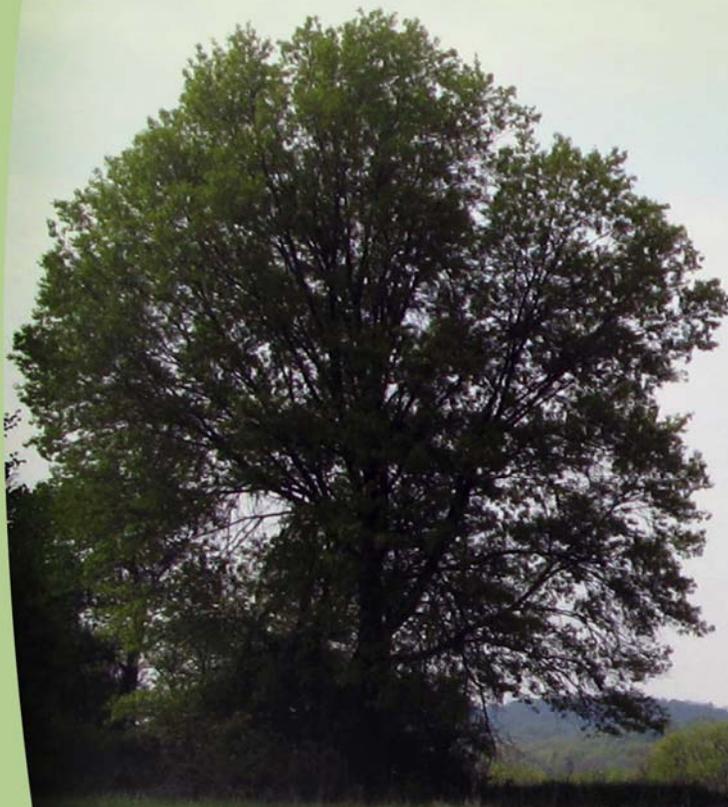


Kurylo Preserve

Master Site Plan

Limerick Township, Pennsylvania



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KURYLO PARK MASTER PLAN

DRAFT

PREPARED FOR:

Limerick Township
646 West Ridge Pike
Limerick, Pennsylvania 19468

STUDY COMMITTEE

Samuel F. Barilla, Jr. - Township Resident - Planning Commission
Michael Connelly - Township Resident - Parks & Recreation Committee
Keith G. Daywalt - Township Resident - Streetscape & Buffering Committee
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FUNDED IN PART BY:

A grant from the Community Conservation Partnerships Program, Keystone Recreation, Park and Conservation Fund under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation



PREPARED BY:

Simone Collins Landscape Architecture



SC#: 15012.10

SEPTEMBER 20, 2015

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LIMERICK TOWNSHIP MONTGOMERY COUNTY

CHAPTER 1: PROJECT INTRODUCTION

Kurylo Preserve

In 2007, Limerick Township acquired Kurylo Preserve as a part of a continuing program to provide parks and open space to a growing population. Today, Kurylo Preserve remains undeveloped open space, characterized by open fallow farm fields, scrub brush and secondary forest. The 80-acre Preserve will help meet the Township resident's need for open space and passive recreational opportunities.

Limerick Township applied for and received a DCNR grant to prepare a master plan according to DCNR guidelines. This plan is the result of collaboration between the public, project committee, Township staff, consultants, and the Township Board of Supervisors. This document outlines the planning process and provides a master vision for the future of the Preserve.

Master Plan Goals & Objectives

The goal of the Kurylo Preserve Master Plan is to develop a site plan that focuses on passive recreation and fits within the context of the Township's overall park system. The plan will position Kurylo Preserve as a passive 'sister park' to Limerick Community Park, located within a half mile of Kurylo Preserve. Passive recreation is characterized by activities that respect and add to the site's natural systems such as wildlife observation, walking, and horseback riding. An emphasis on preserving the natural site systems and wildlife habitat, and providing safe access to the site are seen as key to the success of the Preserve.

Plan goals objectives focus on improving the aspects of Kurylo Preserve that led to its acquisition by the Township and are as follows:

GOALS & OBJECTIVES

- Respect the natural features/systems of the Preserve and adjoining lands.
- Respect the residences that surround the Preserve.
- Provide for the continuation of equestrian use on site.
- Provide safe site access for all users.
- Maintain desirable views while respecting adjacent residential parcels.
- Identify sustainable design principals and materials to be incorporated into the Master Site Plan and management plan of the Preserve.
- Minimize any negative site impacts during implementation of the site master plan and site management.

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Regional Context

Approximately 22.8 square miles in size, Limerick Township is a second class Township in northwest Montgomery County, Pennsylvania (See Figure 1.1 Regional Location Map). Located approximately 34 miles northwest of Center City, Philadelphia, Limerick is considered part of the Philadelphia Metropolitan area. The Township is served by three interchanges along State Route 422 which runs through the Southern end of the Township.

Municipal Parks and Recreation System

“Limerick Township is committed to providing the personal, economic, social and environmental benefits of parks and recreation! Limerick Township Parks & Recreation is here to assist you with making the best use of our services, programs and facilities.”

-Limerick Township Parks & Recreation

The Township presently maintains (6) park sites: Community Park (56 acres); Veterans Park (15.5 acres); Linfield Sports Park (17 acres); Schuylkill River Park (20.8 acres) Linfield Landing Park (6 acres); and Kurylo Preserve (80.1 acres). Figure 2.1 lists a summary of the Township operated recreations facilities, size, location, and basic amenities. Currently the Township’s Park system focuses on active recreation facilities such as ballfields, hard court areas, and playgrounds. Kurylo Preserve provide passive recreation, such as opportunities for wildlife observation and hiking, within the Township park system.

Demographics

Limerick Township has been a community of growth over the last 25 years; during the 90’s the Township’s population doubled. In recent years the Township has continued to grow, the 2010 US Census list the population of Limerick as 17,268; a

significant 28% growth from the 2000 population of 13,534, outpacing the county growth of 5% over the same time period. Limerick Township is positioned for continued growth. The most recent US census estimates the 2013 population to be 18,264 and the Delaware Valley Regional Planning Commission

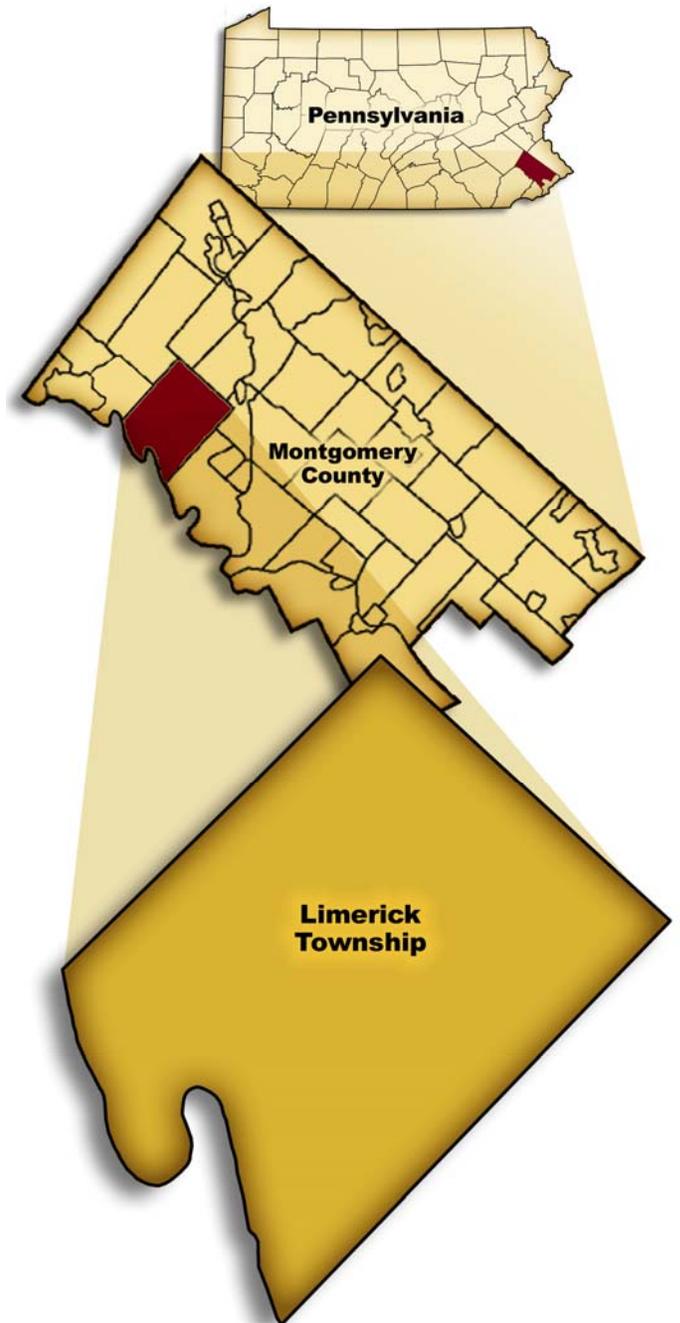


Figure 1.1 Regional Location Map

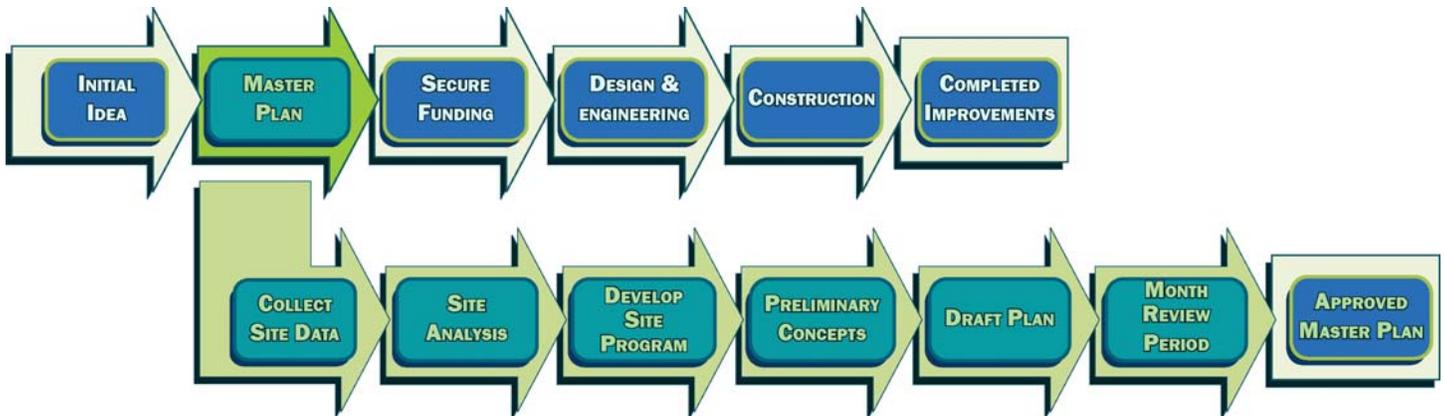


Figure 1.2 Master Plan Planning Process

(DVRPC) estimate the Township will have 23,516 residents by the year 2040.

Limerick has a diverse population of young and old, creating a need for a full range of recreational facilities and opportunities. The mean Township population age in the mid-thirties points to an aging population in the decades to follow. Many municipalities across the nation are facing similar demographic and are starting to consider how this change in demographics may affect the use of their park systems. One trend expected to remain is that walking is the number one form of exercise for people over the age of 45 (Harris, 2007). As a population ages, safe walking routes throughout our communities will become even more desirable.

As a result of this impressive growth, many of the Township’s residents who have spent their lives in Limerick or moved there for its rural feel have found themselves living in a more suburban community than anticipated. Others residents, that have moved to Limerick from more developed municipalities, bring with them expectations for a developed park and recreational system. The master plan for Kurylo Preserve aims to find a balance between these two expectations by adding to the Township park system a large tract of preserved open space with

opportunities for residents to participate in passive recreation in a natural setting.

The Master Planning Process

Figure 1.2 illustrates Master Planning as an early step in the process of constructing a new open space facility. The Master Plan Study is being undertaken to develop a consensus for improvements and facilities to be included at Kurylo Preserve. The master plan provides estimates of probable costs of development and outlines a strategy for phasing improvements and matching phases with potential funding sources. The master plan is a document for guidance moving forward and is intended to be flexible enough to allow for the plan to adapt to future desires and needs of Township residents.

Following the completion of the Master Plan the next step toward implementation is to identify and acquire funding for a phase of improvements. Once funding is established detail design and engineering will commence to develop construction documents. Construction documents will be publicly bid and a contract awarded for construction of the improvements. A master plan is typically implemented through a series of phases, dependent on funding over a period of years. In the case of Kurylo Preserve three to four phases spanning eight

CHAPTER 1

to ten years is a realistic timeframe for the implementation of the improvements.

Currently the Township, has committed \$300,000 (\$150,000 DCNR grant, \$75,000 match by private developer, and \$75,000 match by the Township) to complete an off-road trail from Limerick Community Park to Kurylo Preserve along with trail head improvements. These improvements will comprise the first phase of the Preserve master plan implementation.

Public Participation Process

In early 2015, Limerick Township selected Simone Collins Landscape Architecture (SC) to lead the master planning and public participation process for Kurylo Preserve. A project steering committee comprised of residents and staff informed the master plan process. Simone Collins worked with the Township Staff and Project Steering Committee (PSC)

to tailor the public participation process to the project needs. Community input and support is the basis for all successful master plans; it is critical for PSC and designer to hear citizens' observations, needs and visions for the Preserve and incorporate what is learned into the master plan.

The public participation process for Kurylo Preserve included 4 public meetings, 6 committee and 4 key person interviews. Steering Committee meetings were open to the public allowing for citizens to be more involved in the overall planning process. Table 1.1 list the meetings schedule for the project. Meeting notes and attendance sheets for each meeting can be found in the appendix of this report.

The first committee and public meetings focused on collecting information and developing the site program. A brief presentation reviewing the site's features through photographs and analysis mapping

TABLE 1.1 PROJECT SCHEDULE

Thursday May 7, 2015	Committee Meeting #1	Preserve Programming
Thursday May 14, 2015	Public Meeting #1	Preserve Programming
Thursday June 4, 2015	Committee Meeting #2	Preserve Concept Review
Monday June 22, 2015	Public Meeting #2	Preserve Concept Presentation
Thursday Aug 6, 2015	Committee Meeting #3	Draft Plan Working Meeting
Thursday Sep3, 2015	Committee Meeting #4	Draft Plan Review
Wednesday Sep9, 2015	Public Meeting #3	Draft Plan Presentation
Thursday Oct 1, 2015	Committee Meeting #5	Final Plan Review
Tuesday Oct 20, 2015	Public Meeting #4 Board of Supervisors Meeting	Final Plan Presentation
Thursday Nov 5, 2015	Committee Meeting #6	Project Implementation

was made to familiarize everyone with the particulars of the Preserve. The presentation was followed by a brainstorming session where participants were asked for their ideas and visions for the Preserve.

These meetings were followed by a second committee and public meeting to review a composite site analysis and initial site concept ideas. The public was invited to provide their feedback on what they liked or did not like about the site concept. A third steering committee meeting was held to review the public feedback and the revisions to a preferred Preserve concept. The draft master plan was presented at the fourth committee meeting third public meeting for public comment. A month long public review period was held prior to the fifth committee meeting where final plan revisions were made based on public, Montgomery County Planning Commission and DCNR input. The final master plan was presented at the fourth public meeting during a Board of Supervisors meeting. The final and sixth committee meeting was held to identify the next steps to be taken to move the plan into the first phases of implementation.

Data Collection and Methodology

Elements for the Base Map were compiled using the best available information. This information included Geographic Information System (GIS) mapping, tax maps, aerial photography, and information gathered from previous and ongoing planning efforts.

Information was derived from multiple sources and methods including reports and documents provided by Limerick Township, GIS information provided by the State of Pennsylvania and Limerick Township, field reconnaissance, public meetings and key person interviews.



LIMERICK TOWNSHIP MONTGOMERY COUNTY

CHAPTER 2: SITE INVENTORY & ANALYSIS

General Preserve Description

Kurylo Preserve is an 80.1 acre parcel located in the north-central portion of the Township. The Preserve is bounded by Metka Road (to the south and west), North Limerick Road (to the east), and Pheasant Road (to the north). Originally part of a 90-acre parcel, the Preserve encloses the former farmstead, a 9 acre parcel containing a private residence. The site naturally divides into three areas: the eastern North Limerick Road frontage and woods, the eastern field, and the western field and woods. The site pinches to a 'knuckle' of about 150 feet in width where the eastern field and western field meet.

The Preserve is bordered by twenty-one (21) parcels with eighteen (18) private land owners. To the west the Preserve is bounded by Metka Road and single family residences. To the south, single family homes along Metka Road border the Preserve. To the east the Preserve is bordered by North Limerick Road and single family residences. To the north the Preserve is bordered by a farmstead and State Game Land (SGL) #234.

Operated by the Pennsylvania Game Commission, the 465-acre SGL is open for public hunting mainly of deer and pheasant. The farm was established in 1929 for the purpose of raising ring-necked pheasants and quail, which were released throughout eastern Pennsylvania for the fall hunting season (Rhoads and Blocks, 2007). The structures from this facility are located adjacent to the Preserve with driveways onto Pheasant Road. Today the site is a mix of cultivated fields with designated food plots, and forest. Designated food plots are located near the Preserve.

The physical features of the Preserve include gently rolling hills, large open fields and meadow, Mine Run and tributary streams, successional forest, dramatic views and a pastoral sense of place. The site has a long history of agricultural use; most recently as a sod farm. The sod farming activities ended in the spring of 2015.

History

The Kurylo farmstead has a long history in Limerick Township. County maps dating to 1877 list the 95 acre tract, located along the headwaters of Mine Run as belonging to A.T. Miller. The Map (See Figure 2.1) depicts the same long drive off of North Limerick Road leading to a central farmstead. County parcel records date the farmhouse to 1900. Located in a region of Limerick with a long agriculture history, the site has been a patchwork of agricultural fields and hedgerows for the past 100 years. Over the past 50 years the site's hedgerows have diminished and the riparian buffers along Mine Run and its tributaries have grown.

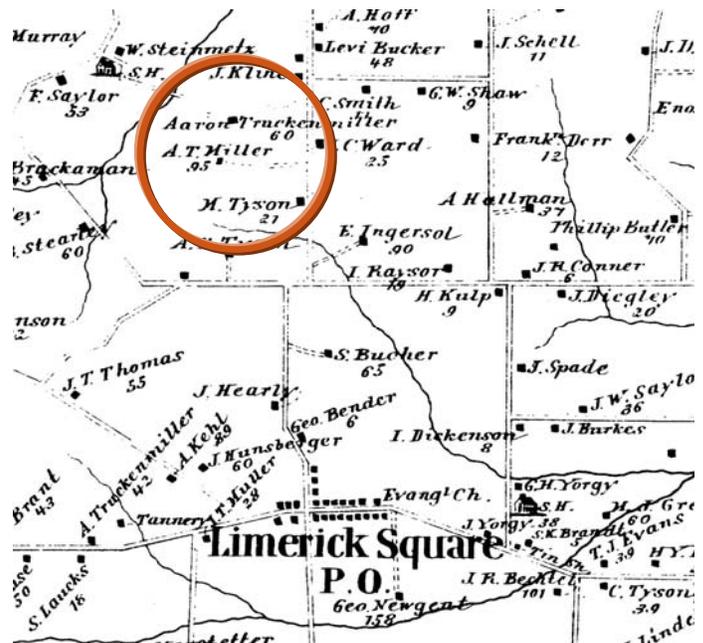


Figure 2.1 Combination Atlas of Montgomery County, 1877

CHAPTER 2

In the early 2000's, the Kurylo family considered selling the 90-acre farm to developers to build 40 homes. Neighbors began a dialogue with the Kurylo family concerning the potential of preserving the land in 2004. The preservation of the Kurylo Tract had three (3) primary attributes:

1. The large intact parcel with close proximity to Limerick Community Park as a good addition to the Townships Park and Open Space System
2. Preservation of Kurylo expanded the extend of conserved lands between the Stone Hill Preserve/State Game Lands area and the

Township's Community Park; see Figure 2.3 Stone Hill Conservation Landscape.

3. Preservation of Kurylo at the headwaters of Mine Run benefits the water quality of the greater Perkiomen Watershed.

Kurylo Farm was acquired by the Township in 2007 for \$2.8 million (See Table 2.1). The majority of funding was provided through Montgomery County's Green Fields/Green Towns program and the Pennsylvania Department of Conservation and Natural Resources (DCNR) with the understanding that the land would be preserved as public open

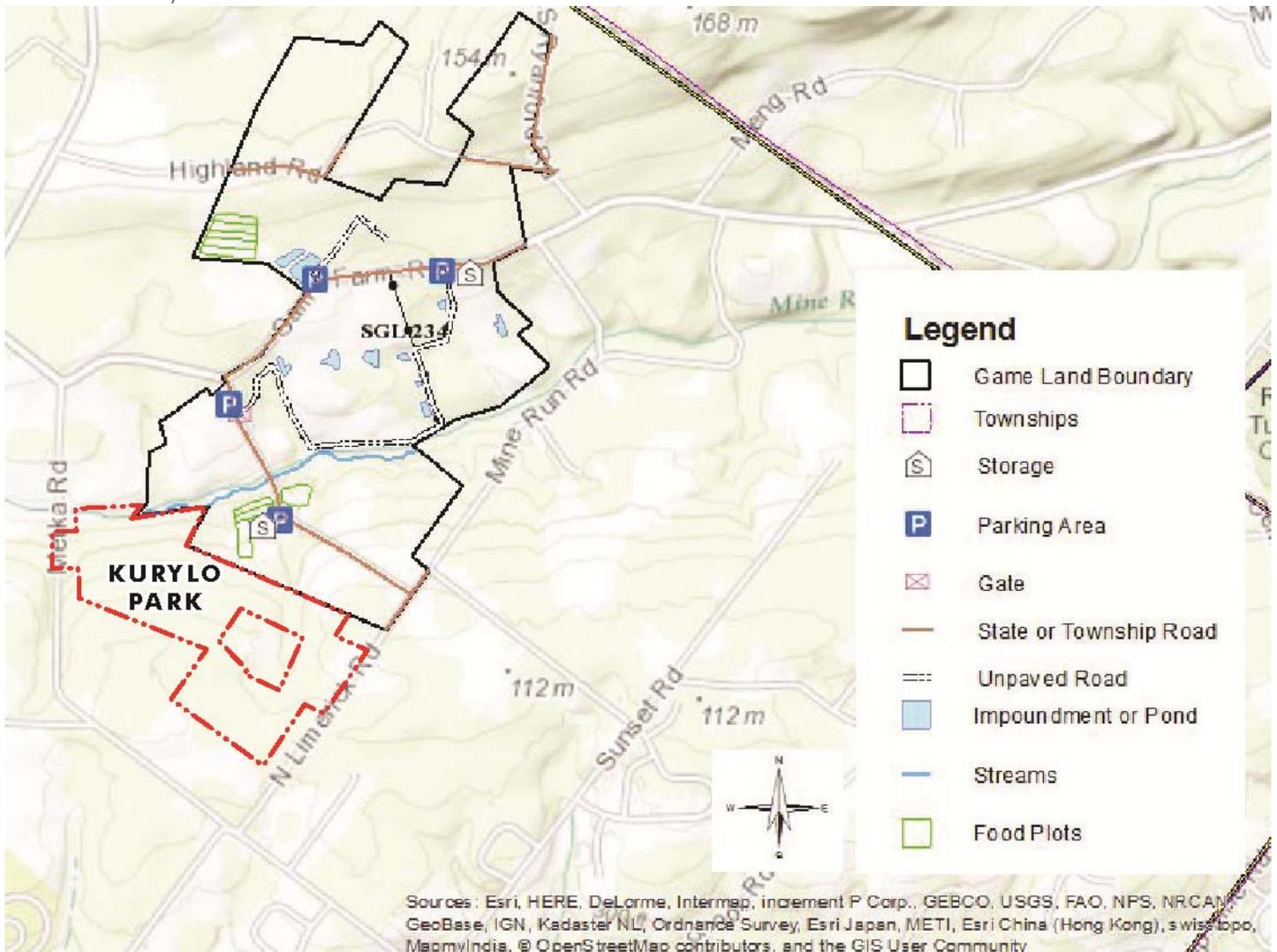


Figure 2.2 State Game Lands 234 Map.

TABLE 2.1: KURYLO PRESERVE ACQUISITION FUNDING

Montgomery County	\$	1,141,684.00
PA DCNR	\$	1,200,000.00
PECO	\$	7,500.00
Township, Local, & Private Funds	\$	450,816.00
Total Project Cost	\$	2,800,000.00
Value of Bargain Sale by Owner	\$	350,000.00
Appraised Value	\$	3,150,000.00

space and accommodate public access for passive recreation activities. The nine acre farmstead was retained by the Kurylo family and later sold in 2009. It is maintained as a private residence.

There are no buildings on the site and none of the adjacent farmstead buildings have been listed on the National Register of Historic Places and National Historic Landmarks Program. Even though there is nothing of national historical significance in Kurylo Preserve, the agrarian landscape is indicative of the heritage of Limerick Township and this unique sense of place is of lasting value and its preservation is important to the Township.

Zoning

Kurylo Preserve and its adjacent parcels are zoned as R-1. A municipal park is an allowed use in this district.

Easements, Covenant and Restrictions

The Kurylo Preserve has an existing easement for a shared driveway. The easement is for a driveway 20 feet in width for utilities, ingress and egress serving



Figure 2.3 Stone Hill Conservation Landscape



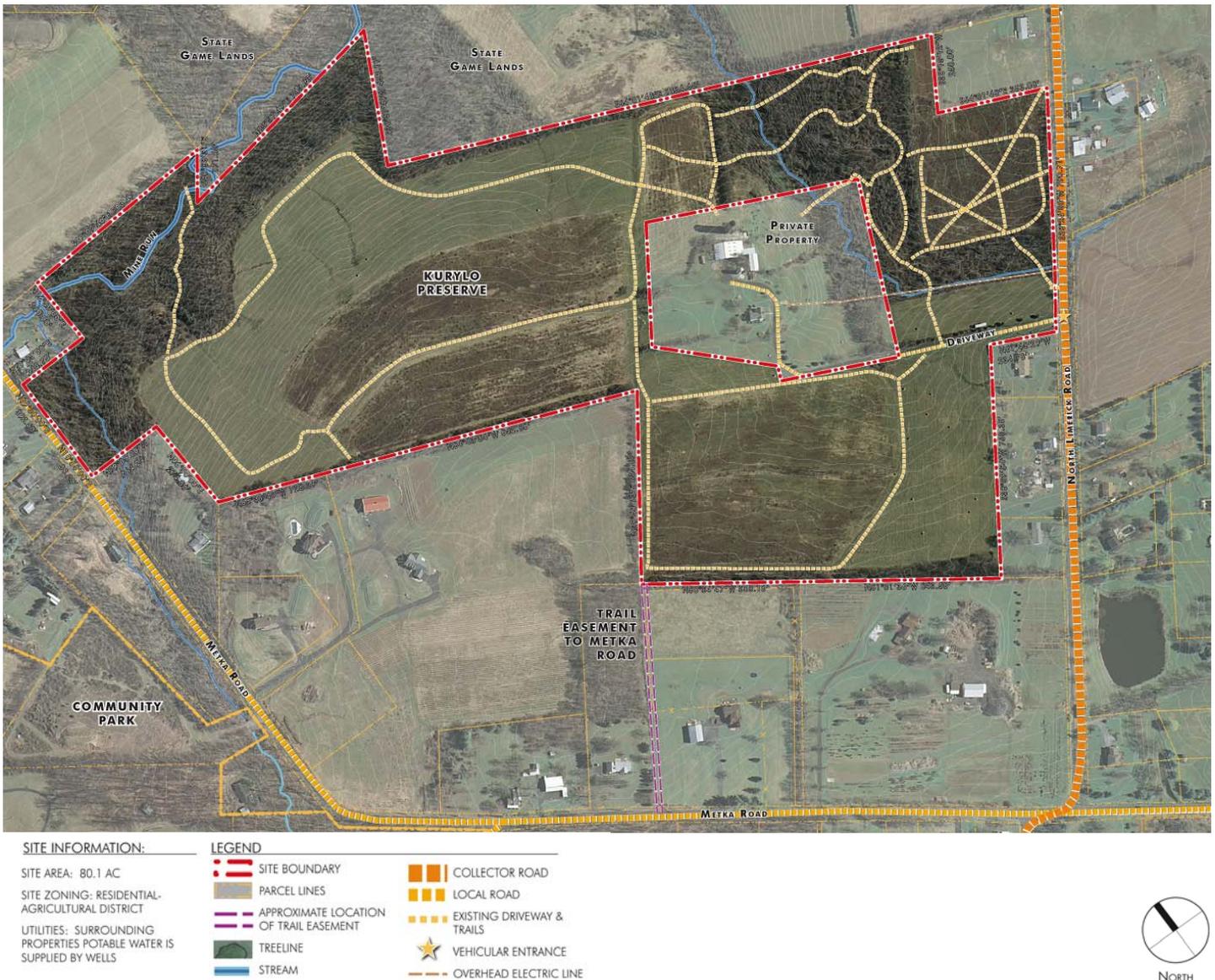
Shared access drive located off N. Limerick Road.

CHAPTER 2

the private property and the Township property. The easement states that the Township is responsible for all costs of repairing, removing snow, and ice and other maintenance of the driveway up to the shared property line. (A copy of the Shared Driveway Cross Easement Agreement can be found in the appendix of this report.)

The site has a restrictive covenant limiting the use of the property to open space in accordance with the Montgomery County Green Fields/ Green Towns

Program. The covenant defines the types of uses allowed as passive public recreation, such as walking paths, nature study, and environmental education, enjoyment of scenic views and vistas, and other open space uses consistent with the sensitive natural features and site character. (A copy of the Declaration of Covenants, Conditions, and Restrictions can be found in the appendix of this report.)



Access

Vehicular site access is possible from North Limerick Road via a gravel driveway that is shared with the private residence. The Preserve has frontage along “Western” Metka Road with no formal access. There is no frontage along “Southern” Metka Road; however, a ten (10) foot easement along the edge of a neighboring property located along the southwest boarder of the Preserve with frontage along Metka Road. This will provide for future trail access to the south and beyond to Limerick Community Park. A multi-use trail is currently in design to connect Limerick Community Park via an off-road trail along Ziegler Road, Metka Road, and the trail easement. There are numerous horse trails, primarily in the north portion of the site, with egress and ingress points. These access points should be considered as more formal park entries.

Pedestrian Circulation

There are many existing pathways and trails on the Kurylo Site. These paths range from mown trails in open fields to rugged single-track trails. These trails were created and are currently maintained by the



Bridle path through western field

area equestrian community that uses the site for horseback riding.

The northeastern meadow, located along North Limerick Road has several wide mown paths. The central wooded area surrounding the unnamed tributary of Mine Run contains several single track trails. These trails are four to six feet (4-6 ft) wide and tend to follow the fall line, or directly down a slope. The western and eastern fields contain unmown horse trails mostly along the tree line. These trails created by horses are two to three feet (2-3 ft) wide and can be difficult to traverse on foot. An additional single-track trail leads from the western field into the northern woods, leading across Mine Run, and continues off site.

Many of the trails can be used as loop trails within the site, meaning that they start and end at the same approximate point. However many of the trails originate on adjacent private property. As the trail system is formalized a mechanism for demarking private access to trails will need to be coordinated with adjacent private property owners. Typically, this can take the form of a few post and rail fence sections located along property lines with an opening



Bridle path through central woods.

CHAPTER 2

marked “Private Property”; or through the use of trail signage marking access trails as “do not enter.”

Infrastructure / Utilities

The site has no access to public water or sewer. The neighboring residences all maintain private on-site septic tanks for waste disposal and wells for potable water. Overhead electrical service lines run along the east side of North Limerick Road and the east side of Metka Road. A primary distribution power line runs from North Limerick Road along the tree line approximately 150’ north of the driveway entrance into the farmstead site. The high voltage is currently stepped down by a transformer at the farmhouse.

Buildings and Structures

No buildings exist on the Kurylo Preserve. The private residence, in the center of the Preserve, is comprised of the farmhouse, barn, out buildings and silos.

Geology and Soils

Kurylo Preserve falls within the Gettysburg-Newark Lowland Section Piedmont Province of Pennsylvania. This region is characterized by red sedimentary rock and a landscape of rolling hills and valleys. The main origin material consists of fluvial erosion with some peri-glacial mass wasting.

There are three types of underlying bedrock geology found in Limerick Township and two of them are

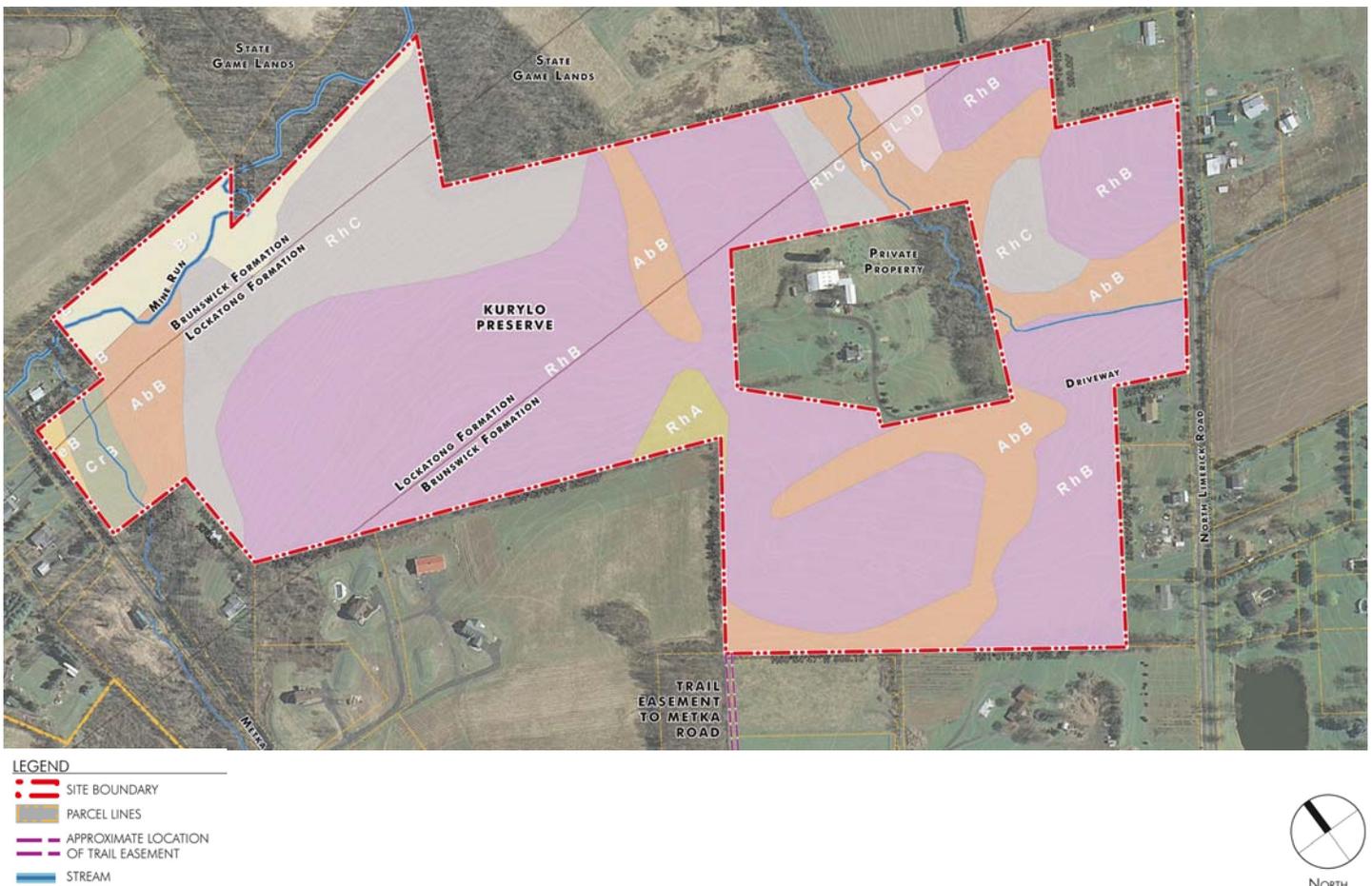


Figure 2.5 Geology and Soils Map

found within Kurylo Preserve. The dominant bedrock for the Township and site is Brunswick Formation (Trb). Throughout the Township, within the Brunswick formation linear bands of Lockatong formation (Trl) are found. One of these bands run through the site parallel and south along Mine Run.

Brunswick Formation is moderately weather resistant; creating landscapes of broad shallow valleys and low hills. The rock is composed of mudstone, siltstone, and shale and is typically soft and grayish-red to reddish-brown. Lockatong Formation is likewise moderately resistant to weathering and creates landscapes of medium relief with rolling hills. The rock composed of argillite with a thin bed of black shale and is predominantly dark-gray to black.

The following soils can be found on the site: Abbottstown silt loam, 3 to 8 percent slopes, Bowmansville – Knauers silt loams, Croton silt loam, 3 to 8 percent slopes, Lansdale loam, 15 to 25 percent slopes, Penn silt loam, 8 to 15 percent slopes, Readington silt loam, 3 to 8 percent slopes, Reaville silt loam, 0-3 percent slopes, Reaville silt loam, 3 to 8 percent slopes, Reaville silt loam, 8 to 15 percent slopes (Figure 2.5, Soils Map).

AbB – Abbottstown silt loam, 3 to 8 percent slopes, 17.9% of site: Found on the northeastern area of the site and making up a significant portion of the eastern part of the site this soil is found on nearly level to sloping upland flats. The Abbottstown series consist of deep and very deep, somewhat poorly drained soils. They formed in residuum from acid red shale, siltstone and sandstone. Thickness ranges from 30 to 60 inches and the depth to bedrock ranges from 40 to 60 inches. Typically, the surface is a dark reddish gray and is about 10 inches thick. These soils are somewhat poorly drained. Runoff class is medium on nearly level slopes, high on

gentle slopes and very high on strongly sloping or moderately steep areas.

Bo - Bowmansville – Knauers silt loams, 7.6% of site: Found on the northern part of the site, along Mine Run. The Bowmansville series consists of very deep, poorly drained soils. They formed in recent alluvial deposits derived from upland soil materials weathered from dolerite or basalt. They are found on floodplains with smooth slopes of 0 to 3 percent. Thickness ranges from 18 to 59 inches and the depth to bedrock is more than 6 feet. These soils are poorly drained and somewhat poorly drained. Surface water ponds and runoff is very high.

CrB - Croton silt loam, 3 to 8 percent slopes, 1% of site: Found on the western side of the site. The Croton series consists of deep poorly drained soils on uplands. They formed in medium textured materials mainly over sandstone, siltstone, or shale. Croton are on nearly level and sloping upland flats or in depressions. The soils formed mostly in residuum weathered from fine – grained silty sandstones, argillites siltstones or red shales. Thickness ranges from 25 to 55 inches and the depth to bedrock is 3.5 – 5 feet. These soils are poorly drained. Runoff is negligible to low and saturated hydraulic conductivity is moderately low in the subsoil.

LaD – Lansdale loam, 15 to 25 percent slopes, 1.1% of site: Found on the northeast part of the site, the Lansdale series consists of deep and very deep, well drained soils on upland areas. They formed in residuum weathered from sandstone and / or conglomerate. Thickness of the soil ranges from 20 to 40 inches and the depth to bedrock ranges from 3.5 to 5 feet. Lansdale soils are found on rolling uplands, on slopes from 0 to 25 percent. Lansdale soils are well drained and the index surface runoff class ranges from very low or low where nearly level to medium or high where moderately steep.

CHAPTER 2

PeC – Penn silt loam, 8 to 15 percent slopes, 0.3% of site: Making up a very small portion of the site, the Penn series consists of moderately deep, well drained soils formed in residuum weathered from noncalcareous reddish shale, siltstone, and fine grained sandstone normally of Triassic age. Thickness of soil ranges from 17 to 34 inches and the depth to bedrock ranges from 20 to 40 inches. The soil, where un-limed, ranges from extremely through strongly acid in the upper part of the soil to strongly acid or moderately acid in the lower part soil. Penn soils are on nearly level to steep moderately dissected uplands. Slopes range from 0 to 60 percent. Penn soils are well drained with a medium to very rapid runoff.

ReB – Readington silt loam, 3 to 8 percent slopes, 0.3% of site: Readington silt loam makes up a small portion of the Kurylo property and consists of deep and very deep, moderately well drained soils formed in medium textured residuum weathered from noncalcareous shale, siltstone, and fine grained sandstone. Slopes where the Readington silt loam is found can range from 0 to 15 percent. Soil thickness can range from 35 to 60 inches and the depth to bedrock can be from 40 to 90 inches. This soil is moderately well drained with moderately slow permeability. 85 percent of this soil is used for cropland.

ReC – Readington silt loam, 8 to 15 percent slopes, 0.9% of site: Readington silt loam makes up a small portion of the Kurylo property and consists of deep and very deep, moderately well drained soils formed in medium textured residuum weathered from noncalcareous shale, siltstone, and fine grained sandstone. Slopes where the Readington silt loam is found can range from 0 to 15 percent. Soil thickness can range from 35 to 60 inches and the depth to bedrock can be from 40 to 90 inches. This soil is

moderately well drained with moderately slow permeability. 85 percent of this soil is used for cropland.

RhA – Reaville silt loam, 0 to 3 percent slopes, 1.1% of site: Making up the majority of the site's soil, Reaville silt loam consists of moderately deep, moderately well and somewhat poorly drained soils formed in residuum weathered from red Triassic, interbedded shale, siltstone and fine – grained sandstone. Slope where the Reaville silt loam is found can range from 0 to 15 percent. Soil thickness can range from 12 to 24 inches and the depth to bedrock ranges from 20 to 40 inches. Where un-limed, the soil ranges from very strongly acid through slightly acid. Reaville silt loam is moderately well and somewhat poorly drained. Surface runoff is medium to slow.

RhB – Reaville silt loam, 3 to 8 percent, 53.6% of site: Making up the majority of the site's soil, Reaville silt loam consists of moderately deep, moderately well and somewhat poorly drained soils formed in residuum weathered from red Triassic, interbedded shale, siltstone and fine – grained sandstone. Slope where the Reaville silt loam is found can range from



Site Topography is typical of the gently rolling hills found throughout the region.

0 to 15 percent. Soil thickness can range from 12 to 24 inches and the depth to bedrock ranges from 20 to 40 inches. Where un-limed, the soil ranges from very strongly acid through slightly acid. Reaville silt loam is moderately well and somewhat poorly drained. Surface runoff is medium to slow.

RhC – Reaville silt loam, 8 to 15 percent slope, 16.4% of site: Making up the majority of the site's soil, Reaville silt loam consists of moderately deep, moderately well and somewhat poorly drained soils formed in residuum weathered from red Triassic, interbedded shale, siltstone and fine – grained sandstone. Slope where the Reaville silt loam is found can range from 0 to 15 percent. Soil thickness can range from 12 to 24 inches and the depth to

bedrock ranges from 20 to 40 inches. Where un-limed, the soil ranges from very strongly acid through slightly acid. Reaville silt loam is moderately well and somewhat poorly drained. Surface runoff is medium to slow.

Topography

The site topography is typical of the Gettysburg-Newark Lowland Section Piedmont Province with the characteristic shallow stream valley and gentle rolling hills. The site gently slopes from the high points to the southwest and east corners of the site towards Mine Run at the northern boundary of the site (See Figure 2.6). The site ranges in elevation ranging from 250' to 370' above sea level with slopes ranging

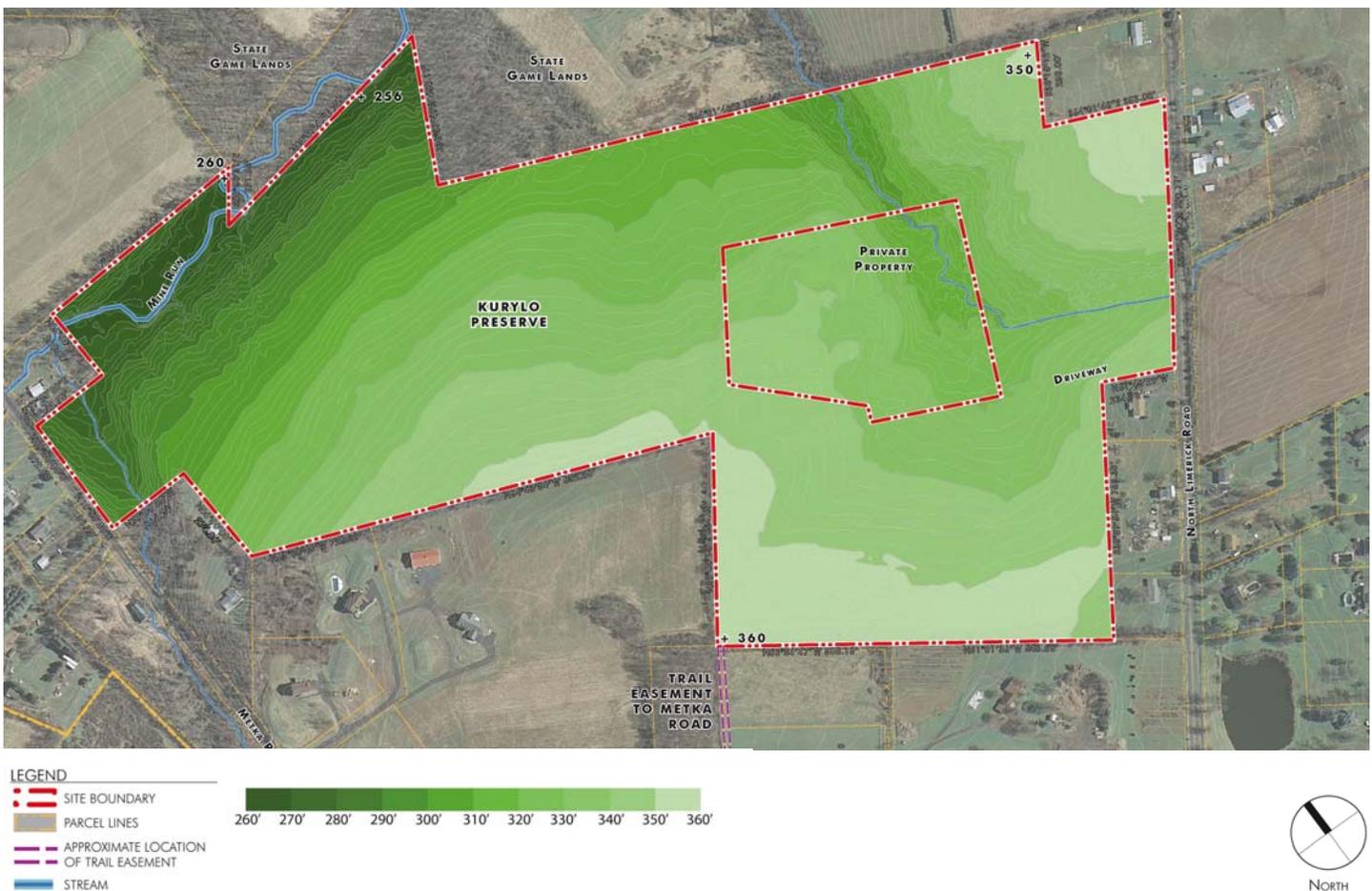


Figure 2.6 Elevation Map

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from five to fifteen percent (5-15%). The site does contain areas of steep slope (greater than 15%) in the area of the two valleys associated with Mine Run and its two unnamed tributaries. The Mine Run valley is located along the northern property line from west to east. A second valley associated with the unnamed tributary to Mine Run is located between the farmstead and the eastern North Limerick Road frontage through the woods. It generally starts at the driveway and runs north towards Mine Run. A third gentler valley runs along the second unnamed tributary that originates to the west of Metka Road and crosses into the Preserve running north east along the Metka Road frontage towards Mine Run

(See Figure 2.7).

The direction a slope faces, or slope aspect, can inform decisions on what plant material will thrive or where the best shady spot would be on a hot summer day. There is a distinct separation in the direction of slopes at Kurylo Preserve created by the various valleys. The majority of the site slopes generally face north towards Mine Run. Variances in the overall slope aspects are seen along the minor valleys and site draws. Along the western edge of the site at Metka Road a portion of the field and the woods face west towards the unnamed tributary. The majority of the North Limerick Road frontage faces east and south towards the site's central valley. A

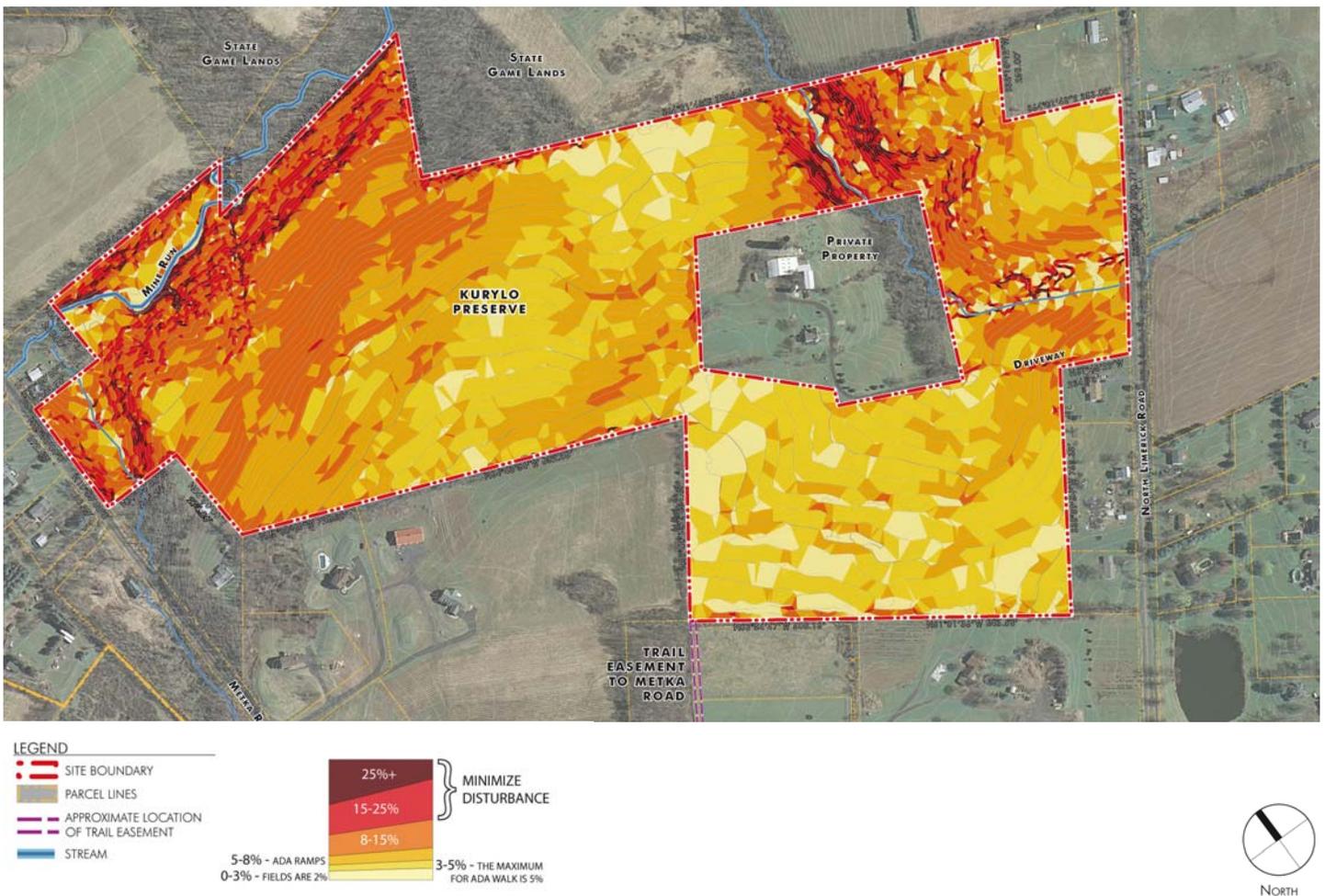


Figure 2.7 Slope Analysis Map

minor draw is formed in the east field that leads towards the central valley. The west side of this field faces southeast towards the draw were as the rest of the field faces north and northeast. (See Figure 2.8)

Hydrology

The Kurylo Preserve property is located within the in the Perkiomen sub-watershed of the Schuylkill River Watershed. There are two main drainage areas on the Kurylo Preserve. The primary drainage area is located in the western field and directs water north toward Mine Run. The site’s long agricultural history and nature of the soils have led to the formation of several eroded gullies running toward Mine Run,

caused by the confluence of sheet flow over the open fields. The second smaller drainage area encompasses the North Limerick Road frontage and directs surface runoff into the central site valley. Associated with these drainage areas are three perennial streams that run along and through Kurylo Preserve. The dominant stream is Mine Run and the other two are tributaries to Mine Run.

Mine Run is a 3.9 mile long tributary running from Limerick to Schwenksville, where it joins the Perkiomen Creek. It traverses the northern edge of the site running west to east; through the northwestern woods of the site prior to entering the State Game Lands. Classified as a trout stocked

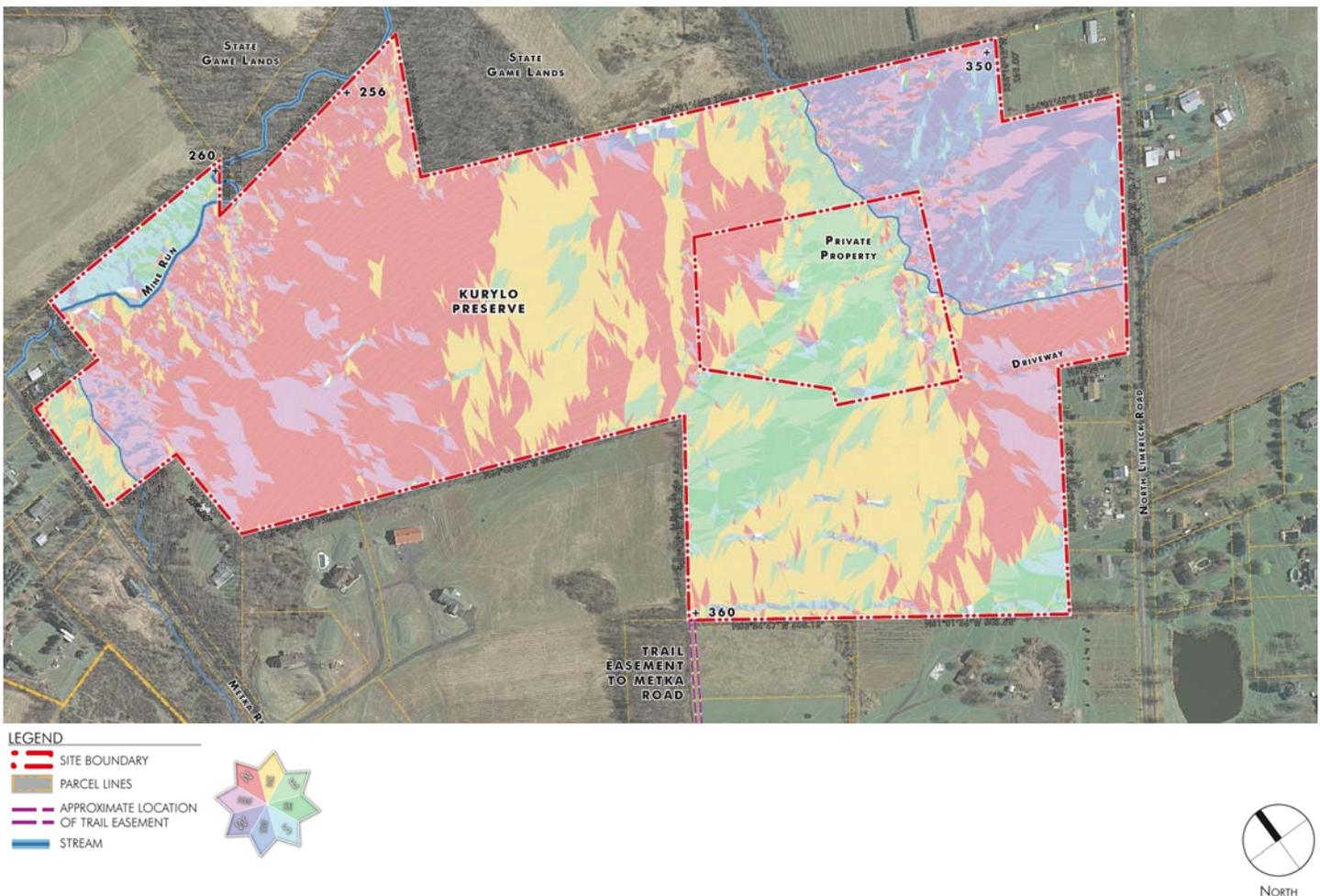


Figure 2.8 Slope Aspect Map

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Mine Run.

fishery (TSF), it is identified as an important tributary for the Perkiomen Creek by the Perkiomen Watershed Conservancy. The hundred year floodplain for Mine Run is mapped and a portion of it exists in the northern part of the Kurylo confined to the wooded areas. There are wetlands areas also associated with Mine Run, associated the stream banks and floodplains but have not been formally mapped.

The first unnamed tributary originates in Limerick Community Park and runs north along Metka Road before crossing under the road. It continues north within the Preserve before converging with Mine Run on the private property to the northwest of the



Preserve. Additional wetlands can be found around this unnamed tributary, but have not been mapped. The second unnamed tributary originates in the hedgerow along North Limerick Road opposite the site approximately 200 feet north of the site entrance. The stream runs east to west along the wood line prior to turning north and running through the central site valley to converge with Mine Run within the State Game Lands.

Vegetation

Portions of the Kurylo Preserve fields have been used for sod farming in recent years. The sod farming activities have ended. The farmer rotated fields yearly with the most recent crop being located in the eastern field and the upper portion of the western field. In undisturbed areas of the Preserves open fields upland meadow has started to regenerate naturally however the meadow lacks a healthy stand of native warm season grasses to promote wildlife habitat.

Successional red maple forest and wetlands can be found in the stream corridor along Mine Run and its tributaries, some areas along Mine Run are heavily invaded by multiflora rose and Japanese

honeysuckle (Rhoads and Blocks, 2007). These forested areas have slowly regenerated over the past 70 years. Within the past 25 years the newest area of reforestation has taken place in the northeast corner of the site bordering the open meadow area. This forested area is dominated by pioneer species of native black walnut.

The shade intolerant Black Walnut is often found growing in forest openings or on old farm fields where soils are deep and well drained. The tree is allelopathic, and produces the chemical compound, hydrojuglone that is found in the fruit, leaves, and roots of the tree. When hydrojuglone oxidizes in the air and soil it transforms into the toxic chemical juglone. Over time juglone builds up in the soil surrounding these trees prohibiting the growth of many types of vegetation.

Wildlife

The Preserve wildlife is typical of the forest/ open meadow communities of Southeast Pennsylvania. A Pennsylvania Natural Diversity Inventory (PNDI) search was conducted for the Kurylo Preserve site. PNDI Records indicate that there is a potential



Erosion caused by concentrated sheet flow.



Black Walnut stand at field edge. .

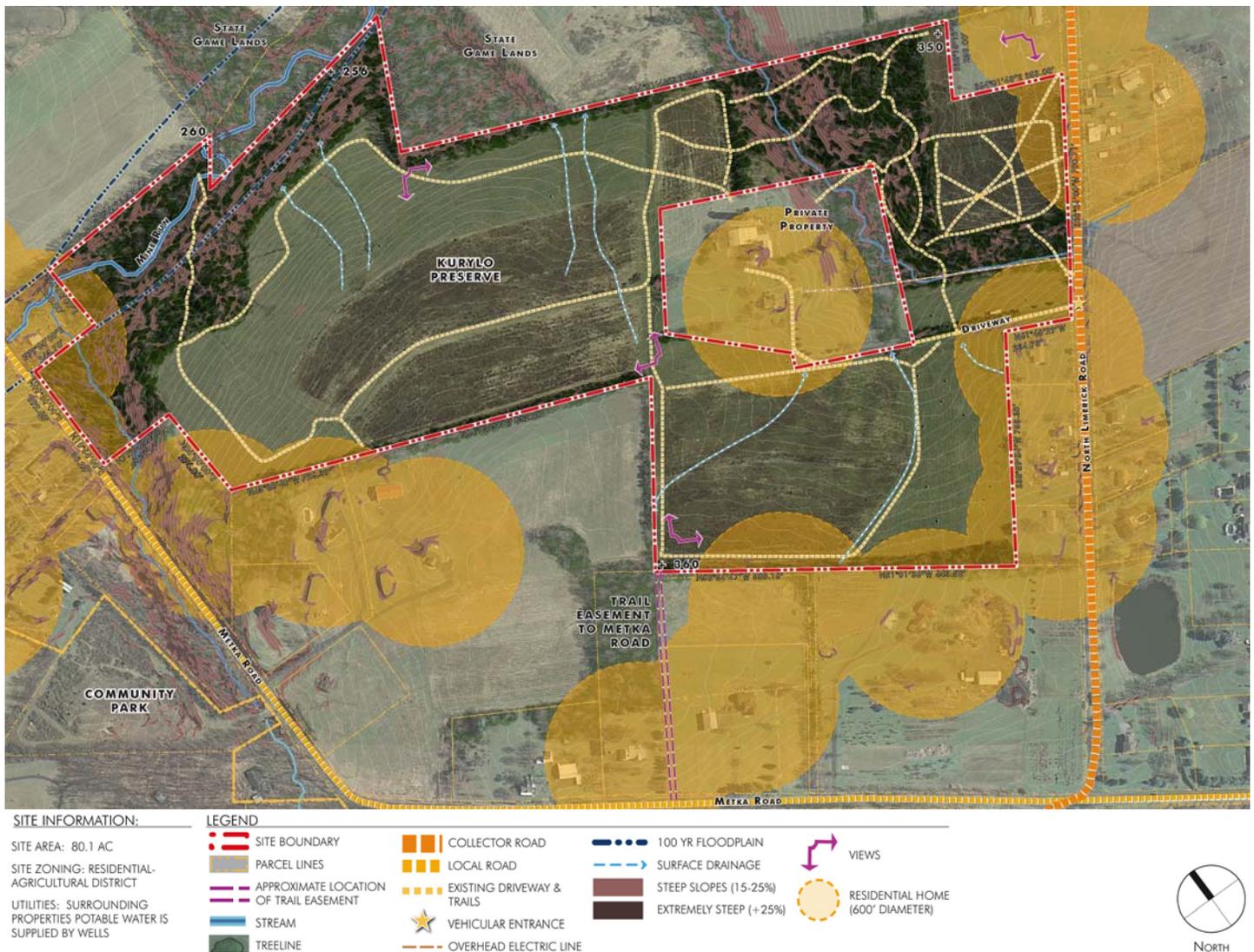
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species impact for the site and further review of the project by the U.S. Fish and Wildlife Service will be required as the project moves forward. This is most likely due to the streams designation as a trout stocked stream. Due to the passive nature of the plan for Kurylo Preserve and the limited work proposed in proximity to Mine Run, no major roadblocks are anticipated due to this potential impact (A copy of the PNDI receipt can be found in the appendix.).

Opportunities and Constraints

Kurylo Preserve has many opportunities and constraints. Because the site has a covenant restricting the use to a passive preserve, many of the constraints that would restrict its use as an active park are of minimal significance.

One opportunity is that the Preserve has an existing involved and active user group. This existing user group can be tapped for help enforcing rules,



maintaining existing and proposed trails, and protecting the Preserve resources.

The fact that the Preserve is surrounded by residences is a constraint, but one that can be mitigated by providing additional plantings to buffer suburban development and by locating trails away from property lines. The delineation between private property and public property should be made clear, where driveway or improvements must be located close to property lines. Any safety concerns from the neighboring SGL can be addressed by fencing along the property line, and by signing the property line.

The Preserve's topography and water courses provide opportunities to create dramatic vistas, and the opportunity to preserve and enhance the variety of habitats; creating the potential for the site to act as both a recreational facility, and plant and wildlife habitat. These same features also create constraints and care should be taken to respect steep slopes, floodplains, and wetland areas.

Many trails already exist on the Kurylo Preserve. Sustainable existing trails should be maintained and enhances for use by Preserve visitors. Any fall line trails should be re-routed to avoid future erosion problems; new trails should run parallel to contours to avoid erosion.

The upper meadow has a history of mown trails. This history should be respected and the mown trail network should be preserved and refined. The mown trail alignments can be changed every few years to avoid erosion.



LIMERICK TOWNSHIP MONTGOMERY COUNTY

CHAPTER 3: MASTER SITE PLAN

Anticipated Level of Uses

Kurylo Preserve is designed as a passive preserve. Passive uses tend to draw a smaller number of users when compared to active recreation parks. It is expected that the Preserve will be quieter and less visited than Limerick Community Park. Since the Preserve is surrounded by residences and encloses a private parcel, these residents will likely become the 'eyes and ears' of the Preserve, keeping the Township aware of activities and use patterns in the Preserve.

Design Considerations

Every design project must address many design considerations. Below is a listing of major design considerations that are either mandated or are a goal identified through the public participation process. These include:

Site Covenants

The site was purchased with the understanding that it would be preserved for open space with public access to passive recreation. Funding for the Preserve purchase by the Township was provided by Montgomery County in accordance with the Montgomery County Green Fields/Green Towns Program to be maintained as open space. Additionally matching funds were provided by the Pennsylvania Department of Conservation and Natural Resources (DCNR) under the Keystone Recreation, Park and Conservation Fund Act. The property, or any portion of it, may not be converted to purposes other than those authorized under the Act. Both of these restrictions have the effect of a covenant running in perpetuity with the land and is

binding upon the owner(s) of the property and upon all subsequent owners, successors, and assigns. These restrictions are enforceable by both the County and DCNR.

Zoning Ordinance and Subdivision and Land Development Ordinance

Municipal park use is an allowed use under the R-1 zoning district. Park and trail design are not specifically addressed in municipal ordinances. The Township will have to decide which, if any, provisions from local requirements will be applied to this project.

The Township Comprehensive Plan and the Greenways and Trails Master Plan for Limerick Township were reviewed. The trail development recommendations from the plans were considered in the preparation of this plan.

ADA Accessibility

Public recreation improvements must be designed in accordance with the most recent edition of the ADA Accessibility Guidelines for Buildings and Facilities. The most recent version of the ADA Accessibility Guidelines for Buildings and Facilities can be found at: <http://www.ada.gov>.

Additional guidelines have been developed to provide guidance for outdoor recreation facilities including trail. These guidelines can be found at:

<http://www.access-board.gov/guidelines-and-standards/recreation-facilities>

Trail Facilities

One of the key opportunities for Kurylo Preserve is the formalization of existing trails within the site. It will be critical to consider how the trails function both within the site and as part of a greater Township and Regional trail system. There are many resources that



Signage to educate trail users on proper trail etiquette is essential to creating a safe trail system.

address safety, aesthetics, and accessibility of trails. These Include:

Guide for Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), 1999

Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails, Rails to Trails Conservancy (RTC), 1993

Statewide Bicycle & Pedestrian master Plan, Bicycling & Walking in Pennsylvania– A Contract for the 21st Century: Bicycle Guidelines, Commonwealth of Pennsylvania Department of Transportation.

Native Plant Material & Invasive Plant Removal

The use of native plants supports the vision of enhancing the natural systems at the Preserve. The planting design for the Preserve should include canopy and understory tree groves; shrub and herbaceous plant understory; and meadow reestablishment. Habitat restoration in some areas of the site should include native plant buffers and screen plantings. Native plant materials can create an attractive landscape that will help reduce long-term maintenance costs. Native plants are generally

resistant to most pests and diseases and require little or no irrigation or fertilizers. In addition to the above benefits, native plants provide food and habitat for indigenous fauna.

Disturbed land often enables invasive plant materials to establish on a site. The Township can initiate a program of invasive plant removals within the Preserve and seek to replant these areas with native plants. In addition the Township can work with neighboring properties to develop management plans for the hedgerows toward the removal of invasive species. This is a labor intensive task, ideally suited for volunteers, including school or scout groups.

Sustainable Materials

Choices in site materials have the potential to affect the health of a project sites ecosystem as well as the larger environment as a whole. Every material has a life cycle; raw materials / natural resources, products manufactured, and delivery for use. Closer consideration of the sustainability of a materials life cycle can have far reaching benefits. Sustainable material practices include (SITES, 2014):



Cool Season turf and pasture crops provide very little wildlife habitat.

- Re-use of existing site materials
- Purchase local and sustainably-produced plants and materials
- Consider the full life cycle of materials, consider the end life of a product can it be deconstructed and reused.
- Work towards zero net waste in demolition, construction, and management.

Best Management Practices (BMP's)

Developed by the Pennsylvania Department of Environmental Protection (PaDEP), Pennsylvania Handbook of Best Management Practices for Developing Areas offers numerous solutions for handling on-site stormwater. Best Management Practices (BMP's) that might be implemented at this Preserve include: protect and restore riparian/forest buffers; protect / utilize natural stormwater flow runoff direction; habitat restoration; soil amendments; native tree planting; berms that help detain and infiltrate stormwater; rain gardens; bio-swales; and the use of porous surfaces in the parking areas, or trails. These facilities require site-specific soil tests to determine site suitability and the infiltration rates of the existing soils.



BMP stormwater retention basin

Incorporation of these BMPs into the Preserve Master Site Plan will have a direct positive impact on preserving and enhancing water quality. The opportunity for education exists through the placement of interpretive signage to educate Preserve visitors about watershed water quality and how BMP's can positively impact all sites.

Construction Permits

The Township regulates all construction, including earth grading activities. Certain projects require Grading Permits & Erosion & Sedimentation Control plans. The development of the Preserve must conform to the municipal permits and land development process application process. Necessary permits and approvals for regulated earth disturbance activities from the Montgomery County Conservation District or appropriate PA DEP regional office must be secured by the Township.

Construction projects that involve the disturbance of more than one acre of earth will require a National Pollutant Discharge Elimination System (NPDES) permit. The permit is a federal requirement that is administered at the state level with the overall goal to improve water quality.

The permit plans are divided into two (2) parts. All project phases must comply with the stipulations of PA Code Chapter 102, Erosion and Sediment Control and are reviewed and approved by the local Conservation District. The Erosion & Sedimentation Pollution Control plans (ESPC) are to be implemented by the contractor throughout construction until the site is stabilized by permanent plant growth. A second part of the NPDES permitting process is proposed stormwater management areas. The Post Construction Stormwater Control Plans (PCSC) are designed to manage stormwater for the 2-year storm event with the goal of infiltrating it into the ground.

BMP facilities are to be constructed during the project and maintained by the site owner for the life of the improvement.

In some cases, local conservation districts will waive NPDES requirements for trail projects that disturb slightly more than 1 acre of land. Conservation districts usually wish to review the project development plan, even if it will be constructed in phases. The Kurylo Preserve Master Plan identifies general types and locations of BMP facilities that may be required to secure required permits.

The Sustainable Sites Initiative (SITES)

The Township commitment to the environment and the strong public support to conserve and restore natural systems within the Preserve may warrant consideration of the SITES program to provide additional design guidelines that support the goals for the Preserve.

The SITES criteria promote sustainable land development and management practices for sites with and without buildings. SITES standards are for sustainable site development practices and are often overlooked by 'green' building standards. SITES rates projects based on management of site hydrology systems, soils, plants, material selection, and human health and wellbeing. The U.S. Green Building Council (USGBC), a SITES stakeholder, plans to incorporate SITES into future LEED requirements. Additional information can be found at <http://www.sustainablesites.org>

Public Consensus

Many concerns were expressed at the early public meetings about development of a park on the Kurylo site. The most important idea to come out of the public process is that the Kurylo site is a "preserve," not just a passive "park." Preserves are recognized as important assets to our communities. The undeveloped land is invaluable to the health of local waterways. A network of preserved land helps to maintain wildlife corridors and indigenous and native plant communities. Preserves also serve as an invaluable resource in today's communities as spaces where we can still connect with nature.

Limerick had considerable rapid growth over the past two decades and the preservation of large areas of natural land will become invaluable to its future residents. Our society is starting to understand that in addition to active recreation sites, access to nature is equally or more important. Adults and children of all ages need to be able to walk through open meadows and woods; to dip their fingers into streams and ponds; and connect with nature. Kurylo Preserve Master Plan is intended to offer these opportunities.

Early on in the public process four major themes emerged that guided the development of the Preserve Master Plan.

1. Protect and enhance the natural systems and habitat of the site.

All design decisions should protect and improve on the project goals. The plan should preserve and enhance ecological systems; diversify habitat; enhance water quality. The site design should help to educate visitors about the importance of their experience in the Preserve.

2. Respect the agrarian landscape and historical equestrian use of the site.

Located on the border of the Township's R-1 Agricultural Zoning District, the Preserve falls within both the rural and suburban realms of the Township. The agrarian history of the site is equally as important as the future of the Preserve. The Master Plan should seek to recall the agrarian vernacular of the site through use of appropriate materials and plants.

Appropriate material selections such as gravel driveways, post and rail fence and understated signage will limit visual distractions. The use of asphalt paving within the Preserve should be limited. Native plantings can preserve view sheds while helping to direct pedestrian access. Enhanced and expanded hedgerows can create buffers when required for privacy or to focus views. The equestrian community is currently a primary user of the site. The plan should value the existing bridle path network and when appropriate maintain and expand upon it.

3. Connect the site to other open spaces and parks and provide for greater pedestrian connectivity.

The existing bridle paths can be enhanced to create a hierarchy of trails to include: mown, hiking, and compacted stone dust trails. The Preserve should tie into the Township's trail network. The plan should identify non-vehicular access points into the Preserve follow the Trails and Greenway Master Plan recommendations.

4. Respect the private lands surrounding the Preserve.

The Preserve has many residential neighbors. It also has an extensive border with the State Game Lands. It is important that the Preserve respect the privacy of the adjacent homeowners. Clearly defined boundaries between public and private land will accomplish this goal. Buffers along neighboring residential properties and between Kurylo Preserve and the State Game Lands are important.



Pastoral view across Kurylo Preserve



Private residence within the Kurylo Preserve

Preliminary Plan

Based on feedback from the first public and committee meetings, a concept that incorporated these four themes was developed (See Figure 3.1). The plan was presented to the project committee and public, and the comments regarding the plan informed the development of a draft Master Site Plan.

The Kurylo Preserve concept focuses on creating a system of trail loops providing several options for long or short walks in the Preserve. A hierarchy of trails consisting of compacted stone dust, mown meadow; and earthen hiking trails were proposed to create a trail network that offers several different

experiences. Compacted stone dust is ADA compliant surface that allows use by persons with varying abilities. The mown trails are accessible by walkers, joggers and equestrians. The earth hiking trail offer a more rugged experience accessible to cross country runners; hikers; and equestrians. Benches are proposed at key trails locations to afford great views and at potential interpretable areas. Footbridges suitable for use by equestrians for stream crossings are proposed to provide a separation between trails and the Preserve’s small waterways while maintaining access to those areas.

The farm fields will be converted to meadows. Within the meadows a series of wetland meadow areas should be established to retain and infiltrate

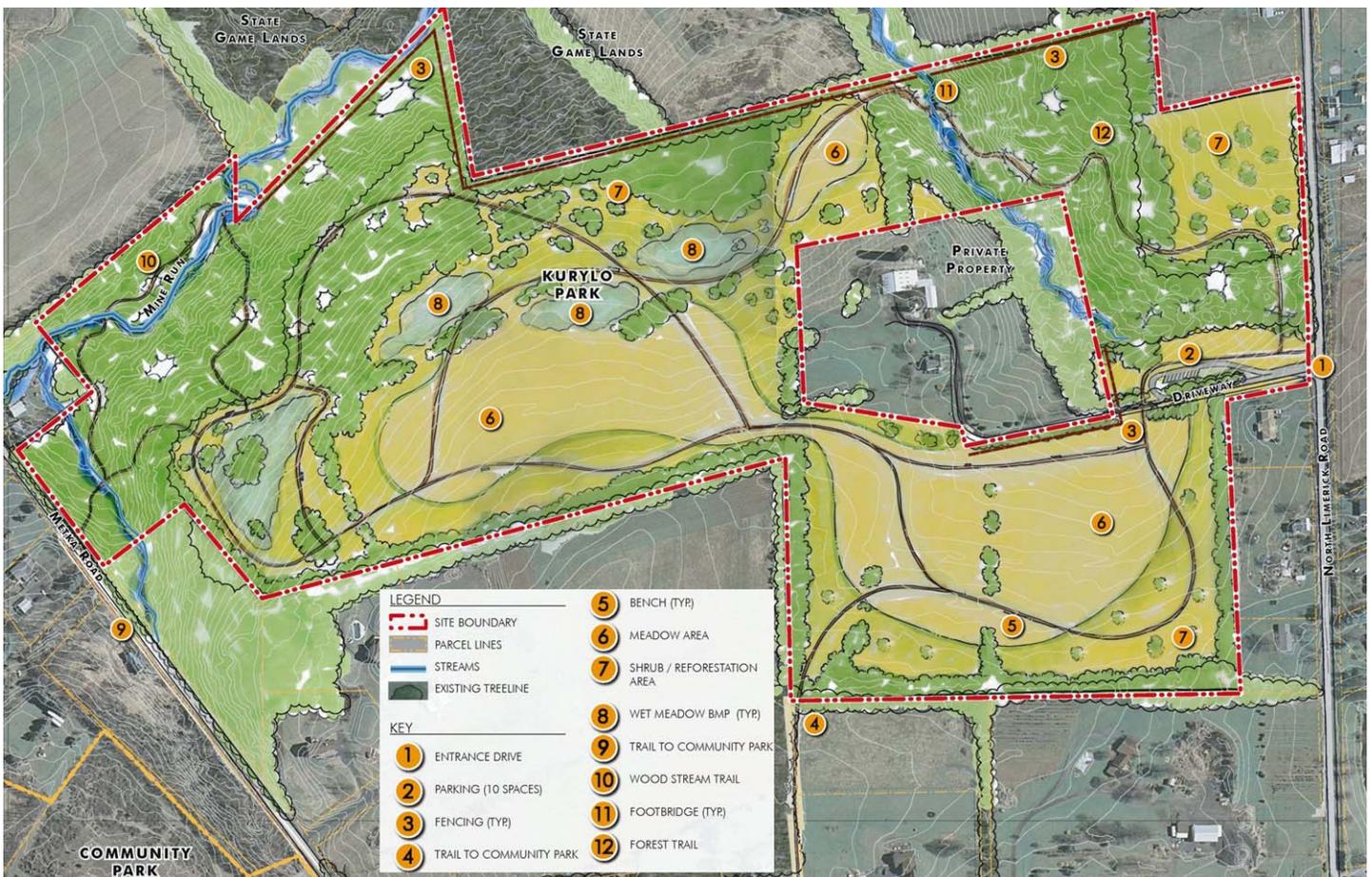


Figure 3.1 Kurylo Preserve Concept Plan

stormwater. Key areas such as the riparian zones of the water ways are identified as reforestation areas. For areas where views are desirable but pedestrian access should to be controlled, a shrub-land restoration planting is recommended. Similar planting areas also recommended to be maintained between meadow areas and forest areas to help create a diversity of habitat for wildlife. In areas where views should be screened or where buffers are required along a property line, the existing hedgerows should be expanded or new ones established.

The concept plan proposed a ten (10) space parking area along the existing shared-use driveway. Fencing was proposed along the border between the State Game Lands and the Preserve as well as where the driveway enters the private parcel in the middle of the Preserve.

Public Reaction to the Preliminary Plan

The concept plan was well received by the committee and public and the following recommendations were made to the consultants by the committee and the public.

- The parking area should be clearly defined to show where visitors should park and to discourage through traffic to the private residence.
- Parking spaces should be as few as possible.
- The proposed trail system should be simplified considering the Preserve as both a destination and as part of the Township trail network.
- Stream crossings should be rustic in nature but engineered to accommodate equestrians.
- Reforesting large portions of the site to create habitat and to minimize long term maintenance demands of the site is important.



Reforestation projects can be used to get the public involved in the Preserve.



Shrubland Vegetation can be used to preserve views while limiting access.

Preferred Master Site Plan

The Kurylo Preserve Master Plan synthesizes public input in a plan that takes full advantage of the Preserve’s potential while preserving the land and its agricultural heritage for future generations (See Figure 3.2). The following are the primary design recommendations for the Preserve.

- Develop a trail head and parking to welcome and orient visitors.
- Provide a hierarchy of trails to provide access through the site; preserve and simplify existing trails in the Preserve.
- Plan for future trail connections north to the State Game Lands, east to school district properties, south and west to Limerick Township Community Park, and to the Township wide trail and greenway system.

- Provide post and rail fence along the State Game Lands at key locations of neighboring properties, and along the southern trail easement to Metka Road.
- Develop a fifty (50) foot wide natural vegetated buffer between the Preserve and residential neighboring properties.
- Manage a variety of vegetative communities such as meadows, rain gardens, shrub lands, and forests toward maintaining a diversity of habitats and landscapes.

The Master Site Plan divides into 4 areas:

Connecting to the Preserve: The Preserve Trailhead:

The site Master Plan proposes a small trail head off-of the existing North Limerick Road driveway (See Figure 3.3). It will be the primary site access, provide vehicular parking for visitors (including ADA



Figure 3.2 Kurylo Preserve Master Site Plan



Figure 3.3 Kurylo Preserve Trail Head Plan

compliant parking), and emergency and maintenance access. The reuse of the existing driveway will help limit negative site impacts. Site lines at the driveway entrance are good.

A portion of the existing driveway will be widened from twelve (12) feet to twenty (20) feet to allow for two way traffic and safe ingress and egress. An asphalt apron at the road is recommended, however the remainder of the driveway should be maintained as gravel.

The driveway split to the right directs Preserve visitors into the parking area. Drives will narrow down to twelve (12) feet and the parking area will create a one-way loop. The parking area will be located behind an existing evergreen hedgerow and will have two (2) ADA asphalt parking spaces with van access and three (3) additional gravel spaces. Additional



Figure 3.4 Illustrative Rendering of the Kurylo Preserve trail head area.

CHAPTER 3

trail head improvements include a park sign along North Limerick Road north of existing drive, increased plantings to the existing evergreen hedgerow, and an information kiosk with Preserve rules and a trail map. If Preserve use increases enough to justify it, the Township might consider a composting toilet. However, the trail connection to Limerick Community Park and restrooms there should suffice. The Preserve map at the information kiosk should note the availability of restrooms at Community Park.

The private residence will still utilize the driveway as a two way lane for egress and ingress. A timber vehicular gate and post and rail fencing running along the eastern property line on both sides of the drive and turning to run along a portion of the southern property line will clearly define the site boundary. An additional timber gate at the North Limerick Road entry would provide the option for closing the driveway when the Preserve is closed from dusk to dawn.

Connecting to the Community:

Regional Trail Access:

The Preserve Master plan builds off the recommendations of the Township Trail and Greenway Master Plan and recommends connections from the Preserve to area amenities and destinations.

An eight (8) foot stone dust trail originating from the trailhead parking area runs east towards North Limerick Road. A pedestrian crossing is proposed north of the existing driveway across North Limerick Road. The connection provides access to the east and any future trail developments that could take place on the undeveloped School District parcel. Other existing trails that connect into the site from across North Limerick Road should be closed and

users should be encouraged to use the improved crossing at the entrance driveway.

The State Game Lands located north of Kurylo Preserve trails exist that allow equestrian and bicycle use during specific times and seasons. Currently these trails run from Pheasant Road north to Game Farm Road and do not connect to the Kurylo Preserve (See Figure 3.5). The potential for horse and bike trail connections from Kurylo Preserve to the State Game Lands should be pursued in the future. The Master Plan recommends that post and rail fencing be installed along the Preserve / State Game Lands border for visitor safety.

The plan recommends the development two trails connecting Community Park to Kurylo Preserve. The first connection (See Figure 3.6) is currently funded for design and construction. The trail easement for this connection was secured by the Township via the land development process. The ten foot easement originates in the southwestern corner of the eastern field and runs south along the western edge of two

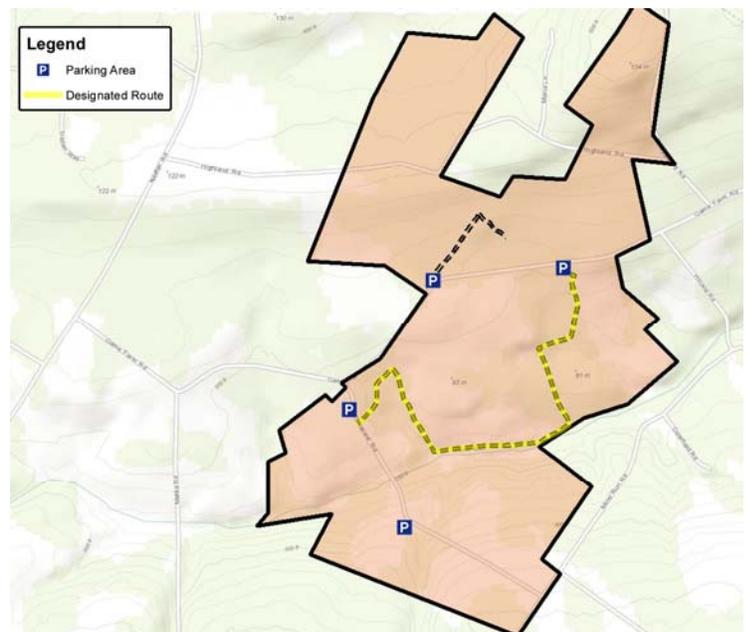


Figure 3.5 State Game Land 234 Designated Routes



Figure 3.6 Metka Road South Access

location.) An engineered pedestrian crossing facility is required to deliver trail users to the western shoulder of Metka Road. The western shoulder is generous, free of utility poles, and will easily accommodate a five (5) foot wide paved asphalt shoulder trail. The trail will run south for approximately one quarter (1/4) mile to Community Park at the existing driveway to an overflow parking area. There is a stream culvert that crosses under Metka Road along this alignment. The stream runs parallel to the road between a farmhouse and headwall. A boardwalk / bridge structure will be required here.

parcels before reaching Metka Road. Within ten (10) foot easement a six (6) foot wide asphalt trail with a two (2) foot mown shoulder on each side is recommended. Post and rail fencing along both sides will be provided for the length of the easement. Fencing will continue for a short distance along the Preserve south and west property lines to clearly define the Preserve boundary. Asphalt paving is recommended for this portion of trail due to grades that exceed five percent (5%) to prevent trail erosion and minimize maintenance in an area where trail maintenance access will be difficult. An engineered pedestrian crossing facility will be provided across Metka Road to a trail along the southern side of Metka Road and Ziegler Road to Community Park.

A second connection to Community Park is proposed primarily along the west shoulder of Metka Road (See Figure 3.7). The trail originates at the southern edge of the Metka Road Preserve frontage, along the western property line. A trail through the Preserve's western wooded area will require a stream crossing to deliver users to the open western field. (The final trail alignment through this wooded area will be dependent on field survey to identify the areas of most gentle slopes and the best stream crossing

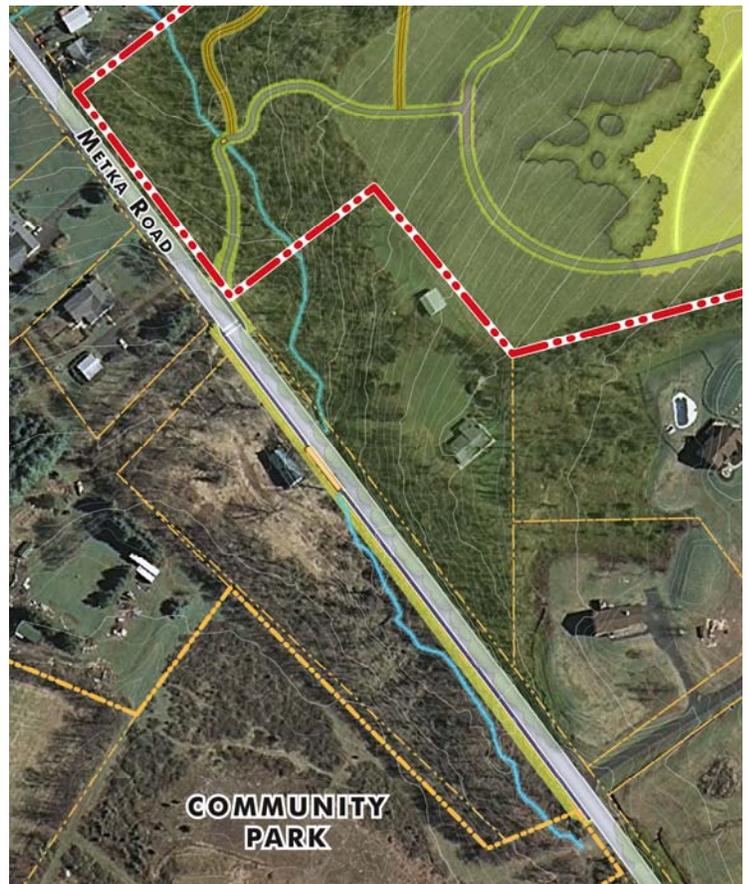


Figure 3.7 Metka Road North Access

Connecting to Nature: The Preserve

Trail System:

Three trail types are proposed to provide a variety of experiences throughout the site. These three trail types are: Wide multi-use compacted stone dust trails; wide mown walking trails; and, narrow woodland hiking trails. Each trail type utilizes some existing trails and provides access that is sensitive to specific sight conditions.

An eight (8) foot compacted stone dust trail with four (4) foot mown shoulders originates from the Preserve trailhead and runs south and west through the eastern field (Habitat Restoration Trail). The trail continues north after passing through the “knuckle” of the site and forms a loop in the western field. Distance from the trail head around the loop is 1.3

miles. The trail and mown shoulders will provide for multiple uses such as runners, walkers, equestrians, and bicyclists. The compacted stone dust trail will be ADA accessible. Key locations along the multi-use trail are identified for benches, in locations that are easily visible and take advantage of dramatic site views.

An existing earth surface hiking trail originates from the Preserve trail head and runs north into the central woodland (Woodland Hiking Trails). The trail leads into a network of existing trails located in the woodland. It is recommended that the trail system be simplified to create fewer routes through the woods to limit erosion in this area of steep slopes. The main trail route that runs to the lower stream crossing should be re-routed to run parallel to the grade and to provide a greater distance of separation between



Figure 3.8 Illustrative Rendering of the Habitat Restoration Trail and associated rain garden stormwater Best Management Practice (BMP).

the trail and State Game Lands. Though this will require short term disturbance, the long term benefits to the steeply wooded slope and stream outweigh the minor grading required to establish the trail.

The main hiking trail will pass north and west through the forested hillside, across the central stream, and connect to the multiuse trail in the western field (The final trail alignment through this wooded area will be dependent on field survey to identify the areas of most gentle slope and the best stream crossing location). The trail should be maintained as a four (4) to six (6) foot wide earth and grass trail. Where it crosses over the upper portion of the stream, a culvert should be added. Where the trail crosses a more significant portion of the stream in the “valley”, a foot bridge that can accommodate equestrians should be provided (see appendix for an example of a



Figure 3.10 Woodland Hiking Trails



Figure 3.9 Habitat Restoration Trail.

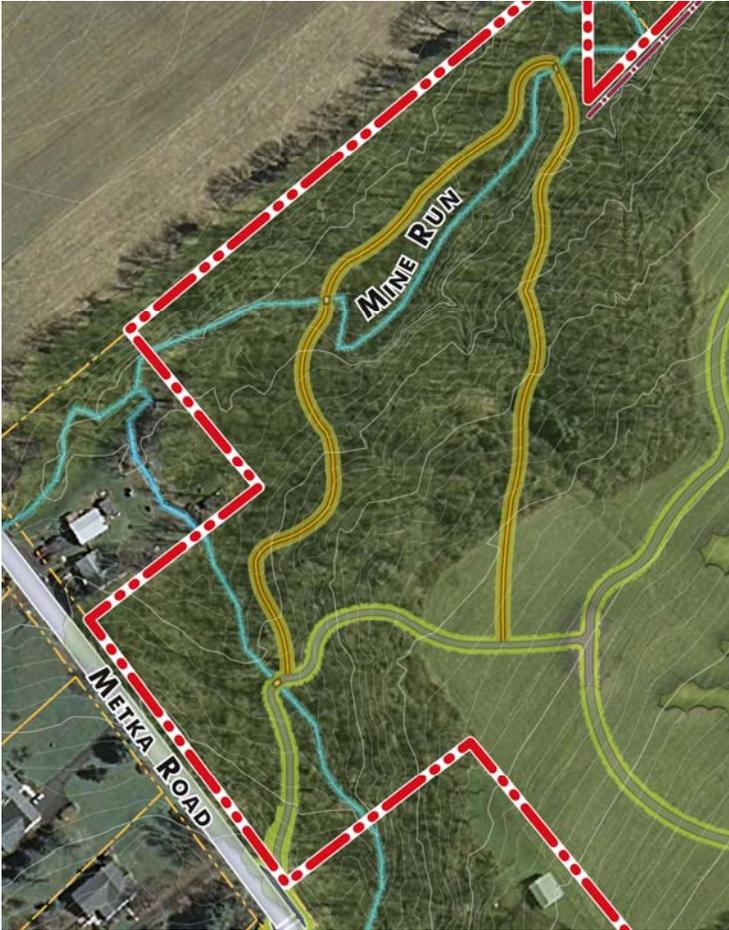


Figure 3.11 Mine Run Hiking Trail

typical equestrian foot bridge). Connections from the main hiking trail to the surrounding area properties should be maintained, and simplified when possible, signage to note private property. The Township should work individually with each property owner to identify any necessary fencing or gates.

A second hiking trail loop originates from northwest end of the multiuse trail loop and follows an existing bridle path through north forest edge and leads to a stream crossing of the Mine Run (Mine Run Hiking Trail). A proposed trail will run the northern edge of Mine Run to the west, turn south and join the Metka Road access trail. Two (2) foot bridges over the stream to accommodate equestrians will be required.

The final alignment and crossing of the trail would be dependent on a field survey and locating of any wetlands that may exist within the Mine Run floodplain.

Located in the northeast corner of the site along North Limerick Road is an open meadow. The area is buffered from the road by a hedgerow and adds to the roadway agrarian landscape. A system of mown walking paths eight (8) to ten (10) feet wide exist through the meadow. It is recommended that these paths be maintained and that they connect to the main hiking trail to the west. From the south, an improvement of an existing earth surface access road to an eight (8) foot compacted stone dust trail is recommended to access the trailhead. Where the access crosses over the stream a culvert is recommended.

Connecting Habitat: Watershed Management, Vegetation Re-establishment and Management

Converting a historic 80-acres of farm fields and forest back to a healthy natural habitat is a challenging undertaking. However the task can be simplified by working with nature and its process of ecological succession. Ecological Succession is the process that nature undertakes to repair itself after a disturbance such as a fire or in this case, agricultural practices. In the foothill region of eastern Pennsylvania the end community of ecological succession is hardwood forest. The process starts with the establishment of meadow over a period of 3 years. In 3 years, shrub material and pioneer species tree saplings that can handle full sun and shallow soils, such as red cedar and black locust, will start to grow in the meadow. Within the dapple shade of the pioneer species the seedlings of canopy trees such as oaks and maples will start to establish. Over a

period of twenty to thirty years a young forest can reestablish itself. Today it is necessary to manage the succession process to prevent adverse effects from the introductions of invasive plant material, over browsing of deer and dominance of pioneer species.

The first step of revegetation is to establish a healthy Native Warm Season Grass (NWSG) community. Successful establishment of a NWSG meadow takes three (3) years and a process of bed preparation; seeding; and growth management.

The primary goal in bed preparation is to ensure that the existing vegetation does not compete with the planted seed and to provide for good seed to soil contact. Thick matting grasses and tall vegetation can hinder NWSG from establishing, and must be addressed before seeding can take place.

When establishing NWSG meadows on land that has been farmed it is also important to test the soil for traces of herbicides. Persistent herbicides, such as Atrazine, can remain in soil for one (1) to three (3) years and can inhibit seed germination. If the soil is found to be free of detrimental herbicides the prompt establishment of NWSG meadows should be done

before weeds have a chance to reestablish.

Removal of existing vegetation can be accomplished using a range of mechanical methods such as burning, haying/raking, mowing, and grazing. If a field has not been regularly grazed or hayed, burning should be used to ensure the removal of matting plant residual. Prior to conducting a burn, local governments and professional burners should be consulted for regulations and guidance.

Once the undesired vegetation has been removed two methods can be used to ensure that it does not return. The first is to cultivate the field during the growing season prior to planting. Disking or tilling the soil will prompt stored seed within the soil seedbed to germinate. The soil should be roto-tilled or disked to a depth of three (3) to five (5) inches every one (1) to three (3) weeks. This time between tilling allows for weed seeds and perennial plant parts to germinate and re-grow. Each time tilling should be done at a shallower depth than the previous tilling; this will ensure that seed stored deep within the seedbed is not unnecessarily brought to the soil surface to germinate. In cases of moderate and extreme slopes, cultivation should be avoided to limit soil erosion.



Established native warm season grass meadow.



The current preserve fields are dominated by cool season grasses

CHAPTER 3

The second option in suppressing weed growth is to plant a cover crop. A cover crop can be planted for the growing season prior to the NWSG planting season. Cover crops out-compete any weed seed that germinates during the growing season. Once the crop is harvested the stubble can be left; this acts as both a soil stabilizer and a green manure. Consideration should be taken when selecting a cover crop. Some traditional farming cover crops such as winter wheat and perennial ryes, have allelopathic qualities that inhibit NWSG seed from germinating. It is also important to assure that the cover crop does not reseed, causing competition for the intended NWSG seedlings. This can be avoided by either selecting a sterile crop variety or harvesting before the plants reseed themselves.

In extreme cases, it may be necessary to use chemical methods to ensure the eradication of competitive vegetation such as fescue or other invasive plants. A contact herbicide (glyphosate or paraquat) can be used to eradicate perennial weeds. Contact herbicide should be applied in the preceding fall or in the spring two (2) to four (4) weeks prior to planting. When using a no-till method of seed distribution, chemical control of vegetation is highly suggested to ensure strong plant establishment

within the first growing season. To control broadleaf weeds, an herbicide such as 2,4-D, dicamba or Plateau can be applied either before or after planting. The use of Plateau, an imazapic-based herbicide is more desirable due its low toxicity to wildlife and its limited mobility in soil. Leakage of imazapic from plant roots is unlikely. Most NWSG are not effected by Plateau, however, it should not be used when planting forbs, legumes, switchgrass, or gamagrass.

Seed Distribution: NWSG will germinate in mid-spring when the soil starts to warm. However seed can be planted much earlier. The recommended seed planting dates for NWSG in Southern Pennsylvania are from December first through April fifteenth. Some NWSG require a freeze/ thaw cycle to ensure germination, therefore seeding should be done before the last frost. If seeding is done after the last freeze, some seed will stay dormant until the following spring. To avoid this problem, pre-thawed seed can be acquired. However, if pre-thawed seed is stored improperly germination could take place before seeding causing a low success rate.

The no-till drill method is the simplest method of seeding and has shown some of the best results in



No-till seed method into crop plant residual.



Established stand of NWSG after 12 months.

establishing NWSG. In the spring, a seed drill is used to place the seed into the residual plant material, which is left at the surface to eliminate the risk of erosion and to limit competition from weeds.

Meadow Management: NWSG meadows can take one to two years to become well established. During this time, it is important to keep a close watch on the meadows to ensure that undesired weeds are not competing with meadow plants. An evaluation should be completed four (4) to six (6) weeks after planting to determine if weed control will be necessary. If weed control is required a mowing schedule should be put in place.

In the second growing season mowing should continue if weeds are still a problem. At this time it is permissible to use herbicides without threatening the health the NWSG. A pre-emergent herbicide can be applied in winter or early spring, or a contact herbicide can be applied during the NWSG's dormant season. However, herbicides should be reserved as a final option when weeds threaten the survival of the planted NWGS stand.

By the end of the third growing season a NWSG meadow should be well established with few weeds. At this time a permanent management plan should be constructed. The management plan is a controlled way of ensuring disturbance to keep the meadow from advancing in the successional cycle. Commonly used practices to keep woody vegetation from entering meadows are mowing/haying, disking, prescribed burning, or a combination of these techniques.

Once a healthy native meadow is established. Selective management practices can be undertaken to allow portions of the meadow to grow follow the natural progress of succession and develop into shrubland and forest. These areas will still require

regular inspection to ensure invasive plants have not established themselves. When invasive plants are found and management plan should be develop to address there removal.

Site Maintenance

Management of the Preserve should be based on the Preserve goals of re-establishing habitat and providing public access. Habitat management requires maintenance at key times during the year. For example, meadows should be left undisturbed in the fall and throughout the winter to provide cover for birds and small mammals. As the primary improvement to the Preserve, trail maintenance should not be deferred. The regular review and maintenance of trails will maintain a safe user environment while identifying any necessary repairs. The Preserve should be regularly monitored in order to manage the habitat quality.

The following is a monthly outline of basic maintenance tasks that should be completed. The frequency (by month) of these maintenance tasks is indicated in parentheses.

January

- Inspect trails, bridges & culverts / make repairs (1)
- Snow removal for driveway and parking area only (as needed)

February

- Inspect trails, bridges & culverts / make repairs (1)
- Signage inspection and repairs (1)
- Inspect and mechanically remove invasive plants
- Snow removal (for driveway and parking area only (as needed)

March

- Clean restroom weekly (4) (if composting toilet installed)

CHAPTER 3

- Inspect site trees for winter damage / perform work (1)
- Inspect trails, bridges & culverts / make repairs (1)
- Mow warm season meadows (1)
- First mowing of trails and shoulders (1)
- Snow removal (for driveway and parking area only (as needed))
- Inspect and mechanically remove invasive plants
- Turn on water supply to restroom facility (if composting toilet installed)
- Inspect BMP's & remove debris as required (1)

April

- Clean restroom twice weekly (8) (if composting toilet installed)
- Mow trails and shoulders (2)
- Plant / replant (revegetation target areas) (1)
- Inspect trails, bridges & culverts / make repairs (1)

May

- Clean restroom twice weekly (8) (if composting toilet installed)
- Mow trails and shoulders (3)
- Inspect trails, bridges & culverts / make repairs (1)

June

- Clean restroom twice weekly (8) (if composting toilet installed)
- Mow trails and shoulders (3)
- Inspect trails, bridges & culverts / make repairs (1)

July

- Clean restroom twice weekly (8) (if composting toilet installed)
- Mow trails and shoulders (3)
- Inspect trails, bridges & culverts / make repairs (1)
- Inspect meadows for invasive plants – Mow ½ of meadow if required (1)

August

- Clean restroom twice weekly (8) (if composting

toilet installed)

- Mow trails and shoulders (3)
- Inspect trails, bridges & culverts / make repairs (1)

September

- Clean restroom twice weekly (8) (if composting toilet installed)
- Mow trails and shoulders (3)
- Signage inspection (1)
- Inspect trails, bridges & culverts / make repairs (1)

October

- Clean restroom once weekly (4) (if composting toilet installed)
- Mow trails and shoulders (3)
- Inspect trails, bridges & culverts / make repairs (1)
- Inspect BMP's remove debris as required (1)

November

- Winterize restroom facility and turn off water (1) (if composting toilet installed)
- Inspect trees / prune as required (1)
- Inspect trails, bridges & culverts / make repairs (1)
- Fall clean-up (1)
- Snow removal (2) for driveway and parking area only (as needed)

December

- Inspect trails, bridges & culverts / make repairs (1)
- Snow removal for driveway and parking area only (as needed)

Safety and Crime Deterrence

The best way to deter possible crime in the Preserve is by a combination of basic Township park rules and community participation in the Preserve's stewardship. The basic Township park rule of closing the Preserve from dusk till dawn should be followed. Active observation by Preserve neighbors should be encouraged and the formation of a "Friends or Kurylo Preserve" would formalize this type of stewardship.

Random police patrols should occur. When initial Preserve trail improvements are built and the open space is transitioning into a welcoming public space, the Township staff and police should maintain an active dialogue with neighbors and “Kurylo Friends” so that unwanted possible activities such as littering, vandalism and underage drinking, if they occur, are immediately known and curtailed. As runners and hikers join equestrians on the Preserve, they will become the eyes and ears of “authority” armed with cell phones. People who engage in negative activities do not wish to be seen performing these activities and will typically go elsewhere once they are targeted for their bad behavior.

Preserve users should also be encouraged to help the Township maintain and operate the trails. When there are problems, trail users can notify the Township about the issue. It is important that municipal office phone numbers and email addresses be posted at the Preserve entrance, parking area and trail connection access points as a part of Preserve signage.

Emergency and Maintenance Access

The existing North Limerick Road driveway will serve as access for emergency and maintenance personnel. A gate at the road is included to allow vehicle access to the Preserve to be closed after Preserve hours. Multi-use trails design should accommodate an all-terrain type vehicle for emergencies or maintenance on the outside loop trails. Bollards, gates or other vehicular controls can be included to keep out private motor vehicles. Emergency plans should be developed for rescue situations on the remote hiking not accessible by vehicles.

LIMERICK TOWNSHIP PARKS & RECREATION DEPARTMENT PARKS RULES AND REGULATIONS

Limerick Township park facilities are open from dawn until dusk. Restroom facilities are open from 8:00 am to 8:00 pm daily from April 1st through October 31st.

Manderach Memorial Playground is closed the first Monday of each month from 7:00 am to 2:00 pm so that safety inspections and routine maintenance can be performed to keep the playground in good working condition.

All animals **MUST** be on a leash at all times and the owner must clean up after them. Doggy Bags are available at various stations throughout the parks for your convenience. **No animals are permitted within the Manderach Memorial Playground area.**

Parking in designated parking spots **ONLY**. Vehicle access is limited to the general parking areas. **Driving on the walking track and fields is strictly prohibited.**

The uses of alcohol and controlled substances are strictly prohibited on Township property. **Smoking is prohibited under pavilions or inside the Manderach Memorial Playground area.**

No outside signs may be placed on Township property within any of the Limerick Township park facilities.

No hitting handballs, softballs or baseballs into the fences or backstops on any fields within the Limerick Township park facilities.

Permit holders for fields, courts or pavilions are required to have a copy of the permit with them at all times at the facility permitted for use.

Park users are required to observe all regulations as listed in the Limerick Township Code, Chapter 114, as well as printed and posted parks rules and regulations.

Limerick Township Parks & Recreation Staff, Limerick Township Public Works Parks Crew, Township Staff and the Limerick Police Department have the right to enforce all permits and park rules. In the case of a police, fire or medical emergency, dial 9-1-1.



LIMERICK TOWNSHIP MONTGOMERY COUNTY

CHAPTER 4: IMPLEMENTATION AND FUNDING STRATEGY

Project Phasing

Improvements to Kurylo Preserve will most likely occur in phases, based on available funding, with multiple options for project funding. The timing and scope of the phases will be determined by the amount of future funding available and the Township’s success with grant applications. The phasing plan for the parcel is included to suggest potential strategies for implementation of improvements over time.

Estimate of Probable Development Costs

A detailed estimate of probable development costs is based on the proposed improvements shown on the Master Site Plan. Unit costs were established based on construction costs for similar projects and reflect prevailing wage rates that are required for public construction projects. A detailed cost estimate is included in the appendix of this report with a summary of the improvement costs, per phase, outlined in this section.

TABLE 4.1: KURYLO PRESERVE PROBABLE COST OF DEVELOPMENT

PHASE	COST
Phase 1 - Community Park to Kurylo Preserve	\$ 249,996
Phase 2 - Upper Meadow Trail	\$ 68,868
Phase 3 - Woodland Hiking Trails	\$ 13,727
Phase 4 - Habitat Loop	\$ 236,455
Phase 5 - Mine Run Trail	\$ 15,315
Phase 6 - Metka Road Trail	\$ 41,831
Phase 7 - Meadow and Tree Reforestation	\$ 218,750
Total Cost of Improvements	\$ 844,942
Mobilization (3% of Sub Total)	\$ 25,348
Construction Surveying (2% of Sub Total)	\$ 16,899
Erosion & Sedimentation Controls (2% of Sub Total)	\$ 16,899
Construction Contingency (10% of Sub Total)	\$ 84,494
Total Project Cost	\$ 988,582

Phased Capital Program

The phases described in this plan are intended as a guide to assist the Township to make decisions on moving forward with construction over an eight to ten (8-10) year period. It is suggested that during the first three years, the Township apply for additional funding, complete surveying, and construction documentation.

Potential Partners / Funding Sources

PA DCNR Community Conservation Partnership Program

The PA DCNR Community Conservation Partnership Program (C2P2) provides funding for communities and nonprofit organizations to acquire, plan and implement opens space, conservation and recreation

resources, including trails. DCNR accepts grant applications annually-with deadlines usually in April. Projects will receive additional consideration for using “green” technology or practices. The next C2P2 application deadline will be in April, 2016. DCNR funds can be used for most preserve projects, and as a match to many federal funds for some trails. DCNR requires a 50-50 match (cash or in kind services) to its grant awards. The first step is to contact the DCNR regional advisor.

More information on this program can be found at the DCNR website: www.dcnr.state.pa.us/brc/

Greenways, Trails and Recreation Program (GTRP)

The Department of Community and Economic Development (DCED) Greenways, Trails and

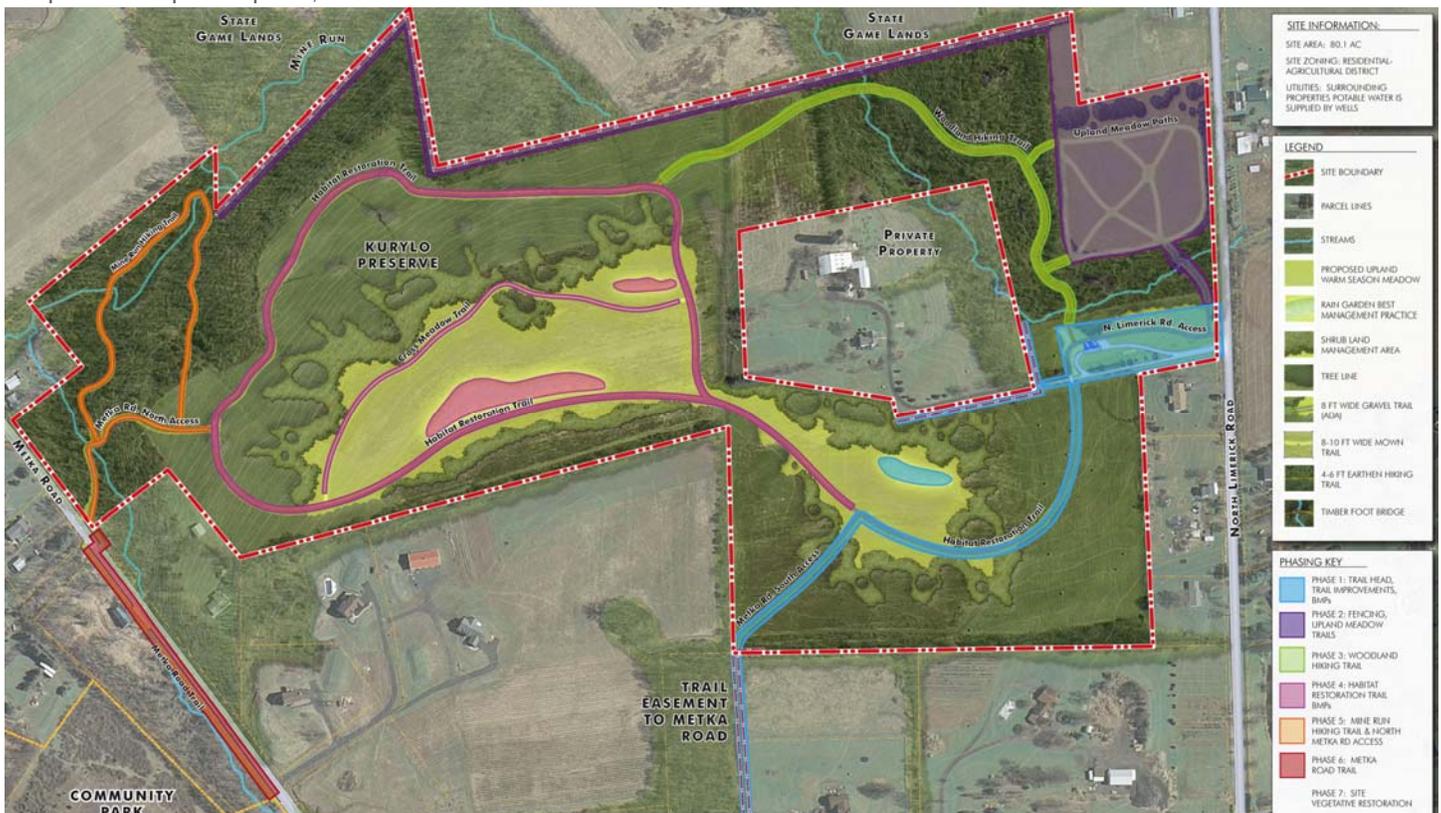


Figure 4.1 Improvements Phasing Plan

Recreation Program (GTRP) is a program that helps fund for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects. Grant applications cannot exceed \$250,000 and require a 15% matching funds. Applications are due in June 30th for consideration in September.

More information on this program can be found at the DCED website: <http://community.newpa.com/programs/greenways-trails-and-recreation-program-gtrp/>

Watershed Restoration and Protection Program (WRPP)

DCED Watershed Restoration and Protection Program is a funding program to restore, and maintain restored stream reaches impaired by the uncontrolled discharge of nonpoint source polluted runoff. Funds may be used for construction, improvement, expansion, repair, maintenance or rehabilitation of new or existing watershed protection BMPs; stream bank bio-engineering; and design services. Grant applications cannot exceed \$300,000 and require a 15% matching funds. Applications are due in June 30th for consideration in September.

More information on this program can be found at the DCED website: <http://community.newpa.com/programs/watershed-restoration-protection-program-wrpp/>

PENNVEST

Pennvest oversees the administration and finance of the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund (DWSRF) for the state of Pennsylvania. The CWSRF program provides funding to projects throughout Pennsylvania

for the construction and maintenance of wastewater treatment facilities, storm water management projects, nonpoint source pollution controls, and watershed and estuary management. The program offers low interest loans with flexible terms to assist a variety of borrowers that include local governments, municipalities, and privately owned entities and to establish partnerships to leverage other funding sources. Watershed and estuary management might be an eligible project for Schuylkill River Park.

Additional information is available at: <http://www.pennvest.pa.gov/Pages/default.aspx#.Vcux3WfbJ9A>

Schuylkill River Restoration Fund

Administered by the Schuylkill River national and State Heritage Area the Schuylkill River Restoration Fund is a Watershed Restoration grant program for implementation projects that will improve the quality and quantity of water in the Schuylkill River and its tributaries. In 2015 special consideration was given to the Perkiomen Watershed for may include stormwater management, agricultural runoff mitigation, and pathogen remediation. Grant applications can range from \$5,000 to \$100,000 and require 25% matching funds. Applications are due in May and awarded in September.

Additional information is available at: http://www.schuylkillriver.org/Grant_Information.aspx

Schuylkill Highlands Grant Program

The Schuylkill Highlands Grant Program is a reimbursement grant program funded by the PA Department of Conservation and Natural Resources (DCNR) and administered by Natural Lands Trust and the Schuylkill River Heritage Area. The program has the dual priorities of natural resource- based

conservation and nature-based tourism. The Nature base resource conservation focus is to promote and implement projects that advance conserving and protecting the natural, cultural, historic and recreational resource areas while promoting sustainable development. Grant requests for the priorities above are not to exceed \$15,000 and require a 50% match.

Additional information is available at: http://www.schuylkillhighlands.org/partners_grants.php

Green Region PECO Open Space Program

Green Region grants are funded by PECO and administered by Natural Lands Trust. The grants can be used with other funding sources to cover a wide variety of planning and direct expenses associated with developing and implementing open space programs, including consulting fees, surveys, environmental assessments, habitat improvement, and capital improvements for passive recreation. Funding is available to municipalities in amounts up to \$10,000 and may cover up to 50% of the project cost. Grant deadlines are in March.

Environmental Education

The Pennsylvania Environmental Education Grants Program awards funding to schools, nonprofit groups and county conservation districts to develop new or expanded current environmental education programming. The funds are administered through the Pennsylvania Department of Environmental Protection for projects ranging from creative, hands-on lessons for students and teacher training programs to ecological education for community residents. Educational Resources, including exhibits, educational signage, and demonstration projects, also qualify for funding. Grant applications cannot

exceed \$3,000 and require a no match is required however it is recommended. Applications are due in Dec and awarded in April.

Legislative Funding

State and federal elected officials can sometimes include items into legislation for worthy projects in their districts. A conversation between county and municipal officials and legislators is the way to begin this process. This type of funding should be targeted toward capital improvement projects.

Limerick Township

Some grant programs allow official services to count as a local match. It is suggested that the Township keep a record of municipal staff and/or volunteer time spent on Kurylo Preserve. Occasionally, grantors may allow time spent to date to count as part of the in-kind match for funds. This record will also demonstrate a continuing commitment by the municipality to the successful implementation of the master plan. The Township may in some cases choose to invest municipal funds in specific aspects of the Preserve development to “leverage” funding from other partners.

Grant programs that require matching funds present an opportunity for the Township to engage in targeted fundraising efforts and to partner with other organizations.

Private Foundations

There may be regional corporations and foundations that support public works such as park development. Competition for these funds is usually brisk, but opportunities should be researched. Funding is often to non-profit organizations.

Foundations and institutions represent another

potential source of funding for education-related site improvements and programming. Grants are available to support student field trips, provide teacher training in science, and provide other educational opportunities. Education tied to research can increase the pool of potential funds. The science community and research institutions are the logical starting points for solicitation foundation funds.

Schools and Local Organizations

Local schools and sports organizations may also be of assistance in several ways. These groups might get involved with club, fundraising events, and park cleanup days. The school faculty might incorporate the Preserve into various curricula with students helping to develop and possibly maintain the Preserve as part of a classroom assignment or after school club. While the amount of funds raised may be relatively small, this process builds constituents and support that is critical to the long-term success of the Preserve.



LIMERICK TOWNSHIP MONTGOMERY COUNTY

