County Department of Transportation
 State of Maryland Department of Transportation

MAP

ROCKVILLE MILLS



Mrs. Wootton's Mill

Photo courtesy of the Columbia Historical Society

This article is another in a series of articles about Rockville's past brought to you by the Rockville Bicentennial Commission.

This article was written by Robert Braumberg, who has been involved locally in industrial archeology for a number of years. The Montgomery County Historical Society quarterly, THE MONTGOMERY COUNTY STORY, will soon carry a more extensive discussion of this topic by Mr. Braumberg. He gratefully acknowledges the assistance of Michael F. Dwyer (Maryland-National Capital Park and Planning Commission), John W. McGrain (Mollinography of Maryland), Robert Truax (Columbia Historical Society), and the Montgomery County Historical Society library.

The local mill was vital to American agrarian life in the 17th, 18th, and early 19th centuries. Before the revolution, there were virtually no large industrial centers in America. Even iron was made locally in small furnaces located anywhere that the raw materials could be obtained. Just as settlement patterns

followed the establishment of transportation networks, the locations of towns in early Maryland was often determined by the presence of suitable mill sites on creeks and rivers. Aside from animals, wind and water were the only prime movers available to the colonists. Milling grains were vital to the diet, and transportation was poor at best until well into the 19th century. The grains grown locally had to be milled locally.

Within a six-mile radius of the Courthouse in Rockville, there are recorded the sites of eleven grist mills. Here, on the Piedmont, water mills were the rule. On Maryland's Coastal Plain, where there are no waterfalls, wind mills were constructed.

Of the eleven mills mentioned only two were operated on the undershot principle. In undershot operations, the flow of the stream under the wheel caused it to turn. One such mill, Bowie's Mill, the mill nearest the headwaters of Rock Creek, was located where Bowie's Mill Road

crosses the creek, and was probably built by Jeffrey Magruder before 1786. The undershot wheel was located by Lake Frank and was built by Joseph Elgar before 1772. Elgar and his brothers originally from Philadelphia, constructed several mills on their Milton Farm and in the neighboring area. Elgar probably built the Muncaster Mill, for example, about 1820 and gave it a 15 foot diameter overshot wheel. Most 19th century mills were powered by overshot wheels, in which the weight of water conducted through the race to the top of the wheel caused it to turn with about three times the efficiency of an undershot wheel.

The two mills closest to Rockville are good examples of the two different types of mill that were operated. Mrs. Wootton's saw and grist mill was a local or custom mill. Custom mills were small. They ground the owner's grain and, upon the payment of a toll, that of his neighbors. Typically such mills had but one run of stones and were sometimes located on streams of such trifling flow that one wonders how they could induce any sort of wheel to turn. One answer was that the miller saved water behind his dam at night to have enough to run the mill during the day. In addition to the single run of stones, such a mill would have an up-and-down saw out back and operation would be seasonable at best. Wootton's Mill may have been built as early as the 1770s - there is a somewhat cryptic reference to a mill that might be this one in a document dated 1779. Wootton's Mill is described in the (Rockville) Maryland Journal of July 31, 1844, as to be offered for auction on September 27 of that year. It is shown on Martenel and Bond's map of 1855 as located on Watts Branch at two hundred yards downstream from the present Rockville Road. The accompanying photograph is from the collection of the Columbia Historical Society shows what we have come to expect as typical of such mills throughout this

area. The second class of mills is represented by the Rockville mill. This was a merchant mill built by Veirs soon after the mill was built on property in 1808. The mill, along with the Veirs house, Meadow Hall, which overlooked the creek, was a landmark in the area. Merchant millers were in the business full time and located their operations on streams that could be counted upon to turn their wheels most of the year. They did custom milling, and they also bought grain from local growers and sold flour. The Rockville Flour Milling Company, as advertised in 1880, sold flour under the brand name of Veirs Family and Bouquet. The 1880 census listed Veirs and Bro. Mill as worth \$230,000, with 14 employees and a 100 bushel per day capacity. The mill was driven by an overshot wheel nine feet broad which rated at 30 horsepower.

After the coming of the railroad in 1873, the improved transportation opportunities made the local mills less of a necessity. Some millers improved their efficiency by converting their water powers to turbines; others such as Bowie's went to steam power. Few were able to effectively meet the competition of large regional milling centers far into the 20th century.

The other mills within a six mile radius of Rockville were Glenwood on Muddy Branch at Turkey Foot Road, Belt's Old mill at the mouth of Watts Branch, Belt's Mill at Seven Locks Road at Democracy Boulevard (on Cabin John Creek), Magruder's Folly on Cabin John Creek at River Road, Warner's on Rock Creek at Avery Road, Muncaster's on Rock Creek at Muncaster Mill Road, McCormick's grist mill on Piney Branch near Glen Road, and two ancient (and, to date, unlocated) sites of Elgar mills on Rock Creek between Horner's and Muncaster's mills.

Rockville Newsletter
June 19, 1975

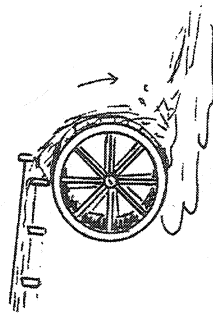
Left, an article, from the Rockville Newsletter, June 18, 1975, which features a story on early Rock Creek mills, including several paragraphs about Veirs Mill.



Top, another map of Montgomery County Mills. Veirs Mill is marked in yellow.

Bottom, an illustration with text on mill wheels, excerpted from The Montgomery County Story.

As the population and agriculture increased, there was a demand for mills of greater capacity. A dam was built to provide a more reliable source of water power and to allow the use of an overshot wheel, which was far more efficient than the undershot. The paddles of an overshot wheel were formed into buckets and when the water struck the upper blades it turned the wheel not only by the force of the water but by the force of gravity as the water in the buckets fell.³ While there were other types of wheels, flutter wheels, breast wheels and turbines, it is overwhelmingly the overshot wheel that is mentioned in Montgomery County records.



Left, Map of Mills in Montgomery County, 1783-1800. Unfortunately, very little documentation describes Veirs Mill, specifically. We do know that mills were very important to the early prosperity of Montgomery County, and Veirs Mill was a prosperous merchant mill that operated for 89 years.

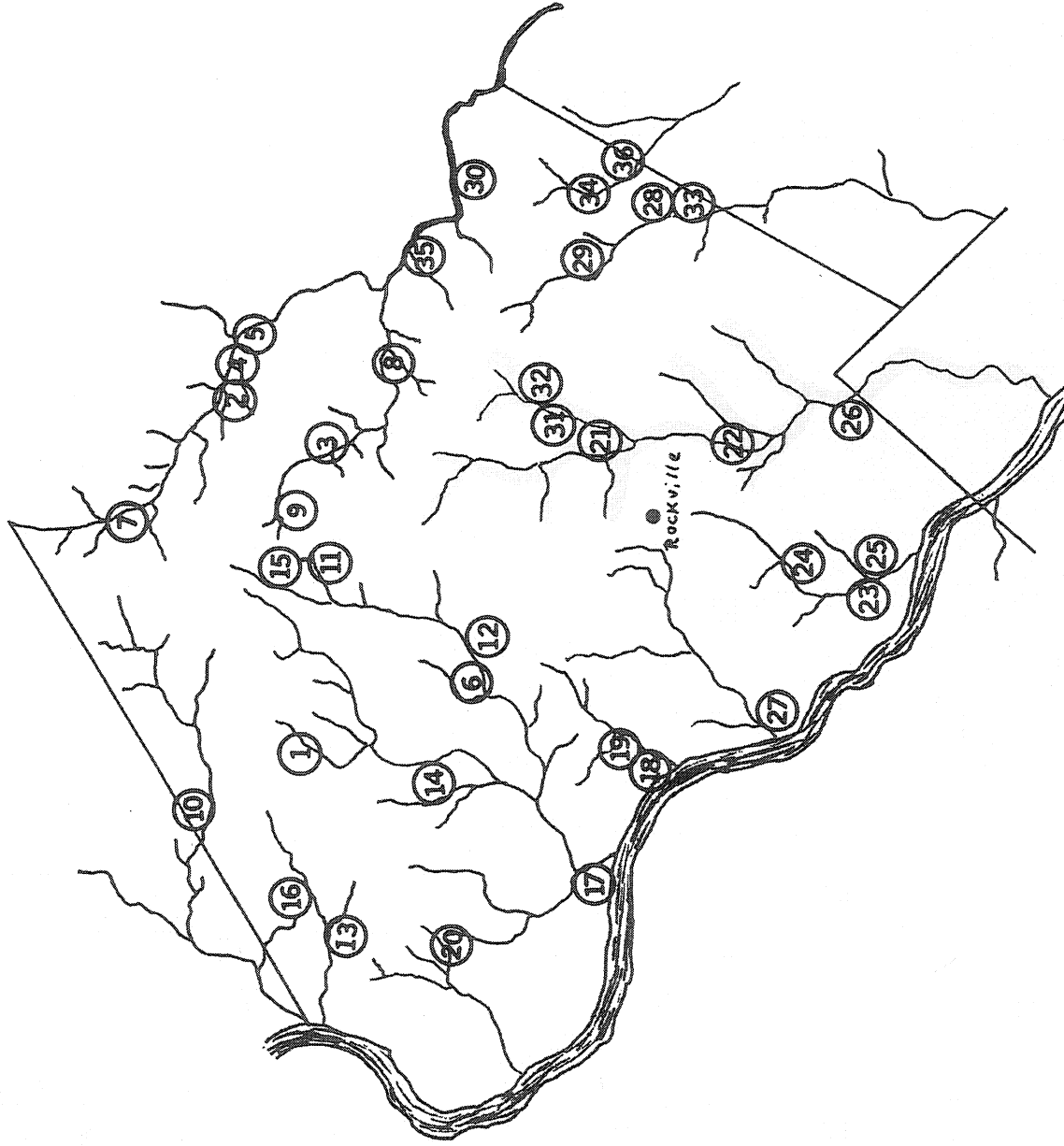
Samuel Clark Veirs purchased the property for Veirs Mill in 1838. The mill, along with the Veirs house, Meadow Hall, overlooking Rock Creek, was a landmark in its day. The property featured terraced grounds. Remnants of these terraces are still visible near the mill site.

"The Rockville Flour Milling Company, as advertised in 1880, sold flour under the brand name of Veirs Family and Bouquet. The 1880 census listed Veirs and Bro. Mill as worth \$230,000, with 14 employees and a 100 bushel per day capacity. The mill was driven by an overshot wheel nine feet broad which rated at 30 horsepower."

Rockville Newsletter, June 18, 1975

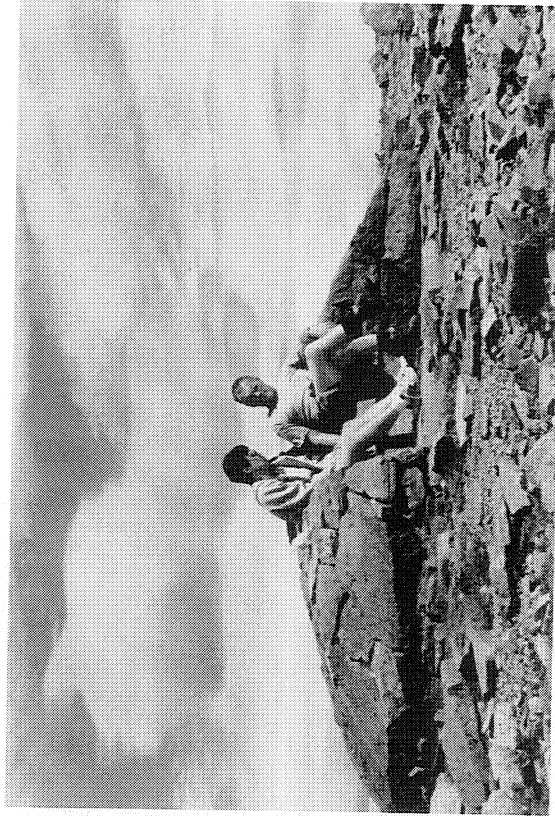
This map precedes Veirs Mill, but it does illustrate the wealth of mills in the area. Most likely, Veirs Mill is located somewhere near Mill 22: Bersheba/Dann/Newport Mills.

This map is courtesy of the Montgomery County Story: Early Water Mills in Montgomery County, by Eleanor M.V. Cook.



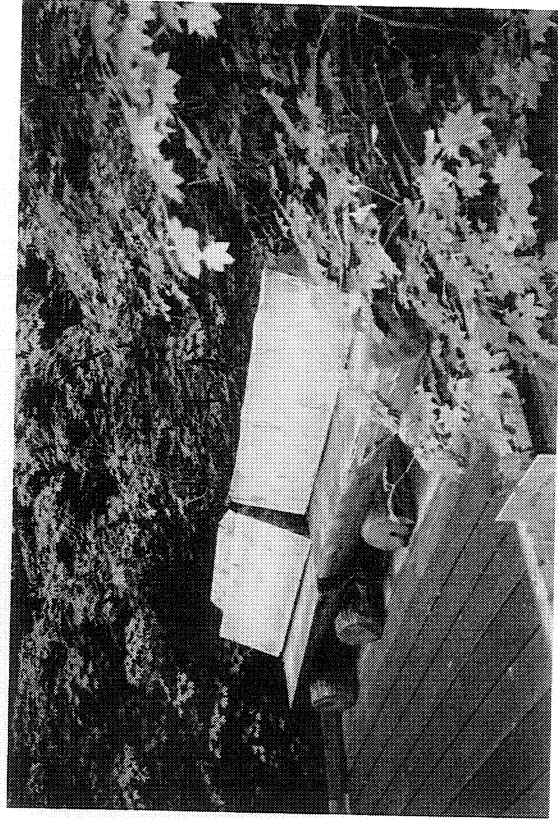
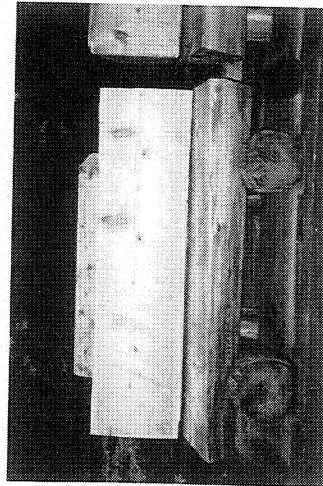
Mills in Montgomery County 1783-1800

APPENDIX



Top left, a tree along the alignment of the Rock Creek Trail Bridge. A possible use for the trees that must be removed from the alignment, is to recycle them into benches for Rock Creek Trail Bridge and Trail. Additionally, these benches could be identified, each with a pictorial label, illustrating the leaf pattern, seed, and name of the particular tree type. The benches could be similar to those created for Mount Rainier's *Walk of the Patriots*. Perhaps these benches could be fabricated by the Parks Department carpenters for the project.

Top right, a rock dome seat, in Mount Rainier National Forest. Special features such as this dome seat, could be incorporated at a neighborhood entry to the Rock Creek Trail Bridge, adding a place to reflect and rest.

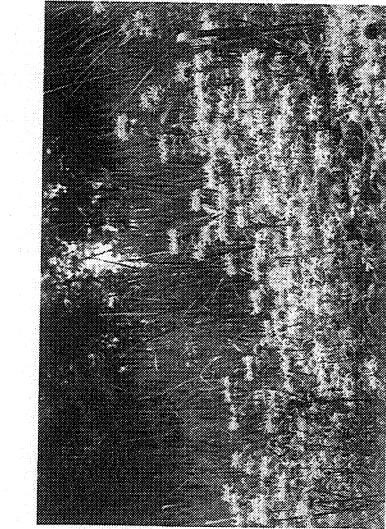


Below left, wood benches from Mount Rainier National Forest, *Walk of the Patriots*.

Below right, wood benches from Mount Rainier National Forest, *Walk of the Patriots*.

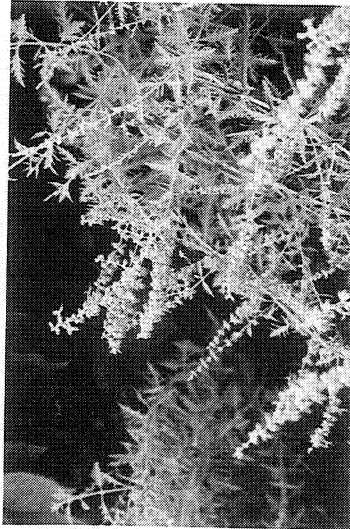


Top left, sweeping strokes of ornamental grasses and perennial flowers attract butterflies and create a stunning display of color and texture in Needwood Mansion Park.

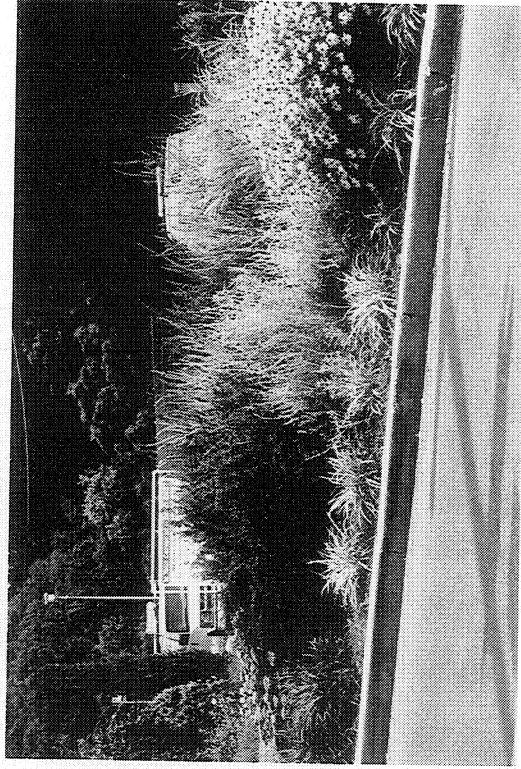


Top right, the forest canopy along Rock Creek Trail is lush with organic form. While many trees will be saved along the alignment, there is a need to replant the site.

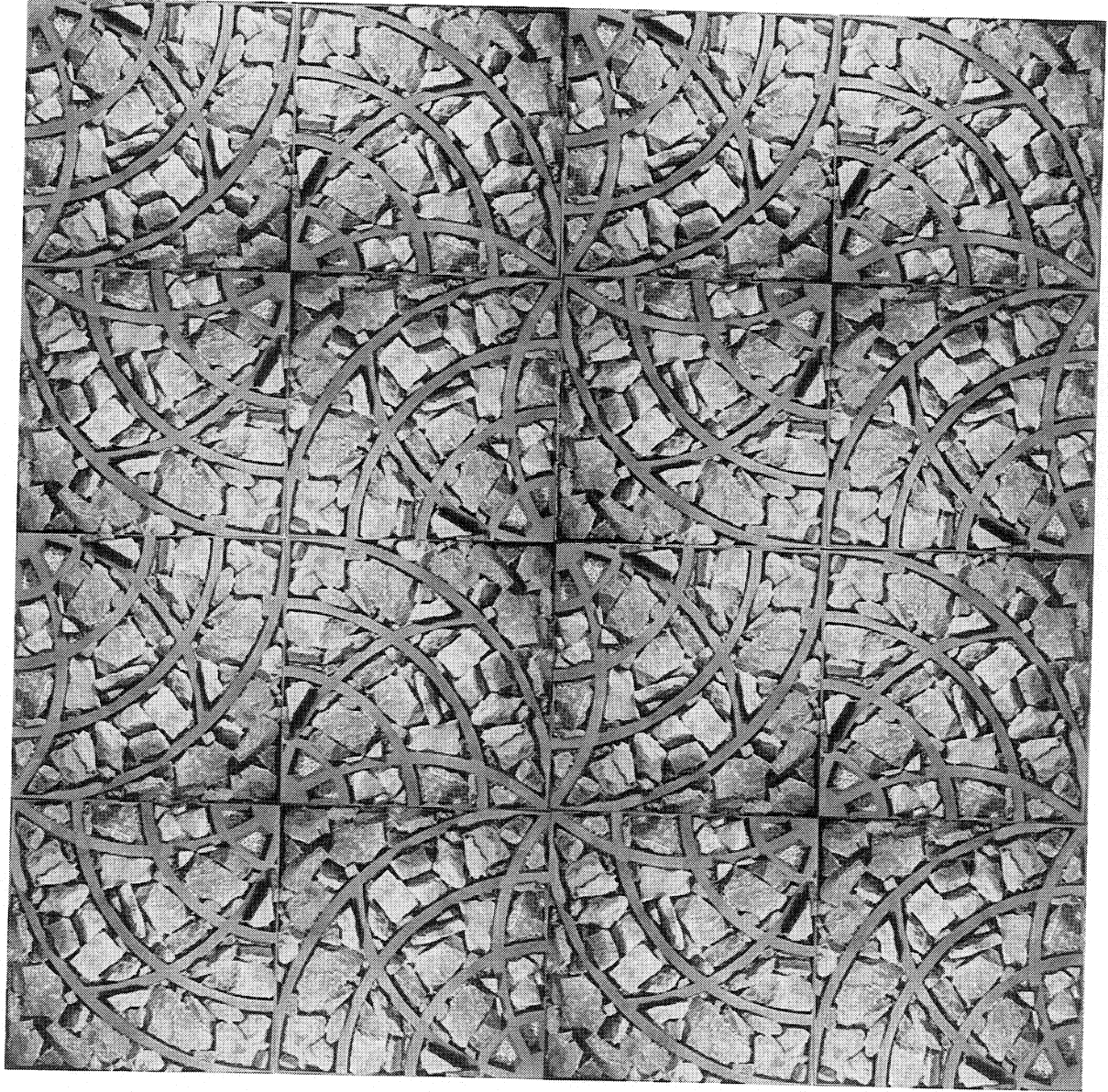
Terracing (recalling the Veirs Mill grounds) and contrasting the woods with mass installations of native plants, perennials, shrubs and ornamental grasses, in sweeping geometries, that relate to the sweeping curves of the bridge, could offer an interesting counterpoint to the naturalized landscape, providing seasonal color, fragrance and habitat.



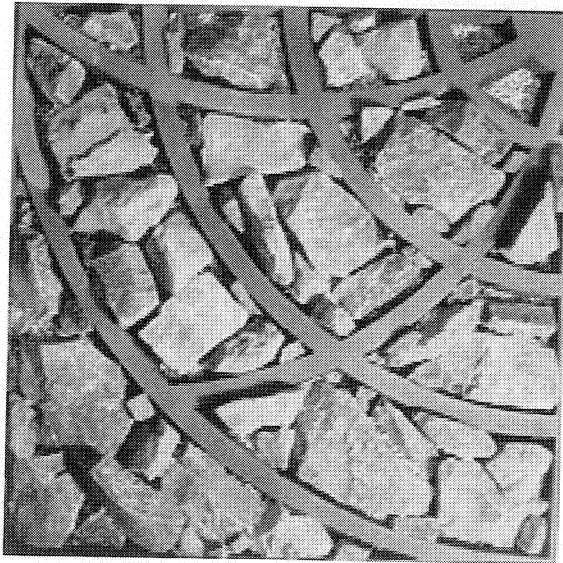
Below left, many plants are drought tolerant and attract butterflies.



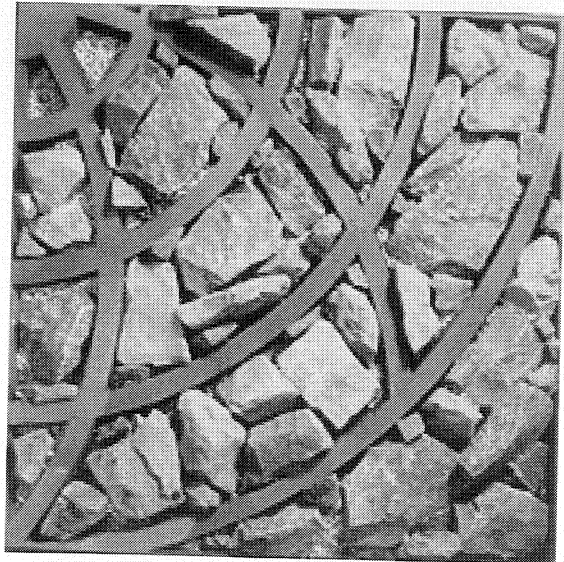
Below right, a median that illustrates an innovative plant palette of perennial flowers, shrubs native and ornamental grasses. Feature plant installations like this could be employed at the bridge entries. Also, ornamental grasses could be installed en masse to suggest a mill pond. A commemorative water wheel could be fabricated to celebrate Veirs Mill. The Veirs Mill overshoot wheel was 9' in diameter. This could provide an interesting focal point for an interpretive display about the mill.



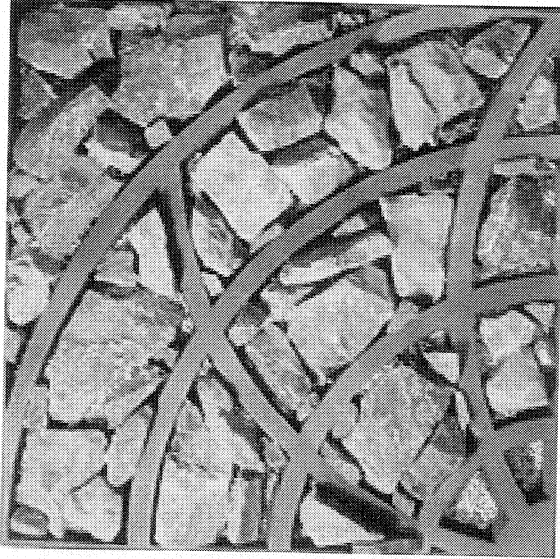
Left, example pattern layout.



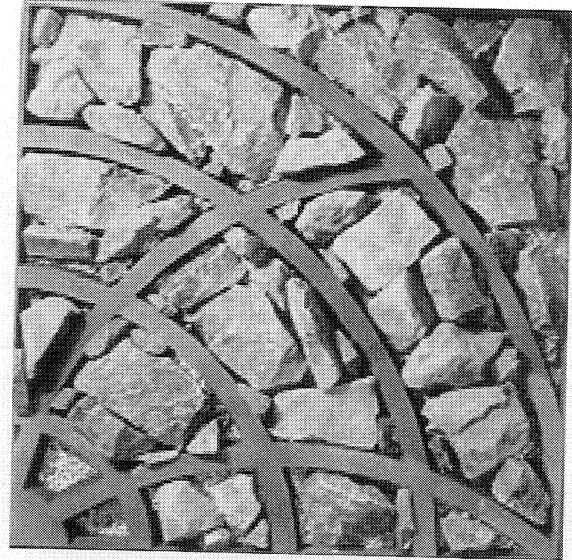
Top left, mill stone quadrant pattern, no rotation, 2'x2' to be fabricated with textures from locally quarried rocks.



Top right, mill stone quadrant pattern, rotated 90 degrees clockwise.



Below left, mill stone quadrant pattern, rotated 180 degrees clockwise.

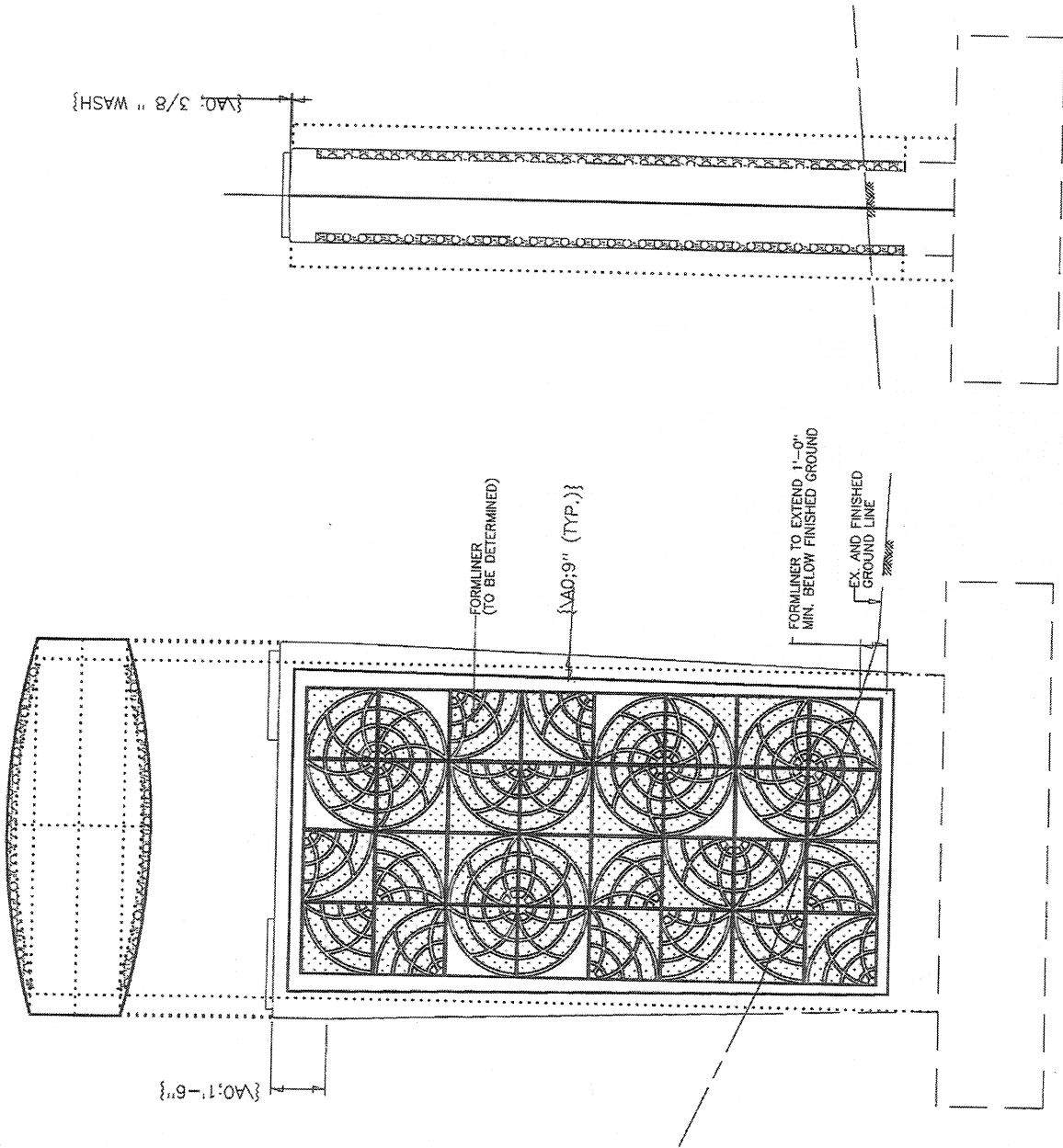


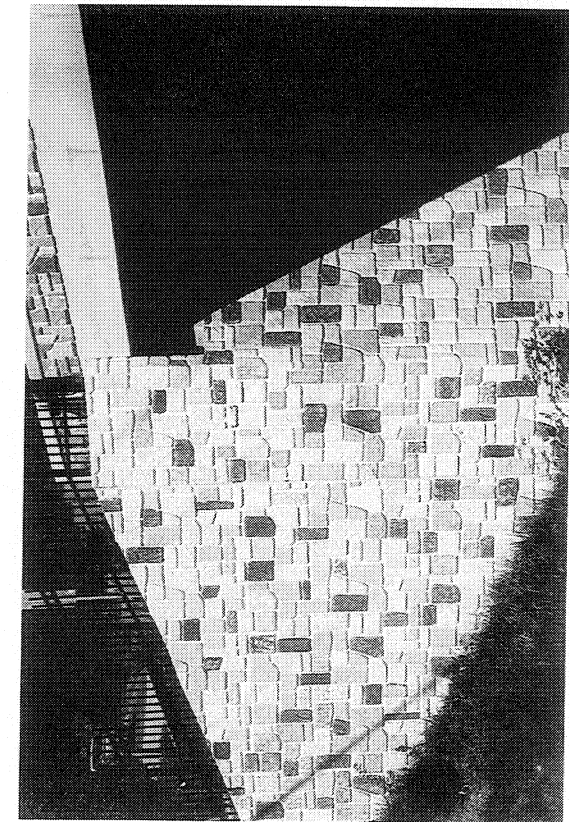
Below right, mill stone quadrant pattern, rotated 270 degrees clockwise.

These quadrants may be combined in numerous ways to create a variety of patterned fabrics. The images demonstrate "the look" of the mill stone pattern when filled with rock textures. The pattern may be filled in a variety of ways.

These pattern elements may be translated to concrete by using elastomeric form liners, an industry standard that is frequently used in the construction process.

Left, pier elevation and plan with mill stone patterning. Add curve to grace shape, taper to ground.

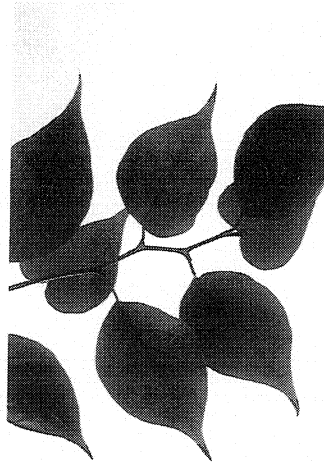




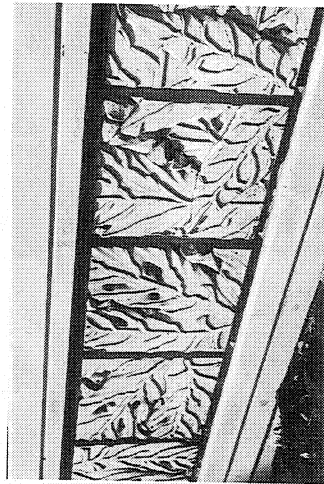
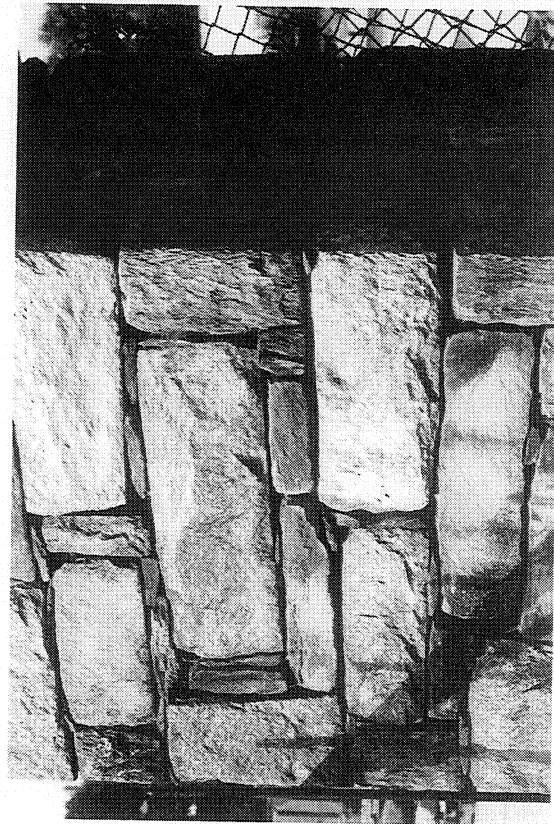
Top left, patterned concrete abutment and wing walls, depicting natural stone.

Below left, rock column made from local rock from a nearby quarry.

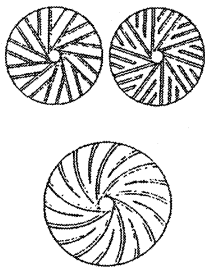
Top right, leaf patterns can provide inspiration for design motifs.



Below right, concrete relief with leaf and rock patterns.



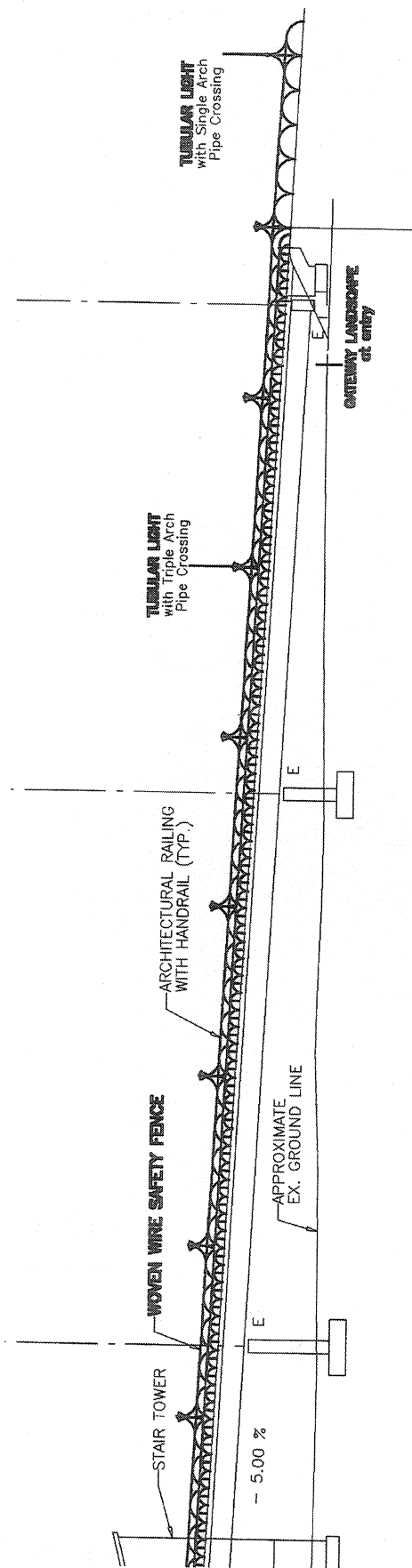
The mills operated by the mill wheel turning a shaft which turned other cogged wheels in the mill. The arrangement was ingenious. By going from larger to smaller gears, for instance, a millstone could be turned over a hundred times every minute while the water wheel turned only seven.⁸ A pair of millstones was needed to grind the grain, which was dribbled into a hole in the center of the top stone. The top stone, the runner, was turned by the force of the mill wheel and the bottom runner, the bedstone, was stationary. The faces of both millstones were furrowed to cut the grain and channel the ground meal or flour to the edge of the stones, the furrows cut in a variety of ways.⁹



At first the mill stones were quarried locally, "country stones," which were fine for grinding rye flour, buckwheat and cornmeal. However, Cullin stones, German millstones from Cologne, and French burrs, made of quartz quarried in the Paris Basin and renowned for wheat-flour production, were imported quite early.¹⁰ A mill owner in 1795 proudly advertised that his mill had "burrs."

Top, excerpt about mill wheels from *The Montgomery County Story, Early Water Mills in Montgomery County* by Eleanor M.V. Cook

Bottom, partial bridge elevation: Victorian inspired fence patterning with light arches and cage designs for Rock Creek Trail Bridge, with mill stone patterning for concrete barrier wall, both sides.



Below, partial bridge elevation: Victorian inspired fence patterning with light arches and cage designs for Rock Creek Trail Bridge, with mill stone patterning for concrete barrier wall.

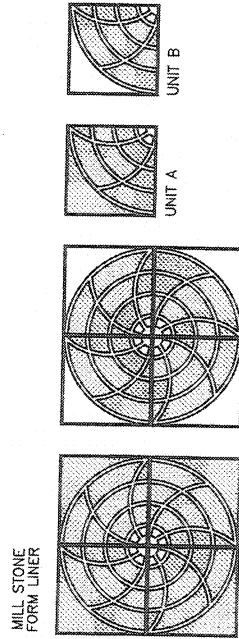
BRIDGE ELEVATION NOTES:

Lighting Family:
cage lighting
triple arch light armature
single arch light armature
pier lighting

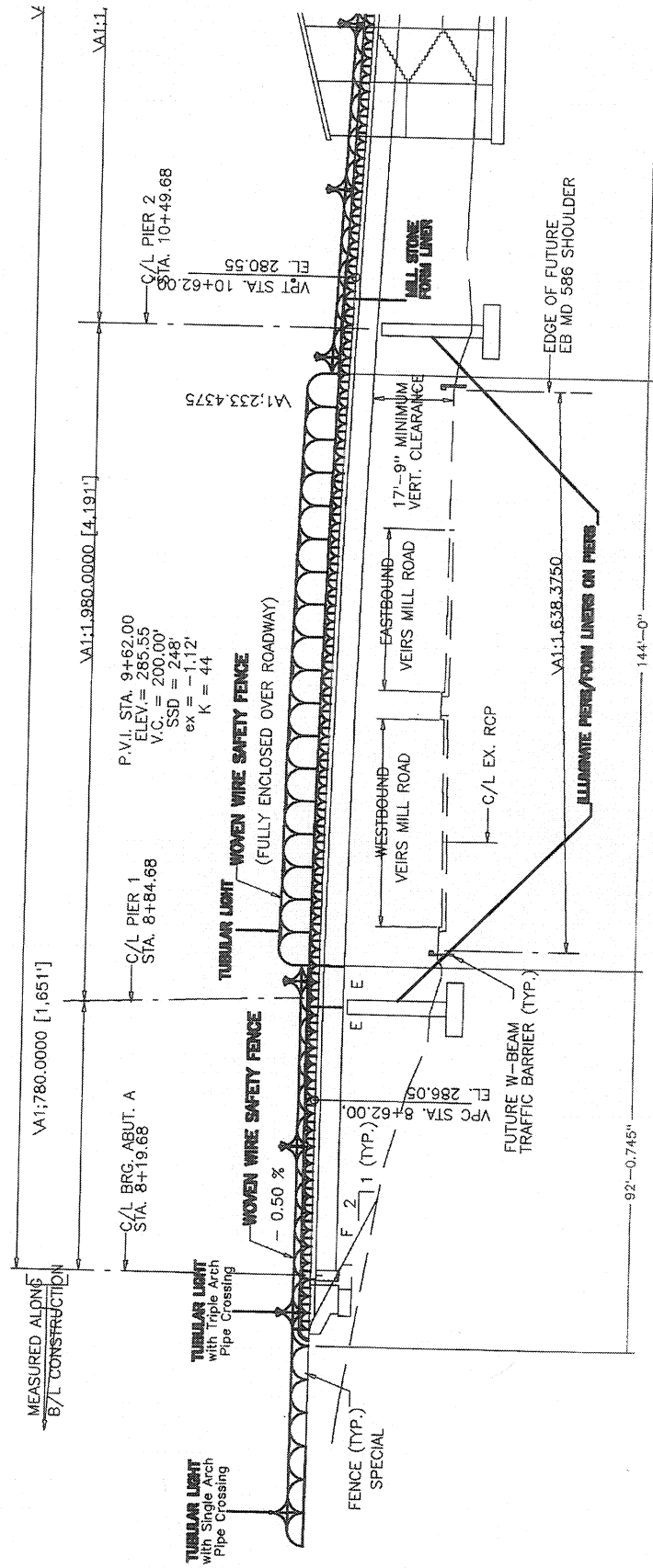
Fencing Family:
cage fencing
barrier fencing
trail fencing

Concrete Patterning Family
mill stone pattern for concrete barrier
stamped concrete for bridge walkway

Gateway Landscape at entry



Unit Size: 2' x 2'; Full Pattern = 4' x 4'
Allow 3" for Relief (includes edge bevel)
Note: Liner is used on both sides of barrier



Projects must be advertised for construction within 18 months of the letter notifying the sponsor that funding has been awarded or the TEP funds may be withdrawn.

OTHER

The Public Arts Trust of the Arts and Humanities Council identified this project as an ideal project for incorporation of public art. The trust funded \$10,000 to include an artist on the design team during the facility planning phase.