



PERKIOMEN TOWNSHIP

Highland/Huber Park Master Plan



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Table of Contents

Introduction

- 2 Purpose for Study
- 2 Plan Goals
- 2 Master Planning Process
- 3 Project Team
- 3 Public Participation
- 4 Meeting Summary
- 5 Public Opinion Survey
- 5 Data Collection & Methodology

Inventory & Analysis

- 8 Site Description
- 8 Regional Context
- 8 History
- 8 Demographics
- 10 Township Park System
- 11 Previous Studies of Highland/Huber Park
- 14 Zoning & Surrounding Land Use
- 14 Site Reconnaissance
- 14 Easements & Rights of Way
- 14 Site Inventory
- 20 Opportunities & Constraints

Activities Analysis & Recommendations

- 24 Community Needs & Uses
- 24 Design Standards
- 28 Design Elements & Facility Standards
- 32 Preliminary Concept Plans
- 35 Public Consensus
- 35 Draft Master Plan
- 38 Existing Maintenance

Implementation

- 42 Cost Estimates of Capital Improvements
- 42 Project Phasing
- 44 Funding Sources

List of Figures

- 3 Figure 1.1 Master Plan Process**
- 5 Figure 1.2 2020 Site Survey**
- 9 Figure 2.1 History of Parcels**
- 10 Figure 2.2 Existing Public, Private, and Institutional Open Space owned by either the Township, County, or Private Owner.**
- 13 Figure 2.3 Map of “10-Minute Walk Access to Parks, Trails, and Open Space” within Perkiomen Township**
- 15 Figure 2.4 Zoning Map of Perkiomen Township**
- 16 Figure 2.5 Slope Analysis Map**
- 17 Figure 2.6 Hydrology Analysis Map**
- 18 Figure 2.7 Municipal Stewardship Assessment Management Unit/Vegetated Map**
- 21 Figure 2.6 Composite Analysis Map**
- 32 Figure 3.1 Concept Plan 1**
- 33 Figure 3.2 Concept Plan 2**
- 34 Figure 3.3 Concept Plan 3**
- 36 Figure 3.4 ADA Plan**
- 37 Figure 3.5 Draft Master Plan**
- 42 Figure 4.1 Project Probable Estimate by Phases**
- 43 Figure 4.2 Phasing Plan**





1

Introduction



Purpose for Study

Highland/Huber Park is a 34-acre tract of land acquired by Perkiomen, through a combination of gift and purchase. The Park is a naturalized area with a combination of woodlands, meadows, and shrublands. In undertaking this master plan process, the Township wished to explore the development of primarily passive recreational facilities within the Park. This public master plan process informed the Township on how the public might use this park and what improvements would best facilitate park use.

This plan is the result of a collaboration between the public, project stakeholders, the Township project steering committee (the Committee), Township staff, and the Board of Supervisors. This document outlines the planning process and provides a vision for the future of Highland/Huber Park.

Plan Goals

The plan goals were discussed at the first committee and public meetings and refined throughout the master plan process. It was understood by everyone involved that the site is a unique and special place with the potential to be enhanced and serve the public for generations to come. The plan goals are as follows:

- Develop a master site plan that provides for public activities and facilities that are married with the enhancement of the site ecology.
- Create a safe, passive park space that is accessible to all, while maintaining reasonable buffers to the adjacent neighbors.

Master Planning Process

The master plan is an early step in the improvement process that seeks to develop public consensus for activities and facilities to be included at Highland/Huber Park (see Figure 1.1). The master plan provides estimates of probable costs of development. It also outlines a strategy for phasing improvements and for securing funding from a variety of potential sources. The master plan is a guidance document and is intended to be flexible enough to adapt to the future desires and needs of the community.

Following the completion of this master site development plan, the next step toward implementation is to identify and acquire funding for improvements. Once funding is obtained, detailed design and engineering will commence to develop construction documents. Construction documents will be publicly bid, and a contract awarded for construction. A master plan is typically implemented in phases, dependent on funding, over a period of years. In the case of Highland/Huber Park, four (4) phases spanning ten (10) or more years is a realistic time frame for the implementation of all plan recommendations.

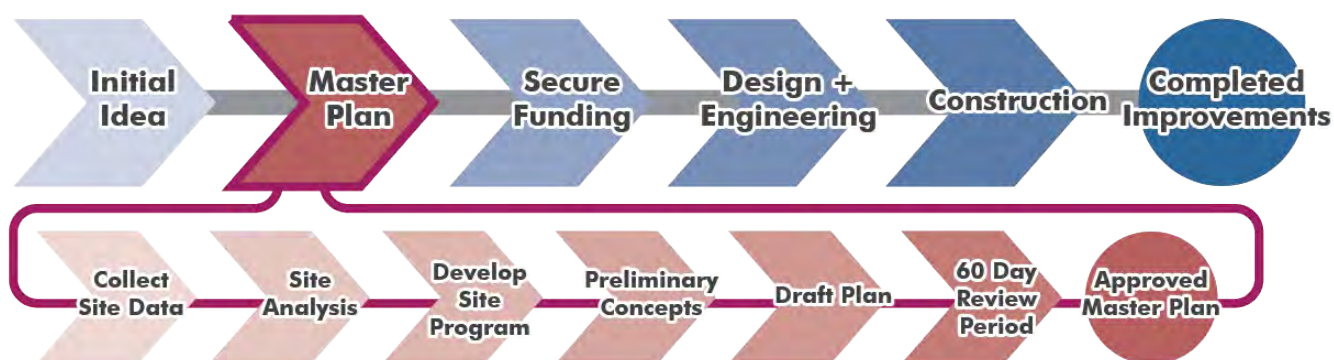


Figure 1.1 Master Plan Process

Project Team

A project team composed of the Committee, Township Staff, and Consultants was formed to guide the master plan process. The Committee was diverse and offered varied expertise and experience. Committee insights informed and guided the team throughout the process. Township staff led by Perkiomen Township Open Space/ Parks and Recreation Coordinator, Kevin Motsavage helped to coordinate the process and provided input and comment on the plan.

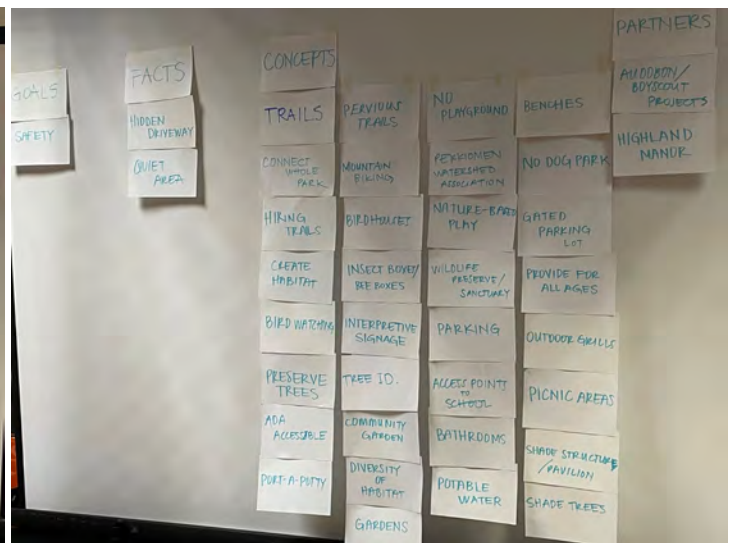
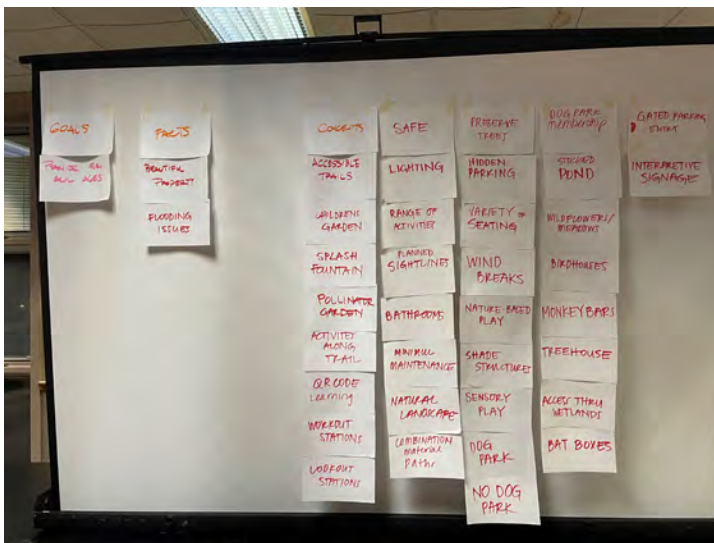
Simone Collins Landscape Architecture (SC) is a planning and design firm with expertise in parks, trails, greenways, and recreational facilities. SC served as the prime consultant and was responsible for overall facility design, public participation, and overall coordination with the Committee, the Township, and project team.

Public Participation

Community input is a critical component of all successful master plans. The consultants worked with the project team to tailor the public participation process to the project. The 7-month process provided the team with extensive access to citizens' observations, needs, and ideas for the Park and critical feedback on park concepts and plans.

The public participation process included four (4) public meetings, four (4) project committee meetings, ten (10) key person interviews, one (1) Perkiomen Township Board of Supervisors meeting, and an on-line opinion survey. Meeting notes and attendance sheets for each meeting can be found in the appendix of this report.

Meeting	Purpose	Date
Kick-Off Meeting		December 15, 2021
Study Committee Meeting #1	Project overview, programming, brainstorming	February 10, 2022
Public Meeting #1	Project overview, programming, brainstorming	February 17, 2022
Study Committee Meeting #2	Site analysis, initial concepts	March 31, 2022
Public Meeting #2	Site analysis, initial concepts	April 7, 2022
Study Committee Meeting #3	Pre-Draft Plan Presentation	May 11, 2022
Public Meeting #3	Draft Plan Presentation	May 26, 2022
Public Review Period	Draft Plan Review	July 15, 2022 - August 4, 2022
Board of Supervisors Meeting	Draft Plan Presentation	July 5, 2022
Study Committee Meeting #4	Final Revisions to Draft Plan	August 4, 2022
Public Meeting #4	Final Presentation/Implementation/Funding Strategies	September 15, 2022



Brainstorming cards from Committee Meeting #1 and Public Meeting #1 (from left to right)

Meeting Summary

Township Kickoff Meeting – December 15, 2021

The consultant introduced the team to the Township and conducted a site walk with one of the Township representatives. The scope of work was reviewed and confirmed, and a project schedule was set.

Committee Meeting 1 – February 10, 2022

The consultant focused on collecting background information for the site and discussing preliminary goals for the master plan. The consultants led a brainstorming session to gather goals, facts, and concepts for the Park.

Public Meeting 1 – February 17, 2022

This meeting was held virtually and in person. The project team was introduced to the community and an overview of the master plan process was provided. The consultants led a brainstorming activity session for the Park, gathering the public goals, facts, concepts, and ideas for potential partners.

Committee Meeting 2 – March 31, 2022

The consultant presented the public opinion survey results to date. The site analysis was presented. Initial site concepts were presented, and the committee discussed the program elements that were liked and disliked.

Public Meeting 2 – April 7, 2022

This meeting was held virtually and in person. The consultant team presented the site work completed to date and the preliminary site concepts. The consultants led a discussion about the Park concepts to gather public input on the concepts and program elements.

Committee Meeting 3 – May 11, 2022

Preliminary Draft Plan elements and refined concept plan were reviewed by the design team. The committee provided feedback on the refined concept plan and determined revisions to be made prior to the public draft plan meeting.

Public Meeting 3 – May 26, 2022

This meeting was held virtually and in person. The consultants provided a brief overview of the public opinion survey results. The draft plan was presented along with cost estimates and implementation strategies. A public discussion regarding the plan was held following the formal presentation. The draft plan was made available for a 30-day public review period.

Board of Supervisors Meeting – July 5, 2022

During this in-person meeting the consultants provided a brief overview of the draft master plan and discussed the recommendations that are included in the draft report and addressed the Board of Supervisor questions.

Committee Meeting 4 – August 4, 2022

The consultants reviewed draft plan feedback, and comments from the Board of Supervisors Meeting. The final master plan was presented along with cost estimates, a phasing plan, and funding strategies.

Public Meeting 4 – September 15, 2022

This meeting is to be held virtually and in person. The consultants presented the final master plan along with cost estimates, a phasing plan, and funding strategies.

Key Person Interviews

Ten (10) key person/key organization interviews were conducted during the master plan process. The interviews provided input from key persons and organizations in the area. These included:

- Drew Gilchrist, Regional Advisor, DCNR
- Adam Doyle, Vice Chair, Perkiomen Township Supervisors
- Dominic Bruzzese & Chris Husted, Perkiomen Environmental Advisory Council
- Vivian Schoeller, Perkiomen Board of Supervisors, Vice Chair
- Ryan Beltz, Perkiomen Watershed Conservancy
- Meredith Glodek, President & Kim Gillingham, Secretary, Perkiomen Valley Library
- Krista Venza, Principal & Emily Rice, Secretary, Schwenksville Elementary School
- Tony Verguldi, Scoutmaster, Boy Scout Troop 105
- Danielle Baer, Eric Jarrell, & Anne Leavitt-Gruberger, Montgomery County Planning Commission

A record of key person interviews can be found in the appendix of this report. Note, correspondence was made to Highland Manor, Maple Hill HOA, Perkiomen Township Fire Company, Plymoth Ambulance, the Rotary Club and the Girl Scouts; however, no response was received.

Public Opinion Survey

Residents of Perkiomen Township and the surrounding area took part in an on-line public opinion survey to provide information on their current recreational habits and what they would like to see at Highland/Huber Park. The survey was available on-line from February 10, 2022 until May 26, 2022. A total of 119 individuals participated in the survey. Most of the respondents (97%) were Township residents. The survey results can be found in the appendix.

Data Collection & Methodology

Elements for this plan were compiled using the best available information. This information included a site survey conducted by Spotts, Stevens & McCoy Engineers and Consultants dated 12/14/2020 (Figure 1.2), Geographic Information System (GIS) data, and Pennsylvania Spatial Data Access (PASDA), aerial photography, and site reconnaissance visits.

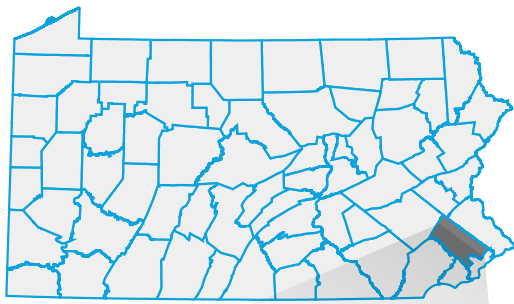




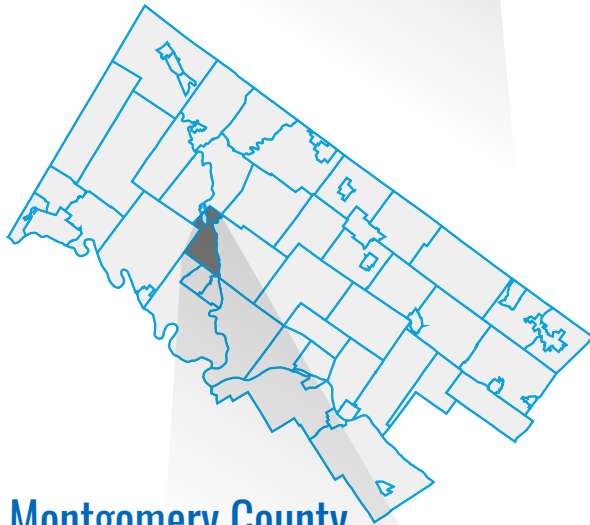


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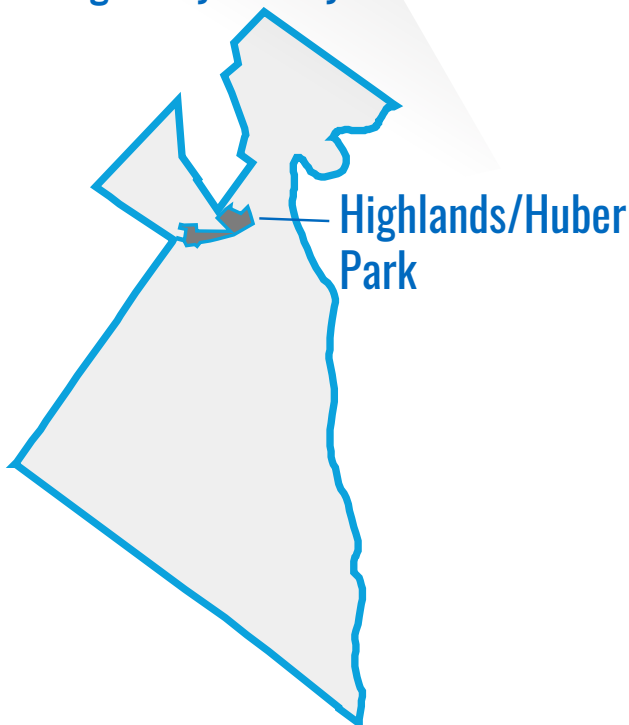
Inventory & Analysis



Pennsylvania



Montgomery County



Perkiomen Township

Site Location

Site Description

Highland/Huber Park site is approximately 34-acres of woodlands, shrublands and meadow, located in Perkiomen Township. The Park is surrounded by residential and agricultural properties and is bounded by Township Line Road on the west and Salem Road on the east. There is existing vehicular access into the park from Township Line Road. Informal pedestrian access is currently provided by a mown trail near Highland Manor, the adjacent retirement home. A branch of the Perkiomen Creek runs through the southernmost edge of the site from west to east, and an intermittent watercourse/stream runs south from a surveyed wetland.

Regional Context

Perkiomen Township is a second-class township, governed by a Board of Supervisors. The Township is a 4.8-square mile municipality in the west central section of Montgomery County, Pennsylvania. The surrounding municipalities include Limerick Township, Schwenksville Borough, Collegeville Borough, Skippack Township, Lower Providence Township, Upper Providence Township, Trappe Borough, Lower Frederick Township, Upper Salford Township, and Lower Salford Township. Highland/Huber Park is located in the northwestern section of the Township. The Township is approximately 30 miles from Center City Philadelphia.

History

Historic imagery dating back to 1937 shows portions of the Park were used for agriculture. This park was originally three parcels: one (1) residential parcel, and two (2) open space parcels (see Figure 2.1). The Township originally acquired the open space parcel in the 2003. In 2009, the township acquired the 2.34-acre Huber residential property at 546 Township Line Road to provide access to the interior open space parcel. The combination of these two parcels is commonly referred to as the “Huber Property” within the Township. Then in 2011, the Township acquired the 17.13-acre Highland Property from a developer.

Also, the Park is within the Perkiomen Valley region where the Lenape people once inhabited. More information on the history and background of the Lenape people within Perkiomen Valley can be found in the appendix.

Demographics

As of the 2020 Census, Perkiomen Township population was 8,959 people over 4.93 square miles. This equates to 1917 persons per square mile, slightly denser than Montgomery County. Compared to the 2010 population of 9,139 the Township’s population decreased by 1.02% while between 2010 and 2020 the County’s population

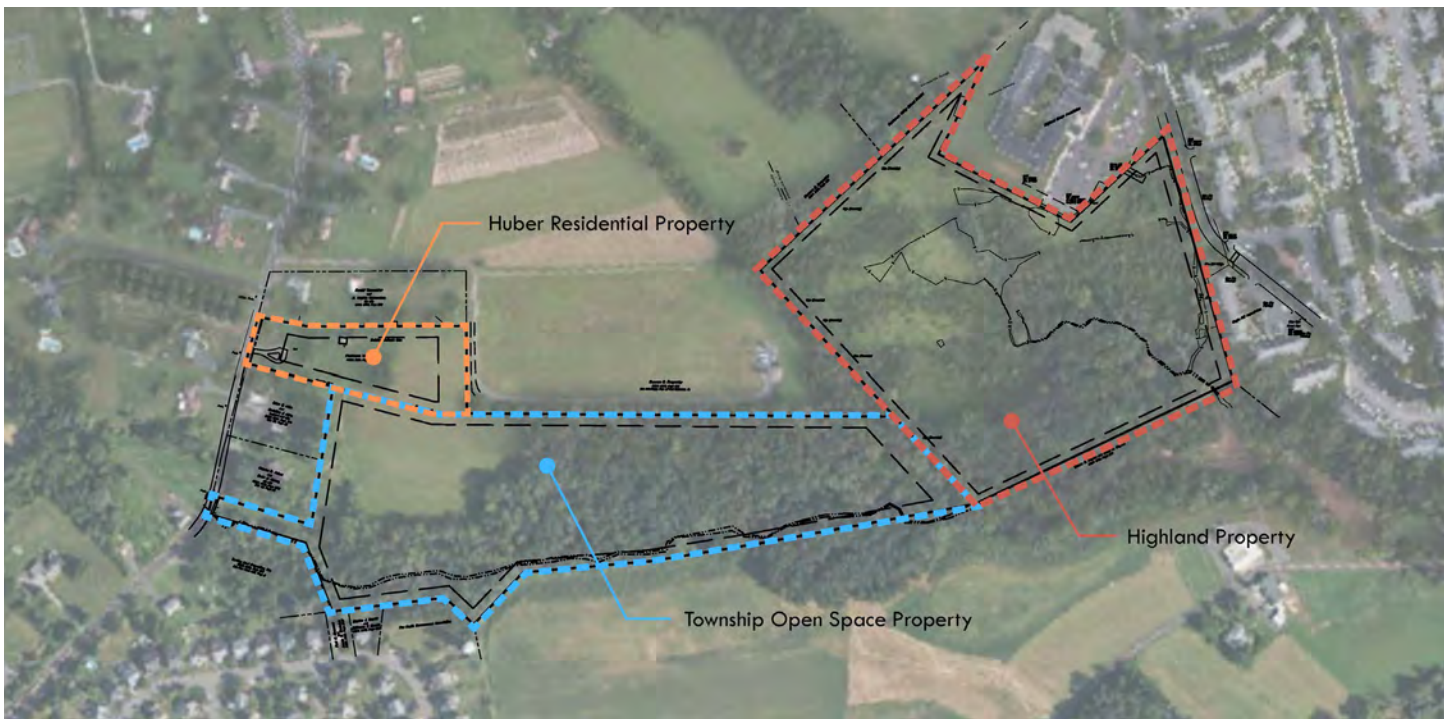


Figure 2.1 History of Parcels

grew by 3.2% and the State population grew by 2.4%. The Delaware Valley Regional Planning Commission (DVRPC) 2015-2045 population forecast for Perkiomen Township predicts a 13.58% growth, this is comparable to Montgomery County's forecasted growth of 13.90%.

According to the 2020 Census, racial background percentages are as follows: 81.5% white, 4.2% Black or African American, 0.03% American Indian and Alaska Native, 5.2 % Asian, 0.01% Native Hawaiian/Pacific Islanders and 4.3% Hispanic or Latino. 0.6 % of the population identifies as some other race and 4.2 % as two or more races. At 81.5% Perkiomen Township's White population is slightly higher than the County and State populations which are 72.2% and 73.5% respectively.

Over the period of 2016-2020 there were 3,286 households in Perkiomen Township. The average household size is 2.87 persons in keeping with the County and State. In Perkiomen Township, 97.6% of households have a computer and 94.3% have a broadband internet subscription, slightly above the County and State rates. In Perkiomen Township 89.3% of households are owner occupied, slightly higher than the County and State rates of 71.9% and 69.0% respectively. Perkiomen Township's median home value is \$296,900, lower than the County average of \$ 326,200 and above the State average of \$187,500. However, the Township's gross rent of \$1,455 is in keeping with the County average of \$1,323 and above the State average of \$958. The median household income for Perkiomen Township is \$119,107, lower than the County median income at \$128,618 and quite higher than the State median income at \$63,627.

Regarding education, the Township's rate for high school graduate or higher of 94% is in keeping with County and above the State rates. The Township's rate for bachelor's degree or higher of 53% is slightly higher than the County rate of 49.7% or State rate of 32.3%.

The median household income for Perkiomen Township is \$119,107, above than the County at \$93,518 and the State at \$63,627. The 2020 ACS estimates 5.7 % of Perkiomen residents live in poverty, in keeping with Montgomery County's rate of 5.8% of residents living below the poverty line, and below the State rate of 12%.

The Indicator of Potential Disadvantage (IPD) as hosted on the Delaware Valley Regional Planning Commission (DVRPC) website identifies populations of interest under Title VI on Environmental Justice using U.S. Census American Community Survey (ACS) 2015-2019 five-year estimates data and maps these populations in each of the Census tracts in the region via GIS.

Each population group is an "indicator" in the analysis and includes the following:

- Youth
- Older Adults
- Female
- Racial Minority
- Ethnic Minority
- Foreign-Born
- Limited English Proficiency
- Disabled
- Low-Income

Perkiomen Township is classified as census tracts: 2065.01 and 2065.02. These Census tracts have the IPD average scores of 13, respectively. Generally, this means that for the cohorts, listed populations are within the community “average.” This shows that is an average indicator or potential disadvantage.

Census tracts 2065 has an IPD score of 13, showing there is a chance of disadvantage for one of the cohorts. Specifically, youth shows above average.

What this means for the Highland/Huber Master Plan is that it is important to ensure that this group are well provided for in the improvement recommendations. The plan for Highland/Huber Park does provide facilities that will serve the Youth age cohort.

Township Park System

Highland/Huber Park will become one of two (2) parks owned and operated by Perkiomen Township. Based on the Perkiomen Township Open Space Plan 2006, the Township’s

existing system of parks and unstructured open space is comprised of eleven (11) sites totaling 113 acres. Currently, the only tract in the Township considered to be a park or passive open space is David Myer’s Jr. Playground which is 3.3-acres in size and located adjacent to the Township building. The existing park is 2.6 miles from Highland/Huber Park and has a pavilion and playground equipment. The other tracts of Township open space land listed in the Open Space Plan identified offering little recreational potential.

The Township has two county-owned parks within its borders: Pennypacker Mills and Central Perkiomen Valley Park. Pennypacker Mills is approximately 1 mile from the site and offers both historic and passive features within the park. Central Perkiomen Valley Park is approximately 0.8 miles from the site and offers both active recreation and passive recreation elements. This park is also a part of the Perkiomen Trail. The Perkiomen Trail system is 20 miles in length and runs through the Township for over 3.5 miles parallel to the Perkiomen Creek. One of the trailheads is approximately two miles from the Highland/Huber site.

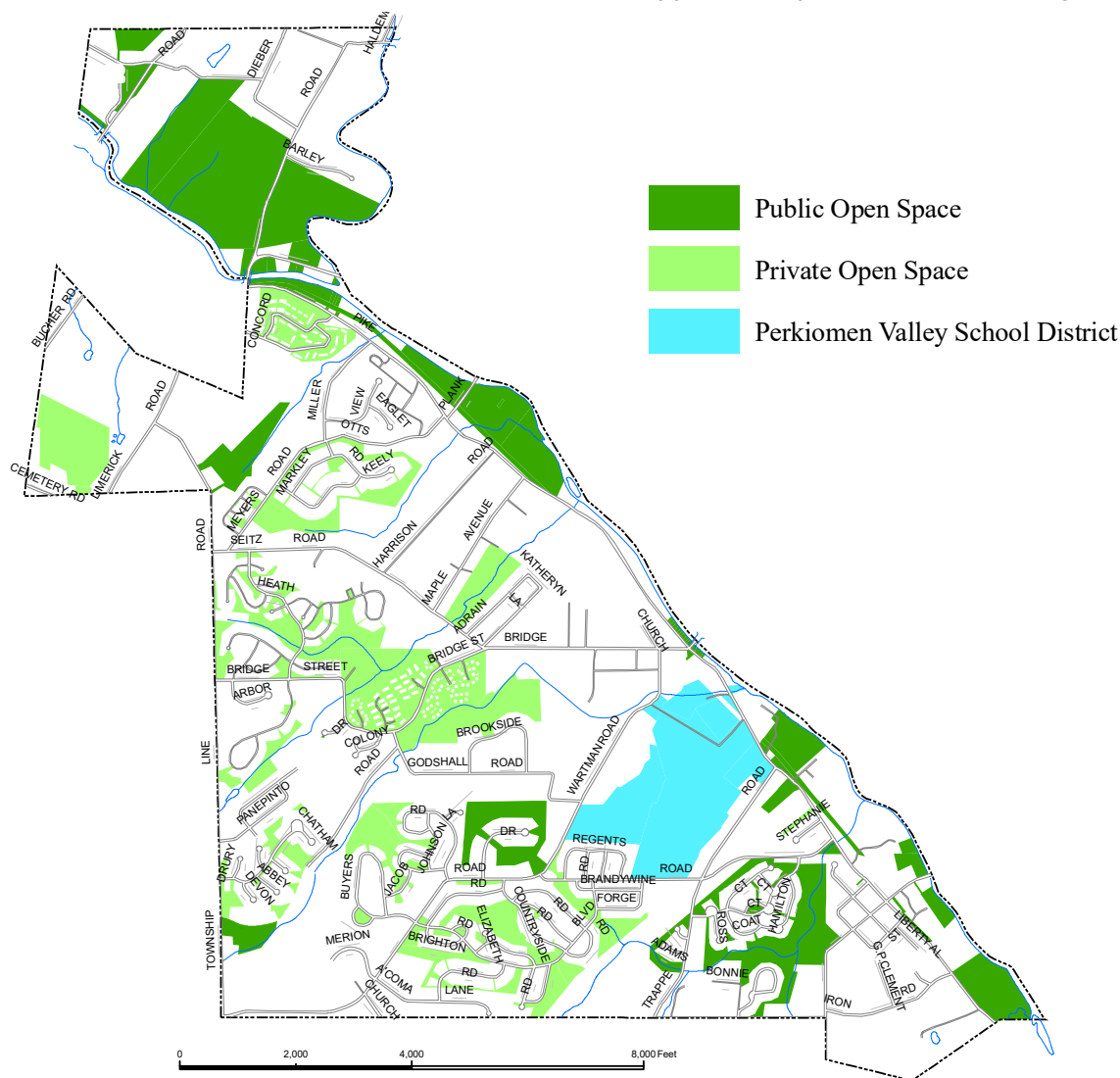


Figure 2.2 Existing Public, Private, and Institutional Open Space owned by either the Township, County, or Private Owner

Previous Studies of Highland/Huber Park

Municipal Stewardship Assessments: Montgomery County Multi-Regional Greenway and Stewardship Study, Central Perkiomen Valley (December 2018)

The Montgomery County Planning Commission and Natural Lands completed a Stewardship Assessment that identifies issues and opportunities for municipal properties. Huber Park was one of the thirty-eight (38) sites assessed over the two-year course of the study. For each site, the Stewardship Assessment provides a summary page with a list of notable features and issues, photos of the site, a list of the dominant vegetation, a features and issues map, and a priorities and implementation schedule. The assessment identifies different areas of the property by “management units” to facilitate stewardship efforts; which is based on the general type of vegetation present.

In summary, the notable features identified at Huber Park are as follows:

- First-order stream
- Early successional habitat

A map of the site identified six (6) management units present. These management units are established based on the general type of vegetation present and the hydrologic characteristics. The management units are as follows:

- Terrestrial Forest (Red Oak–Mixed Hardwood Forest)
- Terrestrial Shrubland/Herbaceous Opening (Terrestrial Shrubland)
- Terrestrial Herbaceous Opening (Terrestrial Meadow)
- Terrestrial Forest (Mixed Hardwood Forest)
- Palustrine Herbaceous Opening (Wet Meadow)
- Palustrine Forest (Red Maple Palustrine Forest)

More information on the management unit types and dominant plant species (both native and invasive) can be reviewed in the Vegetation Table for Huber Park from the Municipal Stewardship Assessment.

Also, the study identified issues on site and provided a prioritized list of recommended management approaches for each issue:

- Deer Management
 - Implement a Deer Management Program
 - Monitor for Deer Impacts

- Invasive Plants
 - Create an Invasive Species Management Program
- Hazard Trees
 - Identify and remove hazard trees
 - Conduct monitoring annually and after severe storms
- Property Boundary Establishment and Monitoring
 - Survey and post boundaries
 - Monitor boundaries
- Emerald Ash Borer
 - Monitor for Emerald Ash
 - Contact the Bureau of Forestry for recommendations for ash treatment
 - Identify and treat or remove ash trees
 - Harvest ash trees if feasible, use proceeds for restoration
- Replant vegetation in ash harvest if implemented
- Spotted Lanternfly
 - Monitor for Spotted Lanternfly
 - Remove tree-of-heaven and create trap trees
 - Explore other control options as needed such as tree banding or egg scraping.

More information on the issues for each management unit can be reviewed in the Stewardship Priorities and Implementation Schedule table for Huber Park from the Municipal Stewardship Assessment.

Huber Park Exhibits

The Huber Park exhibits were completed by Spotts, Stevens & McCoy Engineers and Consultants (SSM), who serves as the Perkiomen Township Engineer. Specifically, the exhibits consisted of site survey, concepts studies, a HSG soil map, a steep slope map, and a zoning map which were all used to present to the Township during the site’s initial investigation prior to Simone Collins being retained. All exhibits can be found in the appendix.

Driveway Sight Distance & Location Study

The Township Line Road Driveway Sight Distance & Location Study was completed by SSM. The purpose of the study is to determine if adequate sight distance is available for safe ingress and egress of a two-way driveway from Township Line Road into the property based upon PennDOT standards. The engineers investigated three locations along the property edge on Township Line Road and provided a pros and cons for each location. Location 1A is the existing driveway entrance to a former residence. Location 1B is

approximately 70 feet north of the existing driveway. Location 2 is the 50-foot-wide property frontage at the guardrail opening just south of 542 Township Line Road. After the consultants evaluated the pros and cons list for each location, location 1B was selected as the most viable option to propose a safe driveway entrance.

For more information, the Driveway Sight Distance & Location Study can be found in the appendix.

Bog Turtle Habitat Assessment

The Bog Turtle Habitat Assessment was completed by Liberty Environmental (Liberty) and provided to the consultant by SSM. The assessment was completed to investigate the 16-acre Highland Parcel for wetlands and other regulated waters, and in turn, evaluate if a bog turtle habitat could be impacted during permit activities. The report concluded no presence of a bog turtle habitat due to the absence of appropriate soils and hydrology.

For more information, the Bog Turtle Habitat Assessment can be found in the appendix.

Perkiomen Township Open Space Plan, 2006

Perkiomen Township joined with five neighboring municipalities to pursue regional goals with the intent to help guide growth in the Central Perkiomen Valley. The 1995 Open Space Plan identified a series of goals and objectives to address issues regarding the preservation of open space and the protection of environmental resources. The 2006 Open Space Plan has updated those goals and objectives.

The plan identifies four goals, which are followed by a series of objectives. An overarching theme these goals pursue is an open space network that serves the community's diverse needs in a sustainable way.

The goals and objectives are as follows:

PRESERVE REMAINING RURAL LANDSCAPES

- A. Preserve undeveloped land where it remains to retain a connection to Perkiomen Township's rural heritage
- B. Preserve farmland where development pressure is greatest, and land is productive
- C. Support farmers as they maintain agriculture as a productive industry

PROVIDE ACTIVE RECREATION OPPORTUNITIES FOR RESIDENTS

- A. Develop parks with playing fields, courts, and other facilities to accommodate organized, active recreation
- B. Develop partnerships with neighboring municipalities and the Central Perkiomen Valley region to develop greater recreation opportunities

- C. Add specific active recreation requirements to the land development process
- D. Cooperate with the School District and County Parks Department to maximize use of existing facilities
- E. Create partnerships with private landowners to establish active recreation sites

PROTECT NATURAL RESOURCES

- A. Preserve lands on which sensitive natural resources exist and deserve protection
- B. Adopt regulations that further add protection to natural resources
- C. Provide public access to natural areas while ensuring a high standard of protection

MontCo 2040: A Shared Vision, The Comprehensive Plan for Montgomery County 2021

This Comprehensive Plan lays out visions for the County that include management of the County's built and natural environment. It is structured around three interrelated themes and their associated goals, as follows:

Connected Communities – Help people connect to a broader community beyond local municipal boundaries.

- Collaboration among stakeholders
- Improved transportation choices
- Trails and greenways connecting multiple places
- Vibrant downtowns and destinations accessible by everyone

Sustainable Places – Effectively enhance and sustain neighborhoods and communities, long term.

- Modernized infrastructure network
- Improved stormwater management
- Protected natural resources
- Opportunities for healthy lifestyles
- Diverse housing choices
- Enhanced community character

Vibrant Economy – Encourage a strong and vibrant economy so that residents can earn and spend more, governments can make needed infrastructure improvements, and businesses can grow.

- Improved transportation access
- Focused development
- Attraction and retention of businesses
- Flexibly adapting to changing market conditions
- Marketing of assets

DCNR Pennsylvania Statewide Comprehensive Outdoor Recreation Plan 2020-2024 (2020) (SCORP)

The goal of Pennsylvania’s 2020-2024 Statewide Comprehensive Outdoor Recreation Plan is to help all Pennsylvanians achieve greater access and enjoyment from experiences in the Commonwealth’s abundance of local and state parks, state and national forests, trails, rivers, lakes, game lands, and other recreation spaces.

Plan priorities fall into five categories each with their own recommendations and actions: 1. Health and Wellness, 2. Recreation for All, 3. Sustainable Systems, 4. Funding and Economic Development, and 5. Technology

Each priority has recommendations and actions. As an established park located in a densely populated area, many of the SCORP recommendations that relevant to Highland/Huber park. These include:

Health and Wellness Recommendations:

- Support programs that connect health and outdoor recreation; and
- Create walking and biking networks that provide safe, close-to-home access to recreation and encourage healthy behavior in communities.

Recreation for All Recommendations:

- Enhance recreational amenities to fit the needs and expectations of underserved people.

Sustainability Recommendations:

- Protect and conserve lands and waters considering the impacts of climate change on outdoor recreation; and
- Design outdoor recreation areas to minimize impacts on the environment or conflicts among user groups.

Funding and Economic Development Recommendations:

- Build strategic coalitions to maximize the economic impacts of outdoor recreation in Pennsylvania; and
- Demonstrate the benefits and impacts of nature-based solutions to addressing community needs.

Technology Recommendations:

- Increase mobile connectivity in outdoor recreation; and enrich the understanding of the natural, cultural, and historic aspects of the outdoors through technology Local Access to Outdoor Recreation

In follow up to the 2020-2024 SCORP, DCNR, together with the Trust for Public Land and We Conserve PA, developed on-line mapping tools that illustrate who in Pennsylvania has access to outdoor recreation within 10-minutes of their home and identifies the communities that lack equitable access to recreation.

In Perkiomen Township, 43% of residents live within a 10-minute walk of a park, trail, or open space. In the “10- Minute Walk Municipal Stats: Perkiomen Township” Table, the demographic segments are located within a 10-minute walk of parks and trails. In Figure 2.3, the map identifies the level of need based on population density, youth population density, and low-income population density within Perkiomen Township. Within greater area of Montgomery County 54% of residents live within a 10-minute walk of a park, trail, or open space area.

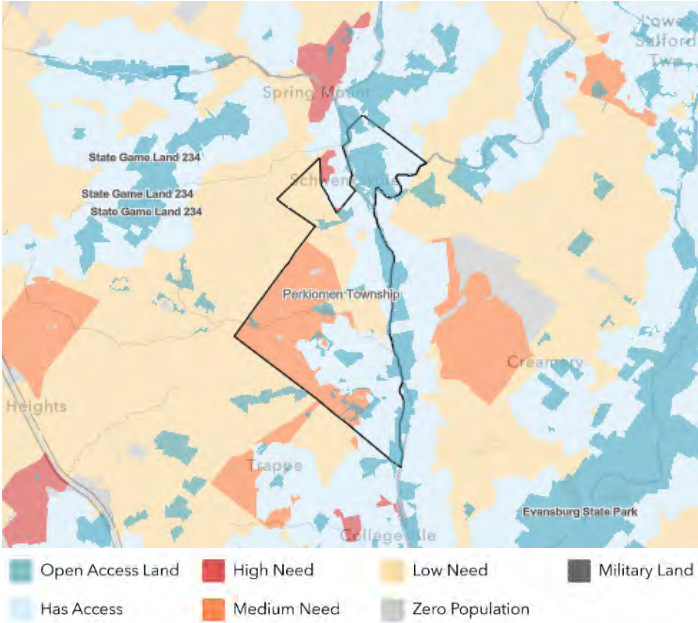


Figure 2.3 Map of “10-Minute Walk Access to Parks, Trails, and Open Space” within Perkiomen Township

10-Minute Walk Municipal Stats: Perkiomen Township	
Total Population Served	3,954
Population Served (%)	43%
Kids Served	1,290
Kids Served (%)	43%
Adults Served	2,291
Adults Served (%)	42%
Seniors Served	374
Seniors Served (%)	47%
Low Income Households Served	342
Low-Income Households Served (%)	42%
Medium Income Households Served	197
Medium-Income Households Served (%)	51%
High Income Households Served	751
High-Income Households Served (%)	41%
Whites Served	3,359
Whites Served (%)	42%
Minorities Served	594
Minorities Served (%)	43%

Zoning & Surrounding Land Use

Highland/Huber Park is zoned (R2) Medium Density Residential and (ER) Elderly Residential. ER has the following buffer requirements: along all tract boundary lines, except those which abut another Elderly Residential District/Use, shall be a permanent open space buffer at least 20 feet in depth.

Across Salem Road, east of the site, is the Maple Hill Housing Development and is zoned (R-4) High Density Housing. The Highland Manor property located northeast of the site is zoned (ER) Elderly Residential. The Schwenksville Elementary School property located north along the eastern half of the site is located in Schwenksville Borough. Across Raleigh Road, southwest of the park, is the Fox Heath Housing Development and is zoned (R-5) High Density Residential. The parcels directly north and west are zoned R-2 Medium Density Residential and consist of residences and agricultural fields.

Site Reconnaissance

The consultants performed a field reconnaissance in December 2021 and in March 2022 to inventory and document existing conditions of the Park. The consultants with Committee Members visited the site again in May 2022 to gather additional data. Site photographs, measurements, and field observations gathered during each site visit.

Easements & Rights-of-Way

As per the SSM Survey dated 2021 there is only one identified easement within the Park. In the eastern corner of the site, there is a 20' wide storm sewer easement. Within this easement is a 28' long 24" RCP that terminates at a concrete headwall.

The right-of-way portion between the eastern property edge and Salem Road has fifteen (15) existing 12"-24" caliper Silver Maple (*Acer saccharinum*) trees. The right-of-way portion between the western property edge and Township Line Road includes the existing asphalt driveway into the former Huber Residence property and a fire hydrant.

Site Inventory

Soils & Geology

The site is located in the Gettysburg-Newark Lowland Section of the Piedmont Providence. The area is comprised of rolling lowlands, shallow valleys, and isolated hills. The site's geology consists of Brunswick Formation of Jurassic and Triassic Age.

Along the southern edge of the site and above and around the perennial stream in the east, above and below the Branch of the Perkiomen, Penn-Klinesville channery silt loams (PkD), with 15 to 25 percent slopes, is the soil found most throughout the site (approximately 33%) and is a Group B soil. In the northeastern areas of the site and along northwestern boundary, Reaville silt loam (RhB), with



Site visit with several members of the Committee.

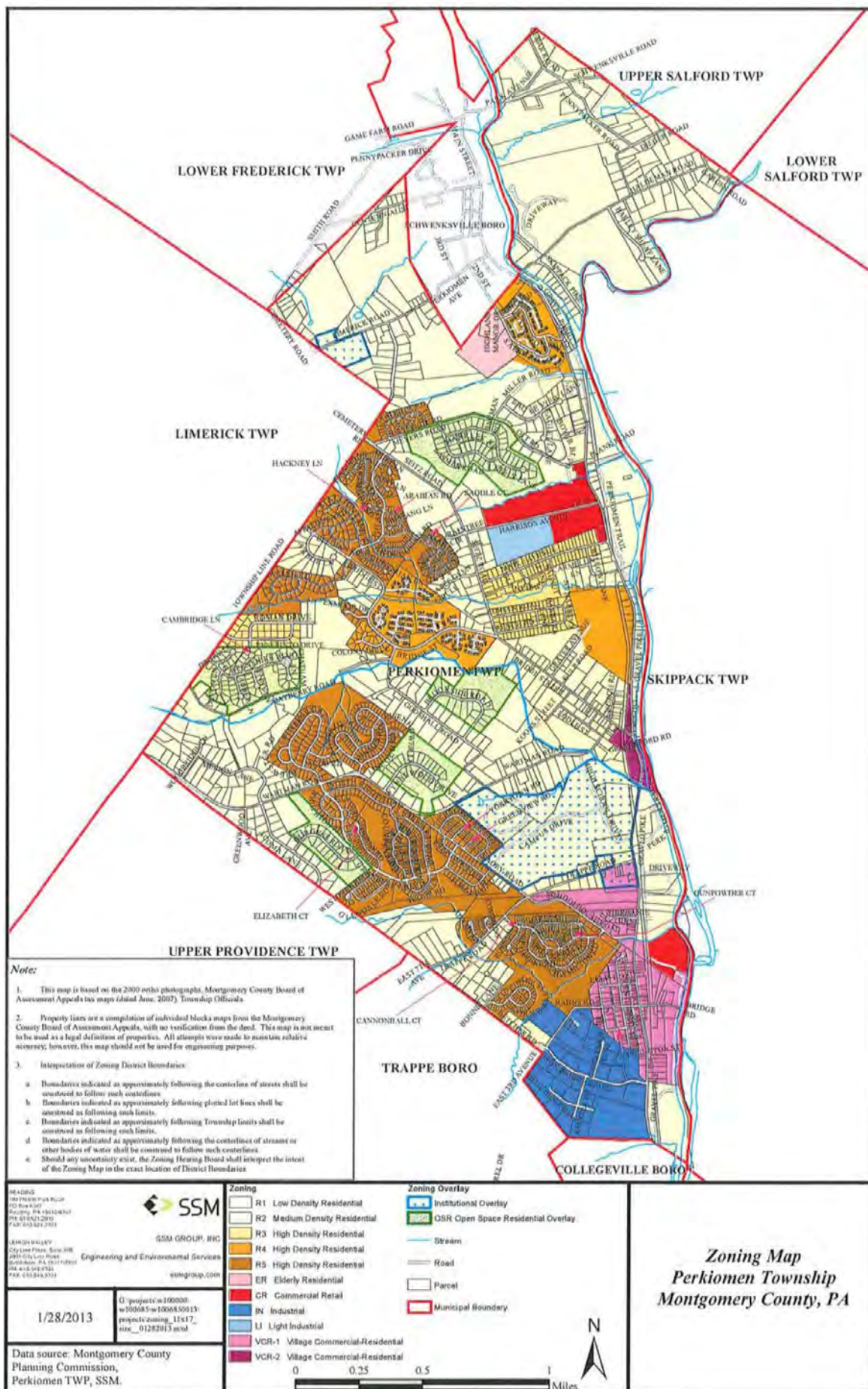


Figure 2.4 Zoning Map of Perkiomen Township



SLOPE LEGEND

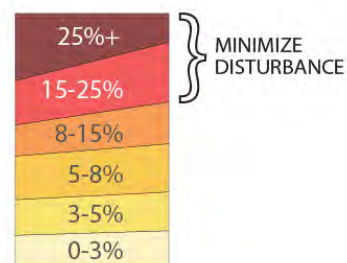


Figure 2.5 Slope Analysis Map

3 to 8 percent slopes, and is a Group D soil. Found in the southwestern and northwestern area of site, Readington silt loam (ReB), with 3 to 8 percent slopes and is a Group C Soil. Located in the western area of site, Reaville silt loam (RhC), with 8 to 15 percent slopes and is a Group D soil. Abbottstown silt loam (AbB) is located in the northwest area of the site, with 3 to 8 percent slopes and is a Group D soil. Below the branch of Perkiomen Creek consists of Buckingham silt loam (BwB), 3 to 8 percent slopes, and is a Group C and Group D soil. In the northeastern area of the site, near Highland Manor consists of Croton silt loam (CrB), occasionally ponded, with 3 to 8 percent slopes approximately and is a Group D soil. Urban land-Udorthents (UusD), shale and sandstone complex, with 8 to 25 percent slopes and is found in the northeastern area of the site. Many of these soils have the same classification, Group C and D. These soils have slow infiltration and high runoff, down into the Branch of the Perkiomen Creek. These soils are susceptible to becoming muddy.

The soil groups have the following classification characteristics:

Group B. Soils having moderate infiltration rate when wet.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a slow rate of water transmission.

Further information on the soil locations and types can be found in the appendix.

Topography

From the northern portion to the southern portion of the site, there is approximately 100 feet in elevation change. The high points of the site are at the northwestern and northeastern corners and are approximately at elevation 320. The low point of the site is in the southeastern corner at elevation 220 just south of the Branch of the Perkiomen Creek.

The site's topography has a variety of steep slopes. Steep slopes of 15-25% exist along the southern edge and in the middle area of the site, where the Huber parcel and Highland parcel meet. The site is steepest along the Branch of the Perkiomen Creek and a watercourse that runs from the largest wetland down to the branch of the Perkiomen Creek, at 25% and greater. The flatter parts of the site are concentrated in the northern areas of the site for both the eastern and western sides, with fewer flatter areas scattered closer to Salem Road.

Hydrology

The site falls within the Lower Perkiomen Creek Watershed. The Perkiomen Creek is 37.7 miles long in Berks, Lehigh, and Montgomery County, and creates a western border of Perkiomen Township. A Branch of the Perkiomen Creek runs at the southern edges of our site, flowing to the east, as a first-order stream. According to the Bog Turtle Assessment completed by Liberty Environmental, four (4) wetlands and six (6) watercourses can be found in the eastern area of the site.

The concrete headwall in the northeastern portion of the site sends all the runoff collected off the Highland Manor parking lot into the park site. The water coming out of this headwall has formed its own drainageway, which flows south along the eastern edge of the property until it reaches the southeastern corner, where it intersects with another drainageway flowing down to the Branch of the Perkiomen Creek. The stretch before the intersecting location shows signs of major erosion. This



Figure 2.6 Hydrology Analysis Map

watercourse has been classified as a low flow intermittent channel that is approximately three (3) to eight (8) feet deep and five (5) feet wide with silt, gravel, and cobble substrate.

Within the central portion of the eastern side is the largest wetland on site. This wetland is a palustrine emergent (PEM) and palustrine forested (PFO), and measures approximately 0.8 acres in size. Indicators of hydrology include geomorphic position, oxidized rhizospheres on living roots, microtopographic relief, drainage patterns, saturation, and surface water. Hydrology is provided from surface water and groundwater.

Two (2) smaller wetlands situated north and south of one another can be found to the east of the largest wetland. These wetlands are PEM wetlands, and both measures approximately 3,700 square feet. Indicators of hydrology include geomorphic position, drainage patterns, oxidized rhizospheres on living roots, and saturation for the northern one, and saturation, geomorphic position, and drainage patterns for the southern one. Hydrology is provided from surface water and groundwater for the northern one, and just surface water for the southern one.

The smallest wetland can be found to the west of the largest wetland. This wetland is a PEM wetland, and measures approximately 220 square feet in size. Indicators of hydrology include geomorphic position, surface water, and saturation. Hydrology is provided from surface water.

The other prominent watercourse runs south from the southern point of largest wetland to the Branch of the Perkiomen Creek. Most of this watercourse is found to have erosion. This watercourse has been classified as a high flow intermittent channel that is approximately one (1) to four (4) inches deep and six (6) inches to two (2) feet wide with a gravel, cobble, and boulder substrate.

All other watercourses are smaller segments either connecting into the larger watercourses, connecting the two (2) smaller wetlands, or not connecting to any other larger system.

According to the Township Code, restrictions include a stream buffer of 150' from the top of the bank for the branch of the Perkiomen Creek. The restrictions for wetlands and watercourses include a 25' buffer. Uses permitted within buffer zones are defined by the Riparian Corridor Conservation District. One of the uses applicable within the buffer zone includes corridor crossings, such as driveways, roadways, and recreational trails.

Flora and Fauna

The park vegetation is a variety of woodlands, shrublands and meadow. More specifically, based on the Municipal Stewardship Assessment, there are six (6) types of vegetation covers (see Figure 2.7).

Terrestrial Forest (Red Oak–Mixed Hardwood Forest) is approximately 10.6 acres in size and identified along most of the Branch of the Perkiomen Creek and stretches up to the “pinch point” of the site. This forest is a mix of canopy, understory, shrub, and vine, and herbaceous. The dominant plant species are a mix of native and invasive plants. The native plants within this forest type include but are not limited to: red oak (*Quercus rubra*), white oak (*Q. alba*), black oak (*Q. velutina*), red maple (*Acer rubrum*), and mayapple (*Podophyllum peltatum*). The invasive plants in this forest type include but are not limited to: Norway maple (*A. platanoides*), tree-of-heaven (*Ailanthus altissima*), Japanese honeysuckle (*Lonicera japonica*), winged euonymus (*Euonymus alatus*), multiflora rose (*Rosa multiflora*), Japanese stiltgrass (*Microstegium vimineum*), and garlic-mustard (*Alliaria petiolata*).

Terrestrial Shrubland/Herbaceous Opening (Terrestrial Shrubland) is approximately 8.4 acres in size and identified on the east side of the site. This forest is a mix of understory, shrub and vine, and herbaceous. The dominant plant species are a mix of native and invasive plants. The native plants within this forest type include but are not limited to: ash (*Fraxinus* sp.), eastern red-cedar (*Juniperus virginiana*), blackberry (*Rubus allegheniensis*), goldenrods (*Solidago* spp.), and asters (*Asteraceae* spp.). The invasive plants in this forest type include, but are not limited to: callery pear (*Pyrus calleryana*), Japanese honeysuckle, multiflora rose, goldenrods (*Solidago* spp.), asters (*Asteraceae* spp.)

Terrestrial Forest (Mixed Hardwood Forest) is approximately 7.1 acres in size and is scattered throughout the site. This forest is a mix of canopy, understory, shrub and vine, and herbaceous. The dominant plant species are a mix of native and invasive plants. The native plants within this forest type include but are not limited to: ash (*Fraxinus* sp.). The invasive plants in this forest type include, but are not limited to: Norway maple, tree-of-heaven, Japanese honeysuckle, wineberry (*Rubus phoenicolasius*) shrub honeysuckle (*Lonicera* sp.), garlic-mustard, dame's-rocket (*Hesperis matronalis*).

Terrestrial Herbaceous Opening (Terrestrial Meadow) is approximately 7.1 acres in size and identified predominantly on the west side of the site, with a small

section along the eastern edge. This meadow is mostly herbaceous. The dominant plant species are a mix of native and invasive plants. The native plants within this forest type include but are not limited to: cool-season grasses (*Poaceae* spp.). The invasive plants in this forest type include but are not limited to: Canada thistle (*Cirsium arvense*).

Palustrine Herbaceous Opening (Wet Meadow) is approximately 0.32 acres in size and identified in the center of the east side of the site, and within the largest identified wetland. This meadow is mostly herbaceous. The dominant plant species are a mix of native and invasive plants. The native plants within this forest type include but are not limited to: rushes (*Juncus* spp.) and jewelweed (*Impatiens* sp.). The invasive plants in this forest type include but are not limited to: Japanese stiltgrass.

Palustrine Forest (Red Maple Palustrine Forest) is approximately 0.18 acres in size and identified along the western edge of the site, and within the largest identified wetland. This forest is a mix of canopy, shrub and vine, and herbaceous. The dominant plant species are a mix of native and invasive plants. The native plants within this forest type include, but are not limited to: red maple, sensitive fern (*Onoclea sensibilis*), iris (*Iris* sp.), and jewelweed. The invasive plants in this forest type include but are not limited to: multiflora rose.



Figure 2.7 Municipal Stewardship Assessment Management Unit/Vegetated Map

PNDI Potential Impacts

Pennsylvania Natural Diversity Inventory (PNDI) reports are produced by the Pennsylvania Department of Conservation and Natural Resources and are used to identify any potential threatened, endangered, and species of concern that may be located within a site so that measures can be taken to protect them during any construction activities. To protect the species, they are not identified in the report, but if a site has a species of concern, it is required that follow up be completed with the reviewing agency to determine if additional survey work is required.

Before the consultant started the master plan process, a PNDI report was generated for the eastern portion of the park. The report displayed results of potential impacts and further review required by the US Fish and Wildlife Service (USFWS) and PA Fish and Boat Commission (PFBC). The jurisdictions responses resulted in the previously mentioned Bog Turtle Habitat Assessment completed by Liberty Environmental.

USFWS requested a Bog Turtle Habitat Survey which requires the evaluation of all wetlands within 300 feet of the project area. The assessment by Liberty Environmental summarizes a Regulated Waters Delineation (RWD) and a Phase I Bog Turtle Habitat Assessment which found a bog turtle habitat is not present within any wetlands due to the absence of the appropriate soils and hydrology.

The PFBC identified one sensitive species. There is no evidence on the assessment that Liberty Environmental followed up with the PFBC. An additional draft PNDI report was generated for the western areas of the site and can be found in the appendix. As a result, U.S. Fish and Wildlife Service (USFWS) stated the following avoidance measures:

- Do not conduct this project/activity within 300 feet of any wetlands or vernal pools
- Do not conduct this project/activity within 50 feet of any streams, rivers, creeks, or tributaries. This includes both perennial and intermittent waterways.

At the master plan level, there is no need to follow up with FWS at this time, as this section of the site does not propose development in the above listed distance near any identified wetlands or stream. If in the next phase of construction, the design development design team agrees to implement the above Avoidance Measure and if applicable, any Information Requests, no further coordination with the agency regarding threatened and endangered species and/or special concern species and resources is required. At the next stage of design for construction, the inability to comply with the Avoidance Measures, will require coordination with this agency.



Eroded stream that flows down to the Branch of the Perkiomen Creek



Photos of current access into the site from Township Line Road, view shed north on Township Line Road, and viewshed north on Salem Road (from top to bottom)

Utilities

Based on the survey provided by SSM, there are only three utilities located on site. In the northwest corner of the site adjacent to Township Line Road, there is an active fire hydrant. Adjacent to the existing driveway is a well (this should be closed by the Township) and along the eastern edge of the park boundary is a telephone box. The closest water line is located along the eastern edge of the site that abuts the Maple Hill Association, between the road and the park property line.

Also, the closest stormwater line and stormwater inlets can be found in the Highland Manor parking lot, and along Salem Road. Around the east corner of the site is a manhole, which is the junction point of the outflow pipe. This outflow pipe is a 24" RCP with a concrete headwall.

Circulation and Access

The site is situated between two roads: Salem Road along the property's eastern edge, and Township Line Road along the property's western edge. Currently there is vehicular access in and out of the site from the existing Township Line Road driveway at the former Huber Residence Property. The only pedestrian access into the site is currently from mown trails near the Highland Manor parking lot. The mown trail access leads to the shrubland area of the park, and the trail becomes less delineated further into the site.

Opportunities and Constraints

Topography

Although there are many steep slopes on site, the opportunity for an ADA accessible primary trail stretching across the entire site can occur with the inclusion of two (2) pedestrian bridges or culverts. The pedestrian bridges allow a connection between the east and west areas of the site, with access over two steeply eroded swales that lead down to the branch of the Perkiomen Creek.

Areas with steepness between 5% and 8% should also be considered as part of the park's trail system. The terrain that ranges within that slope can make for interesting and dynamic hiking trails throughout the woodlands for able body users.

The larger, flatter areas in the northwestern and northeastern area of the site, lend themselves to become areas for parking or a larger community gathering space. The smaller, flatter areas in the southeastern area of the site allows for a picnic space, or more intimate gathering area. Existing swales offer the opportunity to regrade and implement BMPs of stormwater management.

Hydrology, Soils & Vegetation

To preserve the respect of the wetland and watercourse buffer zones, the master plan should establish heavily vegetated riparian buffers (see Figure 2.6). The stream buffer of 150' from the top of bank is both a constraint and an opportunity to restore the health of the stream. Restrictions for wetlands and watercourses include a 25' buffer which could pose an opportunity to protect the wetlands and stabilize the eroded slopes of the existing watercourses. The master plan can allow for the stream restoration to inspire and educate children and adults alike about the importance of our waterways.

The existing woodlands and shrublands add to the site's character, which this master plan seeks to enhance and use and as educational tool and as a natural buffer from the surrounding residential parcels. In order to make sure the forest is healthy and successful through future design stages, it is recommended by the Municipal Stewardship Assessments to create an Invasive Species Management Program. The relationship of the woodlands and health of the understory/woodland edge is a consideration to strengthen the habitat opportunities of the site.

The branch of the Perkiomen Creek on site and the proximity to the Perkiomen Creek offers the potential for a proposed greenway or wildlife corridor, as identified in the Perkiomen Township Open Space Plan. Deer are present within the area and protection from deer browsing and rutting will need to be considered for any future plantings.

Stormwater Management

During design and engineering of park improvements, the development and implementation of stormwater best management practices (BMPs) may include above surface water quality BMPs. The existing swales offer opportunity to regrade and implement BMPs, such as, rain gardens or bio-swales to help infiltrate stormwater and/or slow the release of collected stormwater runoff during large rain events. The benefit of implementing BMPs designed to slow the velocity of stormwater runoff is to help prevent further erosion and degradation alongside of the existing watercourses flowing down to the Branch of the Perkiomen Creek.

Access

In its current condition, the park is not fully accessible per the Americans with Disabilities Act (ADA) standards. The site's proximity to Highland Manor, which is home to many elderly residents, highlights the importance of creating access for all. Access from Schwenksville Elementary into the park creates opportunities for engagement and education, which will benefit the park and the school students. A paved path throughout the site and parking provided off each road entrance can provide an accessible experience to the park's amenities.

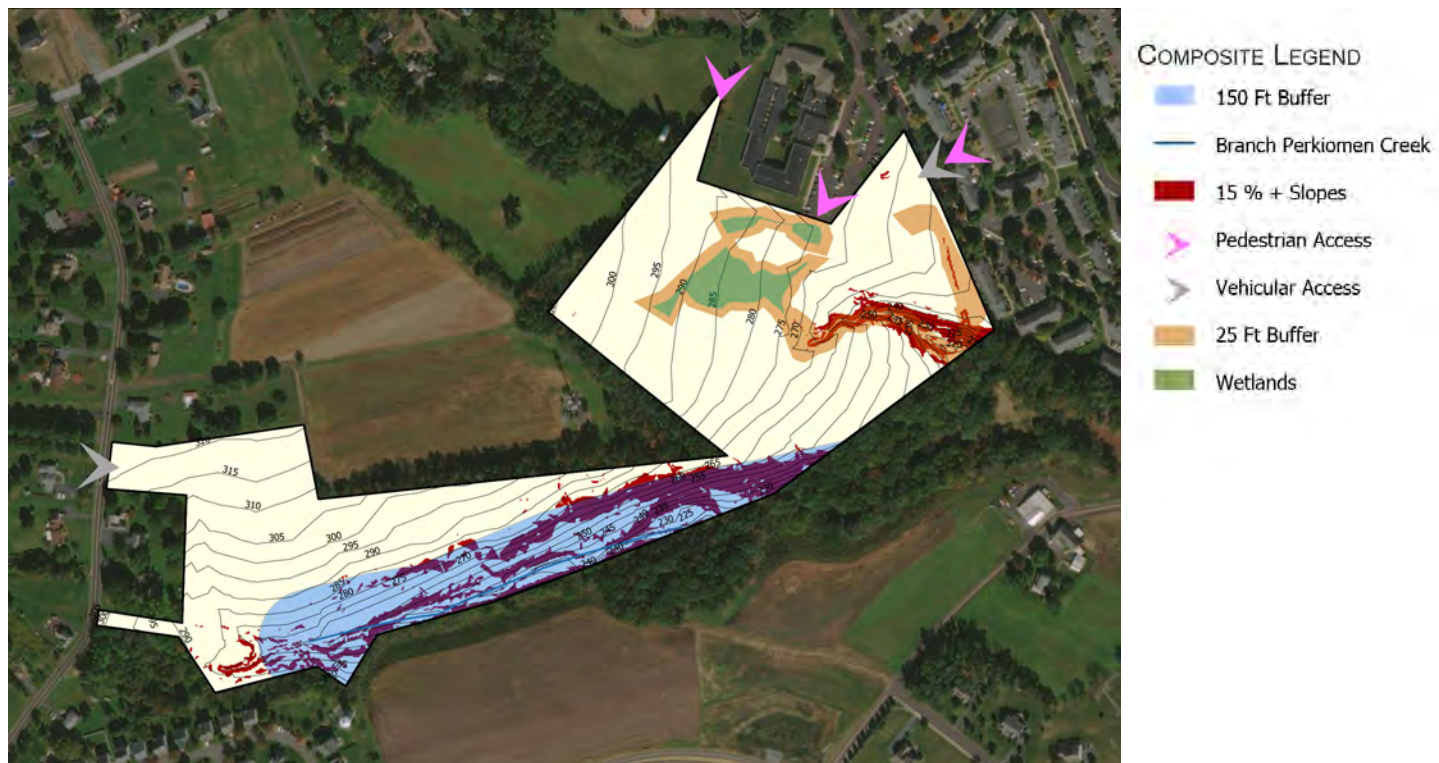


Figure 2.6 Composite Analysis Map



The image is a full-page background photograph of a forest. The upper portion shows a dense canopy of bare, dark tree branches against a pale sky. The lower portion shows a forest floor covered in fallen brown and orange leaves. Several tree trunks are visible, and a fallen log lies horizontally across the lower third of the frame. A blue rectangular box is overlaid on the right side of the image, containing the page number and title.

3

Activities Analysis & Recommendations



Community Needs and Uses

Highland/ Huber Park will function as a neighborhood park for Perkiomen Township. Of the survey respondents, 95.7% live within Perkiomen Township and 36% had lived there for over 20 years. When the public was asked what is desired for Highland/ Huber Park it became apparent that the offerings of the Park need to meet the needs of this community, while maintaining the integrity of this natural setting. Throughout the process three major community needs were identified:

Hiking Trails & Universal Access

Walking and jogging trails were the number one facility requested for the Park in the public survey. People noted the importance of being able to walk or run along a trail and experience all the areas of the Park. The conditions and gradients make traversing the Park difficult for people with disabilities. The Park master plan should assure access to all programmed spaces of the Park, while providing additional steeper hiking trails to explore the Park's woodlands.

Range of Community Spaces in a Passive Setting

The master plan strives to create spaces in the new park for community interaction. . New park facilities should offer a variety of spaces to facilitate these interactions. Also, the public survey indicated that restrooms are a desired necessity.

Spaces for Nature Viewing /Education

Most participants in the master plan process indicated a desire to maintain the natural setting of the site in the new park as a way to view and learn about the natural world.

Design Standards

Township Zoning and SALDO Ordinances

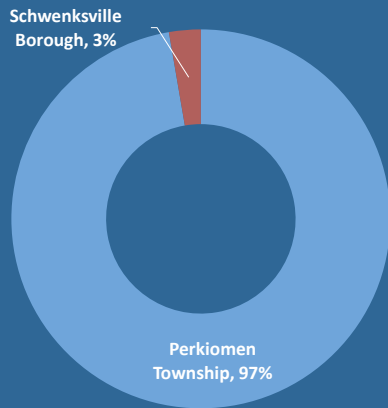
Development of the Park should conform to relevant sections of the zoning code including the following.

The following building setbacks in the R2 Zoning District:

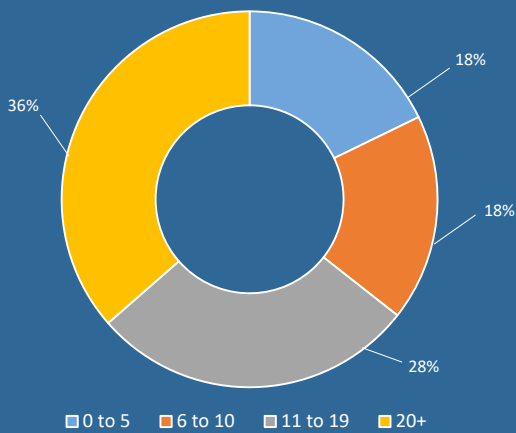
- Minimum of a 75 feet front yard, 50 feet rear yard, 20 feet side yard.

The following building setbacks standards in the ER Zoning District:

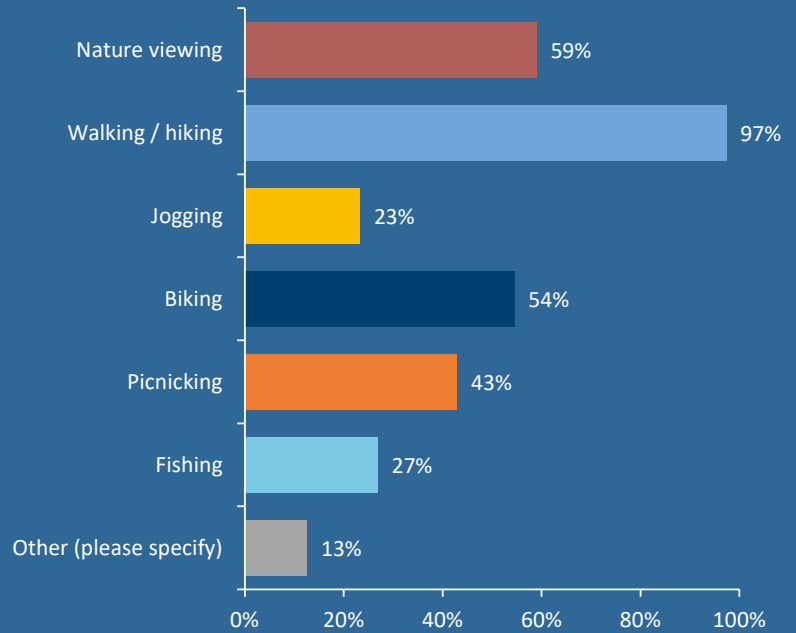
- No building, parking area or driveway shall be located within 75 feet of a tract boundary when the adjacent property is zoned for single-family residential use, except for the portion of a driveway necessary for normal ingress and egress.
- Minimum of 30 feet setback for all buildings.



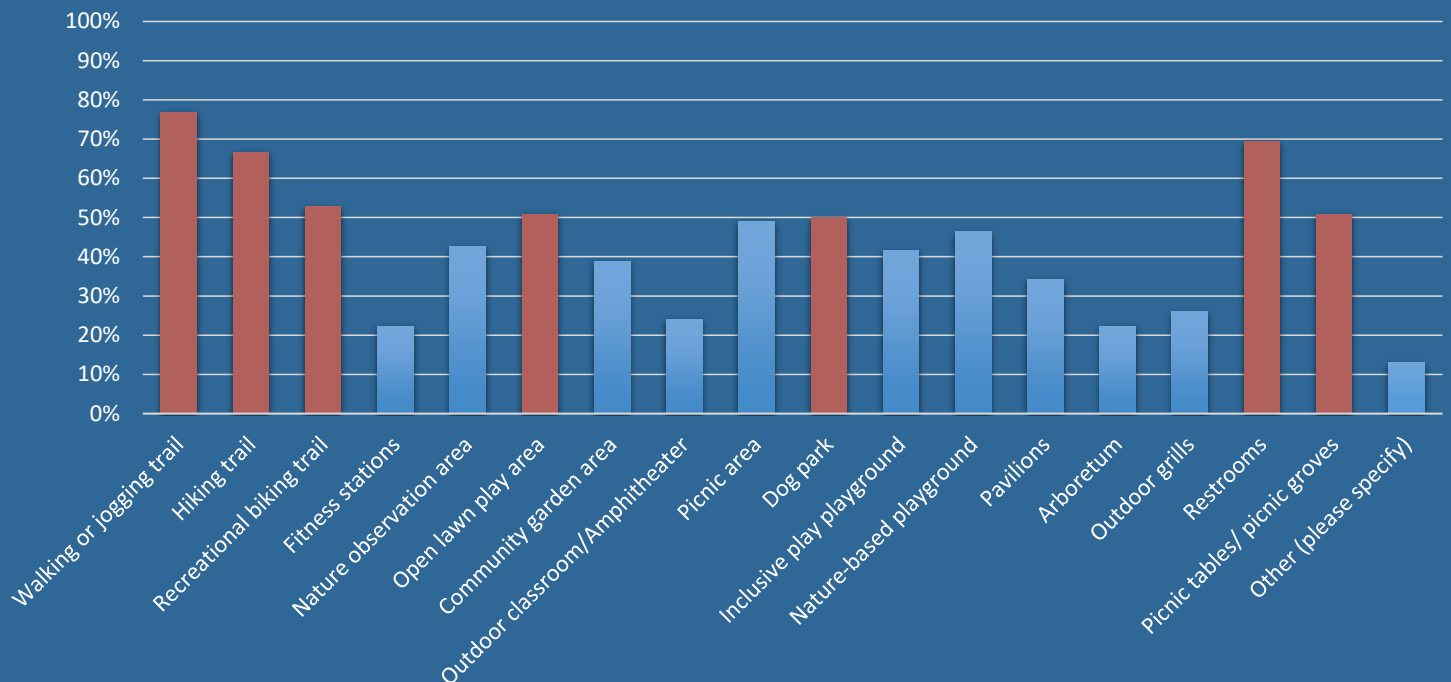
94 out of 99 respondents live in Perkiomen Township.



Over a third of respondents have lived in Perkiomen Township for 20 or more years.



Ranked passive recreational opportunities respondents want from Highland/Huber Park.



Ranking of new or improved facilities respondents would like to see included in Highland/Huber Park.

Subdivision and Land Ordinances (SALDO)

Development of the Park should conform to relevant sections of SALDO code.

Zoning District Recommendations

While municipal use of this land can override the underlying zoning, the master plan recommends that the area of the park zoned E-R to be rezoned as R-2, or to a new open space zoning district that could be created by the Township. Since this land was not purchased with designated open space funding, there is nothing that permanently requires the township to maintain these lands as open space in perpetuity. While the land is not well suited to other types of development, this may be a reasonable safeguard on this open space when thinking 100 years into the future. An additional recommendation is to make the existing three (3) parcels one lot.

Uniform Construction Code

Pennsylvania's statewide building code is referred to as the Uniform Construction Code (UCC). Enforcement of the UCC began in April 2004, and since then over 90% of Pennsylvania's 2,562 municipalities, Perkiomen Township included, have elected to administer, and enforce the UCC locally. The UCC includes various industry building standards like the International Building Code (IBC). A listing of the full code can be found at the following link: <https://www.dli.pa.gov/ucc/Pages/default.aspx>

Universal Design Standards (Accessibility)

The Americans with Disabilities Act (ADA) Standards for Accessible Design serve as a baseline accommodation standard for building accessibility in the United States. These are standards mandated by federal statute. Public recreation improvements should be designed following the most recent edition of the ADA Accessibility Guidelines for Buildings and Facilities when possible. The most recent version of the ADA Accessibility Guidelines for Buildings and Facilities can be found at: <http://www.ada.gov>. The UCC includes compliance with the ADA Accessibility Guidelines for Buildings and Facilities. These standards will play a key role in the design of Highland/Huber Park to assure that universal access is achieved for most facilities, and the facilities function for users of all abilities.

Additional guidelines have been developed to provide guidance for outdoor recreation facilities including trails. The Highland/Huber Park primary path system should be as inclusive as possible. The full guidelines can be found at: <http://www.access-board.gov/guidelines-and-standards/recreation-facilities>

Consumer Product Safety Commission (CPSC)

CPSC administers and enforces several federal laws. These laws authorize the agency to protect the public against unreasonable risks of injuries and deaths associated with consumer products. As such the CPSC sets standards for safety on playgrounds. The development of playgrounds in the Park should comply with all relevant CPSC codes.

Permits

The National Pollutant Discharge Elimination System (NPDES) Permit

As a federal permit that is administered at the state level, the overall goal of the NPDES permit is to improve water quality. Projects that disturb over one (1) acre of land require to obtain an NPDES permit for Stormwater Discharges Associated with Construction Activities. Highland/Huber Park will require this permit for construction.

The permit plans are divided into two (2) parts. The Erosion & Sedimentation Pollution Control plans (ESPC) are to be implemented by the contractor throughout construction activities until the site is stabilized by permanent plant growth. The Post Construction Stormwater Control Plans (PCSC) are to be constructed during the project and maintained by the site owner for the life of the project.

DEP Chapter 105 Water Obstruction & Encroachment General Permits

In addition to the NPDES permit, DEP may require a Chapter 105 Water Obstruction & Encroachment General Permit. These permits are required when construction activities impact existing waterways and wetlands. Any work within the area of the Branch of the Perkiomen Creek may require as Chapter 105 permit.

Stormwater Best Management Practices (BMPs)

The Pennsylvania Handbook of Best Management Practices for Developing Areas, by the PA Department of Environmental Protection (DEP), offers numerous solutions for handling on-site stormwater. Where feasible, BMPs should focus on vegetated / surface solutions to create opportunities that combine planting improvements with stormwater management and for education. BMPs that might be implemented at the Park include:

- Protect and restore forest buffers.
- Protect / utilize natural stormwater flow direction.
- Habitat restoration.
- Soil amendments.
- Native tree and shrub planting.
- Rain gardens.
- Bio-swales.

Incorporation of these BMPs into park development will have a positive impact on preserving and enhancing water quality. The opportunity for education exists through the placement of interpretive signage to educate park visitors about water quality and how BMPs can positively impact this site.

Stormwater Best Management Practices may also help the Township in achieving its mandated township-wide goals in its MS4 (Municipal Separate Storm Sewer System) permit. As improvements are being designed at Highland/Huber Park, there should be coordination with the Township on how park improvements might positively impact the MS4 permit and plan.

Sustainable Site Design

Native Plant Material & Invasive Plant Removal

The use of native plants supports the vision of enhancing the natural ecosystems within the Park. The planting design for the Park should include shade tree plantings; canopy tree, understory tree and shrub plantings suitable for the indigenous woodlands; and canopy tree, understory tree and shrub plantings suitable for the proposed food forest. Habitat restoration in some areas of the site should include native riparian buffer 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. Once established, native plants require little or no irrigation or fertilizers. In addition to the above benefits, native plants provide food and habitat for indigenous fauna.

Disturbed lands often allow invasive plant materials to establish on a site. A program for controlling invasive plant species within the Park should be undertaken. The Township should seek to replant areas of invasive removal with native plants. This is a labor-intensive task, ideally suited

for volunteers, including school, church, or scout groups.

Areas of the park recommended for reforestation should utilize native plant species.

Maintenance and Establishment of Riparian and/or Forest Buffers

Areas within or near the site boundaries that could benefit from enhanced buffer protection include property borders with neighbors, existing wetlands, existing meadowlands, and the existing forest canopies within the Park. Enhancement of these areas should include management of invasive species; restoration of understory plantings; and additional tree planting.

“Green” Practices

Choices in materials have the potential to affect the health of a site ecosystem as well as the larger environment. Every material has a life cycle cost, including raw materials and natural resources, product manufacturing, 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):

- 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 re-used?
- Work towards zero net waste in demolition, construction, and management.

Additional guidelines on green building standards are included in the SITES and LEEDS programs.



Development of native plant riparian buffer will help reduce erosion and increase wildlife habitat.

The Sustainable Site Initiative (SITES)

The SITES criteria promote sustainable land development and management practices for sites with and without buildings. SITES standards focus on site development practices and are often overlooked by “green” building standards. The SITES “system” 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/>

LEED

Also developed by the USGBC, the LEED program is a globally recognized, highly effective green building rating system that strives to “optimize the use of natural resources, promote regenerative and restorative strategies, maximize the positive and minimize the negative environmental and human health impacts of the building industry, and provide high quality indoor environments for building occupants”.

More information about the LEED program can be found at: <https://new.usgbc.org/leed>

Design Elements and Facility Standards

Primary Walkways

An 8 -foot-wide asphalt primary path is proposed to provide an ADA-compliant path throughout the Park. The asphalt surface will provide a level and stable walkway while minimizing maintenance. Walkway shoulders should be 2-feet in width, level, and maintained as mown lawn. Walkway slopes should conform to the Access Board Accessible Trail Standards with the goal of maintaining a slope of less than five percent (5%) for the entire trail system. Walkway cross slope should not exceed 2% and the surface should be clear and level free of any vertical obstructions. Along the walkway, benches are recommended in regular intervals to allow for users to stop and rest. Benches should be located at least two (2) feet from the edge of the trail.

It is recommended to maintain a minimum 150' distance from the edge of the path to neighboring residential properties.

Secondary Walkways

A system of 5-foot-wide asphalt walkways are proposed to provide ADA-compliant connections to proposed facilities. The material provides an economical, level, and stable walkway while minimizing maintenance. Along longer walkways, benches are recommended at regular intervals to allow users to stop and rest.

Boardwalk

A 5-foot-wide wooden or metal grate boardwalk is proposed to provide ADA-compliant pathway through the largest wetland on site. These materials provide an economical, level, and stable walkway while minimizing the ecological impacts within the wetland. Metal grate surface may be required as a part of the required permit if regulators are concerned with shade cast by the boardwalk on habitat below.

Hiking Trails

Compacted earthen surfaces are typically used for hiking and are often used to navigate environmentally sensitive areas. Hiking trails do not often meet ADA requirements; however, ADA trail guidelines for hiking trails should be referenced when determining final trail alignments.

The installation of the earthen hiking trails should ensure they are free of tripping hazards. Final trail alignment should minimize impacts to slopes and trees, and limit erosion. Trail design should follow best management practices.

Nature-Based Playground(s)

Playgrounds nurture knowledge, discovery, and curiosity through play. A successful playground helps children to build fitness, confidence, imagination, and social bonds. Because of the site's natural setting, it is proposed that the playground incorporates nature-based and inclusive elements to provide a unique play experience not to be found elsewhere in the region.

Nature-based playgrounds use natural features such as boulders, landforms, tree trunks, and other natural elements in combination with manufactured equipment to create unique play environments that challenge children to use their imaginations and athletic skills in play. The proposed nature-based play area surfacing is Fibar (a manufactured shredded-wood product). Fibar wear mats should be incorporated in high-impact areas and along accessible routes to the tunnel and swings. Fibar is a handicapped accessible play surface and when properly installed and maintained, meets Consumer Product Safety Commission standards for fall cushioning safety.

Shade Pavilion

A pavilion, 20-feet by 20-feet, will accompany the open space lawn area adjacent to Salem Road, to provide shade for park visitors and picnickers. Picnic tables should be durable, easily cleaned, and accommodate wheelchairs.

Maintenance Building

A maintenance building, 30-feet by 20-feet, will store tools and supplies needed for the upkeep of the Park. This structure may be needed by the Township. A small

driveway off the main driveway into the Park will provide maintenance vehicles a designated area to park. The layout of the building and driveway should be designed to allow for a vegetated buffer that will keep the driveway and building screened, while maintaining the experience of a natural landscape.. The primary path will also accommodate maintenance access. Design decisions during final construction should be coordinated with the maintenance staff, to ensure that this structure and maintenance area meets the needs of the staff and park.

Restroom & Storage Pavilion

A restroom and storage picnic pavilion is recommended. The design of the pavilion should be economical and durable while offering a quality of design that helps to reinforce a cohesive park identity. The new pavilion is recommended to be approximately 30-feet by 20-feet with slightly less than half of the pavilion being enclosed space for restrooms and storage and the other remaining half being a small open-air pavilion accommodating 10-20 people. Picnic tables should be durable, easily cleaned, with 50% accommodating wheelchair access. Utility service to the pavilion should include electrical, water, and sewer. A drinking fountain with bottle filler should be included in the pavilion area.

Proposed restroom facilities should conform to current ADA standards for stalls and sinks. Fixtures should be durable and low maintenance. Consideration should be given for at least two single/family occupancy toilets as opposed to separate women's and men's restrooms. Consideration should be given to heating the restrooms for year-round use.

Community Garden

A community garden space is recommended. A fenced in area of approximately 110-feet by 30-feet wide would accommodate 16, 8-foot by 4-foot raised beds. Two to four of the beds should be wheelchair accessible. The garden surface should be permeable stone dust and 5-feet wide to accommodate wheelchairs turning.

The area could either be rented as individual plots to residents or maintained by a local club with the produce being donated to a local charity or foodbank. If construction of the garden is funded with DCNR (Department of Conservation and Natural Resources) or state funds, access to the area must be allowed to all members of the public and produce cannot be sold for profit.

There also may be opportunities for residents of Highland Manor Retirement Home to work with students of the adjacent elementary school on garden projects. Interest and commitment by the community should be determine before the garden is constructed. It can also be constructed in phases as interest grows.



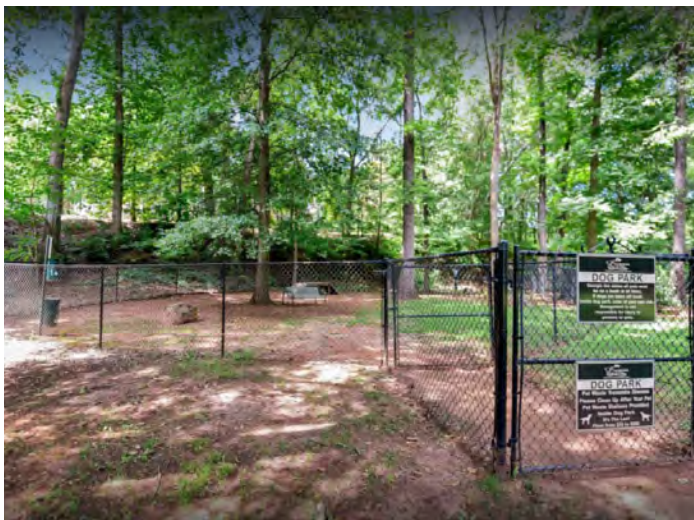
Natural elements, such as logs, boulders, mulch and grass mounds are commonly used in Nature-Based Playgrounds.



An example of a classic park pavilion with restrooms and storage provided within the enclosed area.



Raised wooden beds with a crushed gravel walking surface is one example of how a community garden may be designed.



A dog park should include signage on the front gate to indicate the rules and regulations.

Dog Park

A dog park creates a space for humans and their pets to socialize. A dog park will encourage daily use of the Park and can be utilized from dawn to dusk. Providing a constant presence throughout the day creates a sense of security in the Park. Dog park use can require patrons to purchase low cost permits that give access via a key fob entry that encourages people to follow the dog park rules

An area for small dogs and an area for large dogs is recommended. A minimum 5-foot tall fence surrounding the parks is recommended. A gated corral is placed at the entry, to allow dogs to enter, while allowing the dogs in the park to remain enclosed. A trash receptacle to allow waste disposal is required at each park. Benches and a dog water drinking fountain at each dog park is recommended as well.

Site Furnishings

Site furnishings provide needed amenities in the park landscape. These improvements include benches, trash receptacles, and signage. In high-use areas, these amenities should be chosen to be durable, cohesive with the design and materials of elements in the Park and surrounding neighborhood and meet ADA standards. Along walkways, benches should be placed periodically. Half of all new benches in the Park should be ADA accessible with direct access from a paved area and an adjacent paved area for a wheelchair. Benches should also be placed at educational nodes. Trash receptacles should be strategically placed at park entrances and high use areas such as the dog parks, outdoor classroom, nature-based playgrounds, and pavilions.



Fundraising efforts can lead to the installation of new benches and picnic tables for the park.

Park Signage

Park signage are proposed throughout the park for wayfinding, informational, and educational purposes. The signage includes a Highland/Huber Park entrance park sign, a rules sign, and interpretive signage at key points of interest.

A Highland/Huber Park entrance sign is proposed at the Salem Road driveway entrance. Nearby Park Rules Signage should not Park regulations, hours of operations, emergency contact numbers, and other relevant information. If an entrance is developed on Township Line Road, a park identity sign and rules and regulations sign should also be placed here. Also, property boundary signs are proposed along throughout the perimeter of the site.

Opportunities for interpretive signage should be included along the primary path and near observation areas to highlight the park's environmental features. An example would be to incorporate the historical significance of the Lenape people through tree identifications labels that would include the English name, scientific name, and Lenape name. Park signage should be thoughtfully designed by a professional.



Park signage can include plant identification with interactive QR codes to learn more about the species.

Ecological Improvements

Riparian Buffer and Streambank Restoration

Portions of the intermittent channels have been eroded and check dams are proposed along the stream to help manage runoff into the larger Branch of the Perkiomen Creek.

In coordination with the streambank restoration, a riparian buffer should be established along the length of the perennial stream and the larger Branch of the Perkiomen Creek. A riparian buffer is an area along the stream maintained with native vegetation that helps stabilize floodplain soils and helps to slow down floodwaters during storm events. A 150-foot buffer is recommended for the larger Branch of the Perkiomen Creek corridor and should focus on the planting of native shade and understory trees in combination with native understory shrubs. A smaller buffer 25-foot buffer is recommended for the intermittent channels. The planting should be selected to offer both wildlife habitat and year-round color and interest.

Tree Planting and Reforestation

The re-establishment of a tree canopy on several areas of the park will also benefit the stream corridor. Reforestation efforts will also allow the community to observe the stages of forest succession. Initially, these areas could still be maintained as low mow grasses that only require periodic mowing. As the canopy is established native understory shrubs and ground cover should be planted in these areas.

There are areas along park boundaries where reforestation may be appropriate to maintain the visual privacy of adjacent property owners. The plan proposes to reforest the existing western meadow area adjacent to homeowners to create a semi-transparent buffer from the paths and trails. . Some locations within the park may require a denser evergreen buffer; Borough staff should maintain open communications with residents during the design of these buffer plantings.



Streambank restoration can include rock check dams and embankment plantings.



Figure 3.1 Concept Plan 1

Preliminary Concept Plans

Based on preliminary site analysis, field reconnaissance, and preferences outlined during the first two Master Plan Committee meetings and the first public meeting, the consultant team created three preliminary concept plans. The concepts were a way to explore relationships between potential park improvements and to identify preferred program elements.

Concept 1

This concept minimizes the amount of structural development and focuses on developing a trails system. The primary path is accessible from Salem Road and connects the site from east to west using two pedestrian bridges, with interpretive signage and seating along the path. There is a small loop on the west side that guides users back to the east side of the park. A series of secondary trails travel down steeper terrain on both the east and west sides and terminate at observation decks overlooking the Branch of the Perkiomen Creek.

On the east side, a vehicular access is proposed via Salem Road, with two stormwater management BMPs proposed to the north and south of parking lot. An additional buffer, west of the existing tree line along Salem Road, is recommended. A pavilion with restrooms is positioned adjacent to the parking lot. Amenities can be found along this portion of the primary path; such as, an observation deck overlooking the largest wetland, an outdoor classroom positioned closest to the nearby Schwenksville Elementary School, a small pavilion with picnic tables, and a look-out platform.

On the west side, there are minimal amenities. The space primarily functions for hiking, contains small picnic areas and observation areas over the Creek. In order to screen these amenities from the neighboring residents, a heavy vegetated buffer is proposed along the properties, and the existing meadow is proposed as restored woodlands.



Figure 3.2 Concept Plan 2

Concept 2

Concept 2 is more developed, with amenities provided on both the east and west sides. On the eastern side, the secondary path is positioned closer to the stream restoration with observation benches. The west side trail leads to the Branch of the Perkiomen Creek with an observation deck.

On the east side, a vehicular access is provided at Salem Road with a small parking area along the drive, with a stormwater BMPs above the parking lot. A larger parking area is shown at the end of the drive. The large parking area terminates at a pavilion with restrooms that are adjacent to a nature-based play area. A community garden and outdoor classroom are positioned near Schwenksville Elementary School.

A vegetated buffer is shown along western boundary of site, and also around the nature-based play area at the east side of the park, near Salem Road.

A dog park is situated adjacent to the maintenance building. The large dog park is sized at slightly above 1 acre and small dog park just below 1 acre and are located in the western area of the site. Along the property line adjacent to the dog parks is an 8-foot-tall opaque fence and a vegetated buffer to shield views and noise from the adjacent residents.



Figure 3.3 Concept Plan 3

Concept 3

This concept allocates most amenities on the east side of the Park, and adds only trails on the west side. The primary path is accessible from Salem Road and Township Line Road and connects the site from east to west using two pedestrian bridges. Exercise stations are positioned along the primary trail. There is a secondary trail located on both the east and west sides of the Park.

The Salem Road driveway access leads to two (2) parking areas. A pavilion with picnic tables and a grass area is located near the first parking area. A larger parking area is located further along the drive with a larger pavilion, picnic area, playground, and community garden positioned toward Schwenksville Elementary School. A small and large dog park is located on the west side of the eastern park area, with a proposed vegetated buffer on the property boundary.

A boardwalk is located to provide pedestrian access over the largest wetland. Lookout stations are positioned near the stream restoration. A pedestrian bridge is proposed on the path connecting from the Salem Road pavilion over a watercourse to the primary path. There are also two secondary paths positioned closer to the stream restoration at the intermittent stream and observation benches.

On the west side, a small parking lot is situated off of Township Line Road, with a maintenance building positioned north of the parking area. A restored meadow with habitat boxes is proposed around the primary path, along with some areas of woodlands. A proposed trail leads to the Branch of the Perkiomen Creek with an observation deck.

Public Consensus

Concept 3 was widely supported based on the location of the dog park and the configuration of the Salem Road vehicular access leading to two (2) parking areas, with the smaller parking lot located closer to Salem Road. However, it was determined that the current meadow area is stronger ecologically as a reforested area and that vegetated buffers as woodlands would be more visually appealing for neighbors. Also, instead of exercise stations identified in Concept 3, it was preferred to have areas for seating and interpretive signage.

Based on feedback from the public and the Committee, the team developed a draft master plan. The following program elements were identified by the public and committee for inclusion in the draft plan:

- Hiking Trails
- Nature-Based Playground
- Parking
- Pavilions
- Restroom and Storage
- Picnic Areas
- Community Garden
- Outdoor Classroom
- Lookout Platforms
- Interpretive Signage
- Stream Restoration
- Stormwater Management
- Small and Large Dog Park
- Food Forest

Draft Master Plan

The plan has four primary components: Primary path, additional paths and trails, East side of the park, and West side of the park.

Primary Path

The primary path is 1.0-mile in length and connects the east and west areas of the park with two (2) pedestrian bridges. The primary path is accessible from Salem Road, and hugs the length of the driveway that extends north through the wetlands. Then the path follows the edge of the dog parks, and travels downslope in a serpentine motion, to keep the path as flat as possible. Within the central stretch of the primary path, where the pedestrian bridges are located, educational nodes are placed at interval distances to allow for an area with benches and educational signage. Proceeding west, the primary path

forms a loop to direct users back to the eastern side of the park. From the loop, the primary path extends over towards Township Line Road to allow access from the parking lot. It is to be noted here that the pedestrian access from the Township Line Road parking lot and not the street, as there are no sidewalks existing on Township Line Road.

Improvements include:

- 1.0-mile long primary path with loop on west side
- 0.71-mile hiking trails
- Two (2) pedestrian bridges
- One (1) ADA accessible lookout platform
- Five (5) Educational nodes with furnishings: signage and benches

Additional Paths and Trails

The secondary paths will direct access from Highland Manor and Schwenksville Elementary onto the primary path. The entrances from each site should be clearly defined as public entrances into the park through inviting gateway features such as durable signage, arches, or plantings.

The hiking trails total to 0.71-mile of trails, weaving through the east and west areas of the park, both leading to closer views of the Branch of the Perkiomen Creek and intermittent streams. All the hiking trails offer either a lookout platform at the terminus or along the trailway. Each of these lookout platforms are recommended to have educational signage and benches.

A boardwalk throughout the largest wetland provides an educational component to the community as well as a different scenery from the rest of the park. The boardwalk provides access to the primary path that avoids passing by the dog parks.

Improvements include:

- Secondary (connection) asphalt paths
- 0.38-mile long 5' wide earthen trails on east side
- 0.27-mile long 5' wide earthen trails on west side
- Five (5) lookout platforms with two (2) benches and (1) interpretive signage
- 5' wide wooden boardwalk

East Side of Park

The east side of the park comprises most all of the community-focused amenities because of the proximity between Maple Hill Development, Highland Manor, and Schwenksville Elementary. The driveway from Salem Road will provide a main access point for vehicles. One parking lot is located closely towards the entrance of the driveway and will provide immediate access to an open lawn picnic area with a small pavilion. This area is envisioned for small gatherings from the surrounding neighbors.

Surrounding the entrance are various stormwater management practices intended to help slow the velocity of the runoff and prevent more erosion occurring. Starting at the existing culvert, stormwater management practices include a rain garden, a culvert under the driveway, bioswales, and stream restoration through riprap fill and bank stabilization. The intermittent stream flowing down from the wetland is also proposed to have check dams as part of the stream restoration.

Moving into the park along the driveway, a maintenance building is proposed to allow for the Township to store tools and equipment needed to help maintain the Park. A small driveway off of the main driveway offsets the position of the maintenance building to allow for a vegetated buffer that will keep the building screened.

At the end of the driveway is the main parking lot, and essentially the hub for the community amenities. The area between the main parking lot and Schwenksville Elementary lends itself to become a space for larger gatherings. A pavilion with restrooms and storage is located within this area, alongside a nature-based playground and community garden. South of the main parking lot is a wooded area with an outdoor classroom tucked within it. On the western side of the main parking are a large and small dog park. It is key that these areas are accessible by car for populations that cannot walk far distances to enjoy these spaces.

Area improvements include:

- Vehicular access from Salem Road
- Front parking lot – 10 spaces (1 ADA)
- Main (back) parking lot – 12 spaces total (1 ADA)
- Small pavilion – 20' x 20' with furnishings: trash receptacle, water fountain, four (4) picnic tables
- Large pavilion with storage and restrooms – 20' x 30' with furnishings: trash receptacle, water fountain, four (4) picnic tables

x 30' with furnishings: trash receptacle, water fountain, four (4) picnic tables

- Large dog park and small dog park with furnishings: corral, trash receptacle, dog water fountain, eight (8) benches
- Community garden with 20 raised beds
- Nature-based playground with furnishings: logs, log stumps, slide on mound, and four (4) benches.
- Outdoor classroom with log stump seating
- Open lawn space
- Stormwater management features

West Side of Park

The west side of the park incorporates mainly trails and passive elements in order to maintain a quiet and secluded area for park users and surrounding neighbors. The existing meadow and turf area now includes a reforested woodland, which will grow to become a dominant screen between the park and the neighbors while creating additional woodland habitat.

A food forest is contained within the loop of the primary path to serve as an educational element for the community and benefit the surrounding habitat. Central of the food forest is a mulched picnic area to support a “food-to-table” concept. Directly west of the primary path loop and food forest is a parking lot to provide vehicular access from Township Line Road.

Improvements include:

- Vehicular access from Township Line Road
- Parking Lot – 9 spaces (1 ADA)
- Reforestation Area
- Food Forest
- Picnic Area with furnishings: trash receptacle, and four (4) picnic tables



Figure 3.4 ADA Plan



Legend

- 1 Front Parking Lot – 10 Spaces
- 2 Small Pavilion – 20' x 20'
- 3 Rain Garden
- 4 Bioswale
- 5 Stream Restoration
- 6 Lookout Platform
- 7 Maintenance Building – 30' x 20'

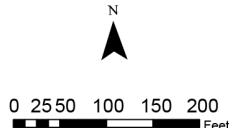
- 8 Nature-Based Playground
- 9 Community Garden
- 10 Pavilion with Restroom and Storage Area – 30' x 20'
- 11 Outdoor Classroom
- 12 Main Parking Lot – 12 Spaces
- 13 Boardwalk
- 14 Small Dog Park

- 15 Large Dog Park
- 16 Pedestrian Bridge
- 17 Food Forest
- 18 Seating Area
- 19 Township Line Road Parking Lot – 9 Spaces

- Primary Path – 8' width
- Secondary Path – 5' width
- Hiking Trail – 5' width
- Seating with Interpretive Signage
- Reforestation
- Wetlands



Highland/Huber Park Master Plan Perkiomen Township, Montgomery County, PA





Mainteance vehicles currently access the site from the existing driveway located off of Township Line Road.

Existing Maintenance

The park is currently maintained by the Perkiomen Township Department of Open Space / Parks and Recreation. Due to the existing natural state of the park, the maintenance is minimal. Current routine maintenance includes trash removal and grass mowing.

Maintenance Responsibilities

The Park designs seeks to minimize maintenance costs while providing a beautiful and functional park. New park improvements will require regular inspections and periodic repairs. The additions of restrooms and the water splay pad will add to the current park maintenance regime.

Walkways should be regularly inspected and maintained. Regular inspections and periodic repairs of park structures and playgrounds will be necessary to maintain the quality of facilities. Regular maintenance of the restroom facility and trash removal will be required at a frequency based on the season of use. Restrooms should be locked at night to deter vandalism. During the winter, snow should be removed from all hardscaped areas.

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

January

- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Clean restroom once weekly (4)
- Trash removal weekly (4)
- Snow removal from primary walkways, parking lots and driveway (as required).

February

- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play equipment weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Signage inspection and repairs (1)
- Inspect and mechanically remove invasive plants (1)

- Clean restroom once weekly (4)
- Trash removal weekly (4)
- Snow removal from primary walkways, parking lots and driveway (as required).

March

- Inspect trees for winter damage / perform work (1)
- Inspect structures / make repairs (1)
- Inspect trees for winter damage / perform work (1)
- Inspect BMP's, remove debris (1)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
Clean restroom once weekly (4)
- Inspect and mechanically remove invasive plants (1)
- Trash removal weekly (4)
- Snow removal from primary walkways, parking lots and driveway (as required).

April

- Inspect walkways, trails, bridges & culverts/make repairs (1)
- Inspect nature-based play equipment weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Clean restroom twice weekly (8)
- Trash removal weekly (4)

May

- Clean restrooms twice weekly (8)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)

June

- Clean restroom twice weekly (8)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)

July

- Clean restroom twice weekly (8)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)

August

- Clean restroom twice weekly (8)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)

September

- Clean restroom twice weekly (8)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)

October

- Inspect structures / make repairs (1)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash Removal weekly (4)

November

- Inspect trees / prune as required (1)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)
- Fall planting bed/ leaf clean-up (1)
- Snow removal from primary walkways (as required).

December

- Inspect trees / prune as required (1)
- Inspect walkways and trails, make repairs (1)
- Inspect nature-based play area weekly / make repairs (4)
- Inspect outdoor classroom weekly / make repairs (4)
- Inspect dog parks weekly / make repairs (4)
- Trash removal weekly (4)
- Snow removal from primary walkways (as required).



4 Implementation



Cost Estimates of Capital Improvements

Probable costs for development of Highland/Huber Park were established based on unit costs from construction projects of similar scope and scale and reflect prevailing wage rates that are required for publicly bid construction projects. The probable cost of development for the capital Improvements at Highland/Huber Park is estimated at \$2,818,600 (see Figure 5.1). Included in the total estimated cost are design and engineering fees of \$260,000 (estimated at 12% of the total site improvements); and a construction contingency of \$216,800 (estimated at 10% of the total site improvements). A detailed cost estimate for proposed improvements is provided in the appendix of this report.

Highland/Huber Park Master Plan Draft Phasing Summary		
Phase 1: Salem Road Parking, Stormwater Management + Primary Path		
	\$	977,500
Total Proposed Site Improvements	\$	607,800
Mobilization, E&S, Stormwater Allowances	\$	49,000
Construction Contingency (10%)	\$	60,700
Design & Engineering (12%)	\$	260,200
Phase 2: Main Parking + Playground		
	\$	852,000
Total Proposed Site Improvements	\$	721,900
Mobilization, E&S, Stormwater Allowances	\$	57,800
Construction Contingency (10%)	\$	72,200
Design & Engineering (12%)	\$	-
Phase 3: Dog Park, Community Garden, Outdoor Classroom + Hiking Trails		
	\$	605,200
Total Proposed Site Improvements	\$	512,800
Mobilization, E&S, Stormwater Allowances	\$	41,000
Construction Contingency (10%)	\$	51,300
Design & Engineering (12%)	\$	-
Phase 4: Township Line Road Parking + Maintenance Building		
	\$	384,100
Total Proposed Site Improvements	\$	325,600
Mobilization, E&S, Stormwater Allowances	\$	25,900
Construction Contingency (10%)	\$	32,600
Design & Engineering (12%)	\$	-
Total Estimated Project Costs	\$	\$2,818,800

Figure 4.1 Project Probable Estimate by Phases

Project Phasing

Improvements to Highland/Huber Park will be implemented in phases as funding is obtained. Discussions with the Township on project priorities resulted in the phasing plan (see Figure 5.2). The phasing plan is a strategic and designed approach toward implementation; however, if funding opportunities for specific projects become available before others, the phasing plan can be revised to accommodate specific funding opportunities.

Phase 1. Salem Road Parking, Stormwater Management + Primary Path \$977,500

Phase 1 focuses on the development of the limited parking off of Salem Road parking, the surrounding stormwater management elements, and the primary path. Work includes the installation of the two pedestrian bridges, secondary path from Highland Manor, the small pavilion with furnishings, the open space lawn area, and restoration plantings. The Design & Engineering Fee for the entire project is considered upfront during this Phase, since the project will most likely be design and engineered all at once, instead of phase by phase.

Phase 2. Main Parking + Playground \$852,000

This phase focuses on the development of the main parking area and nature-based playground. Work includes extending the driveway pavement, the installation of the large pavilion with furnishings, secondary path from Schwenksville Elementary school, utility lines and connections, and restoration plantings.

Phase 3. Dog Park, Community Garden, Outdoor Classroom + Hiking Trails \$605,200

This phase focuses on the development of the dog park, community garden, outdoor classroom, and hiking trails. This work includes the boardwalk, lookout decks, educational nodes with furnishings, and restoration plantings.

Phase 4. Township Line Road Parking + Maintenance Building \$384,100

Phase 4 focuses on the completion of the parking area adjacent to Township Line Road, with the installation of the maintenance building. This work includes the food forest plantings, picnic area with furnishings, and reforestation plantings. It should be noted that the parking area from Township Line Road is not desired, and should not be included in Phase 4 if not deemed necessary for public safety and well-being after Phases 1 through 3 have been built.

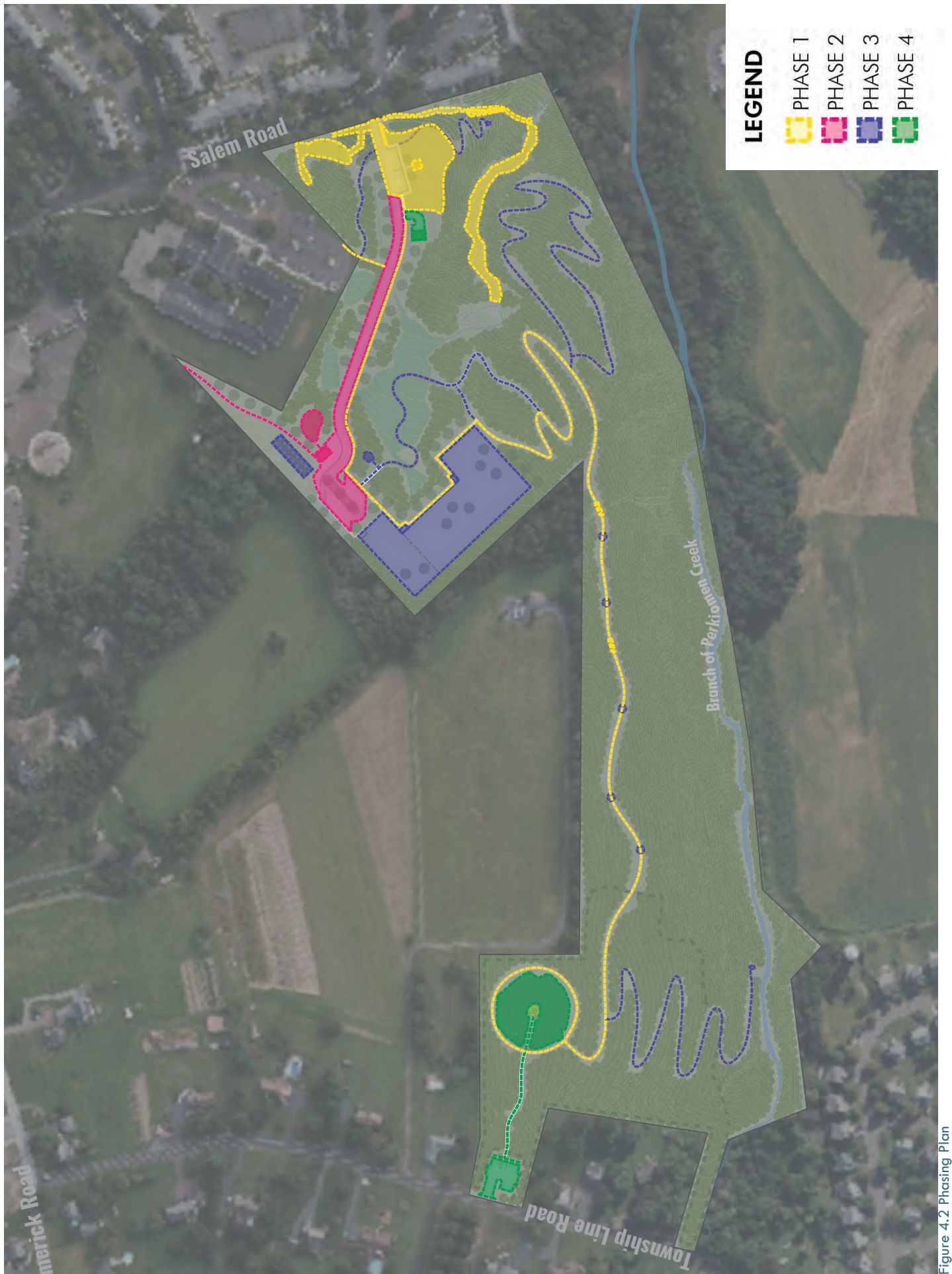


Figure 4.2 Phasing Plan

Funding Sources

The following is a summary of grants, programs, funds, and other potential partnerships/sources that can assist with the funding of Highland/Huber Park improvements. Various sources can be pursued during Park improvement phases, based on availability of funds aligning with goals of partner agencies, and Township priorities for each year.

Pennsylvania Department of Conservation & Natural Resources (PA DCNR)

Community Conservation Partnership Program (C2P2)

The Community Recreation and Conservation Program through the PA DCNR Community Conservation Partnership Program (C2P2) provides funding to municipalities and authorized nonprofit organizations for recreation, park, trail, and conservation projects. These include planning for feasibility studies, trail studies, conservation plans, master site development plans, and comprehensive recreation park and open space and greenway plans. In addition to planning efforts, the program provides funding for land acquisition for active or passive parks, trails and conservation purposes, and construction and rehabilitation of parks, trails, and recreation facilities. Typically, these projects require a 50% match, which can include a combination of cash and/or non-cash values. Following completion of a park master plan, an implementation or construction grant is the next stage grant from DCNR. Grant applications for the C2P2 program are accepted annually—usually in April.

More information can be found at: <http://www.dcnr.state.pa.us/brc/grants/grantpolicies/index.htm>

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund (LWCF) State Assistance Program, established in 1965, is a federal source of funding distributed to all states by the U.S. Department of the Interior's National Park Service.

The program provides matching grants for the acquisition and development of public outdoor recreation areas and facilities. DCNR administers the LWCF Program for Pennsylvania.

More info at: <https://www.dcnr.pa.gov/Communities/Grants/Pages/default.aspx>

DCNR Forest Buffer Program

The Riparian Forest Buffer Program through PA DCNR provides funding for organizations implementing a variety of forest buffers including conventional riparian forest buffers and multi-functional buffers. Pennsylvania has a goal of planting 95,000 acres of riparian buffers by 2025

to improve state waterways and the Chesapeake Bay. There is no match required to be eligible for this grant. Grant applications are usually accepted October to late December.

DCNR has provided funding to County Conservation Offices. Grants awards are made by the local conservation office for the planting of multi-functional buffers.

More information is available on the PA DCNR website: <https://www.dcnr.pa.gov/Conservation/Water/RiparianBuffers/Pages/default.aspx>

Pennsylvania Department of Community and Economic Development (PA DCED)

Commonwealth Financing Agency (CFA) - Greenways, Trails and Recreation Program (GTRP)

The Greenways, Trails, and Recreation Program (GTRP) provides funding for: public park and recreation area projects, greenway and trail projects, and river or creek conservation projects. The program requires a 15% local cash match of the total project cost and DCED share must not exceed \$250,000. Applications are typically due in late May.

More information can be found at: <https://dced.pa.gov/programs/greenways-trails-and-recreation-program-gtrp/>

Montco 2040 Implementation Grant

As part of the implementation of the Montgomery County Comprehensive Plan, Montco 2040: A Shared Vision, a grant program has been established to allow municipalities to make targeted physical improvements that work to achieve goals of the Plan. The maximum amount awarded is \$200,000 (although typical maximum awards are closer \$100,000.00) and the program requires a 20% local match. Projects must address a stated goal within one of the three themes of the Plan: Connected Communities, Sustainable Places, and Vibrant Economies. Awarded funds may only be applied to physical improvements. Funding themes change slightly each year. Applications are due each year in March. Funds must be expended within 2 years of the award.

More information can be found at: <https://www.montcopa.org/2453/Montco-2040-Implementation-Grant-Program>

Pennsylvania Department of Environmental Protection (DEP)

DEP Growing Greener Watershed Protection Program

Funded through the state Growing Greener Environment Stewardship Funds, applications should be targeted toward clean-up of non-point source pollution. The grant will fund local watershed-based conservation projects with the average award totaling \$150,000 and requires a

15% match from a non-DEP fund source. Applications are typically due in January.

More information on this program can be found at the DEP website: <http://www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/default.aspx>

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, firsthand 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 no match, however it is recommended. Applications are due in December and awarded in April.

More information can be found at: <http://www.dep.pa.gov/citizens/environmentaleducation/grants/pages/default.aspx>

DEP Non-Point Source Implementation Programs Grant

This grant provides funding assistance for projects aimed at implementing Pennsylvania's Non-point Source Management Program. Targeted projects include control of urban runoff, and natural channel design/stream bank stabilization projects. The grant will fund local projects with the average award being \$200,000. Applications are typically due in July.

More information on this program can be found at the DEP website: <http://www.dep.pa.gov/Business/Water/PlanningConservation/NonpointSource/Pages/default.aspx>

PennVEST (Pennsylvania Infrastructure Investment Authority)

PennVEST offers both grants and low interest loans for projects that help to manage stormwater and improve water quality. Several recommendations for Highland/Huber may attract PennVEST funds, since they include stormwater BMPs.

More information can be found at: <https://www.pennvest.pa.gov/Information/Funding-Programs/Pages/default.aspx>

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.

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 local organizations may also be of assistance in several ways. Local scout groups and environmental advisory committees are two such examples. These groups might get involved with club, fundraising events, and park cleanup days. The school faculty might incorporate the Park, especially the proposed environmental education areas and nature trails, into various curricula with students helping to develop and volunteer time to maintain the area 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 Park.

Donation Opportunities

It is recommended that the Township create a list, with prices, of physical donation opportunities for the park consistent with the plan. Rather than having physical markers in the park noting the donation (which can become cumbersome over time) a list of donors might be prominently displayed on the Townships Parks website or a funders' donation wall at a central location.







Township Line Road





SIMONE COLLINS
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119 EAST LAFAYETTE STREET NORRISTOWN, PA 19401
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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	2.10.2022 7:00pm – 8:30pm
Re:	Committee Meeting #1	Issue Date:	2.15.2021

ATTENDEES:

Perkiomen Township: Kevin Motsavage

Simone Collins: Peter Simone, Emma Haley

Committee Members: Pamela Gural-Bear, Pamela Margolis, Diane Melville, Summer Uchin, Jeri Wagner, Manni McNeil, Keith Gilchrist, Mary Louise Blauert, Peter Blauert, Lisa Poelck, Tina Jabs, Stewart Kupfer

INFORMATION TO SEND:

Simone Collins to Perkiomen Township + Committee Members:

- Committee Meeting #1 Notes
- Committee Meeting #1 Brainstorming Cards
- Committee Meeting #1 Presentation
- Public Meeting Flyer

MEETING SUMMARY:

Public Survey

- For the survey introduction, the committee requested SC adds a map of the site.
- For survey question #7, the committee wanted to add the following parks:
 - Limerick Community Playground
 - Lodal Creek Park
 - Township Park
 - David Meyer Playground
 - Evergreen School Playground

- For survey question #8, the committee asked for us to define “passive recreation” either in the question or somewhere else in the survey.
 - SC replied that we can add it to the introduction of the survey
 - Stewart wanted to add “fishing” as a passive activity.
- For survey question #14, a committee member asked to clarify the meaning of “community garden,” for example, is it just flowers, a vegetable garden, a victory garden, a children’s garden, etc.?
 - SC replied that the use of it can be determined as we get further into the design process.
- For survey question #14, the committee members mentioned adding the following activities/facilities to the list:
 - Amphitheater
 - Arboretum

Brainstorming Session

- A committee member mentioned flooding issues on site.
 - Another committee member added that a small waterfall close to Salem Road occurs during a heavy rain event.
- Committee members mentioned adding the following amenities into the park:
 - a children’s garden for the elementary school nearby
 - a small splash pad for children
 - pollinator garden
 - have a range of activities for all ages
- Committee members mentioned wanting to incorporate ‘stations’ along an accessible path throughout the site, such as:
 - Exercise/workout stations
 - QR code learning
 - Lookout/Viewing stations
 - Interpretive signage
- Committee members talked about incorporating safety throughout the site by:
 - Incorporating lighting
 - Plan intentional sightlines
 - Having a landscape with minimal maintenance (clear sightlines)
- Committee members expressed the following for parking on site:
 - Having clear driveway sightlines
 - Hiding it away from neighbors
 - Having it gated
- Committee members mentioned having a landscape that:
 - Preserves the existing trees
 - Is natural
 - Has wildflowers and meadows

- Is accessible through the wetlands
 - Has wind breaks
 - Promotes habitat (bird boxes, bat boxes)
 - Has a stocked pond
- Committee members discussed implementing the following for kids and adults:
 - Nature-based play
 - Sensory play
 - Shade structures
 - Monkey bars
 - A treehouse
- Mostly all committee members wanted to incorporate a dog park, but one committee member objected to having one because of potential fights.
 - Members added that the dog park could need a 'membership' to help prevent overcrowding the dog park

PUBLIC MEETING 1 is scheduled in-person and virtually for 2-17-2021.

This report represents the Professional's summation of the proceedings and is not a transcript. Unless written notice of any correction or clarification is received by the Professional within ten days of issue, the report shall be considered factually correct and shall become part of the official project record.

Sincerely,
SIMONE COLLINS, INC.
LANDSCAPE ARCHITECTURE

A handwritten signature in black ink, appearing to read "E. Haley", with a stylized, cursive script.

Emma Haley

Public Meeting #1 – 02/17/22

Email Address

ms. CONLEY @ gmail . com
classichouseworks@gmail.com

adam@le@Comcast.net
Jim Rogers @Comcast.net

GOALS

PROVIDE FOR ALL AGES

FACTS

BEAUTIFUL PROPERTY

FLOODING ISSUES

CONCEPTS

ACCESSIBLE TRAILS

CHILDRENS GARDEN

SPLASH FOUNTAIN

POLLINATOR GARDEN

ACTIVITIES ALONG TRAIL

QR CODE Learning

WORKOUT STATIONS

LOOKOUT STATIONS

SAFE

LIGHTING

RANGE OF ACTIVITIES

PLANNED SIGHTLINES

BATHROOMS

MINIMAL MAINTENANCE

NATURAL LANDSCAPE

COMBINATION natural paths

PRESERVE TREES

HIDDEN PARKING

VARIETY OF SEATING

WIND BREAKS

NATURE-BASED PLAY

SHADE STRUCTURES

SENSORY PLAY

DOG PARK

NO DOG PARK

DOG PARK membership

STOCKED POND

WILDFLOWERS/MEADOWS

BIRDHOUSES

MONKEY BARS

TREEHOUSE

ACCESS THRU WETLANDS

BAT BOXES

GATED PARKING ENTRY

INTERPRETIVE SIGNAGE



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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	2.17.2022 7:00pm – 8:30pm
Re:	Public Meeting #1	Issue Date:	2.24.2021

ATTENDEES:

Perkiomen Township: Kevin Motsavage

Simone Collins: Peter Simone, Emma Haley, Fiona Eickman

INFORMATION TO SEND:

Simone Collins to Perkiomen Township + Committee Members:

- Public Meeting #1 Notes
- Public Meeting #1 Brainstorming Flashcards
- Public Meeting #1 Presentation

MEETING SUMMARY:

Brainstorming Session

1. A member of the public was concerned about parking, access, and attracting too many people and creating noise or disruption in the currently quiet neighborhood.
 - Township Line Road access has been studied by the Township engineer and SC agrees that it is not advisable to use as a public access, due to the speeds and sightlines.
 - The driveway on Township Line Road should be kept as maintenance access.
2. Public access would be from Salem Road.
 - General discussion about the number of people expected to visit this park.
 - Attracting more people to the park will create a sense of safety in the park.
 - Elements in the park that attract visitors at all times of the day creates in the park.
 - SC noted that the number of visitors to this park will likely not large enough to be an annoyance to current residents including those on Salem Road.
 - SC noted that new parking likely from Salem Road is unlikely to disrupt neighbors.

3. There were mixed views on how this park should function, but all attendees agreed there should be elements in the park to create habitat.
 - Variety of habitat was desired by the public, creating for: birds, insects, and butterflies
 - Most of the attendees stated they want this park to have a “nature preserve feel.”
4. Suggestions for the following elements in the park:
 - Interpretive signage to communicate ecological systems in the park, or QR codes to have changing information about the park.
 - Tree tags or labels to identify tree species.
 - Community garden area, or an area for community members to have “ownership” of a piece of the park
 - Non-traditional play equipment, like nature-based play.
 - Shade structures
 - Seating in the forms of: benches, boulders, logs, etc.
 - Picnic areas, possibly with grills.
5. Regarding ADA compliance in the park:
 - SC informed the public on the importance of having ADA trails, in order to comply with the law and for funding.
 - When the public asked how many ADA trails are needed, Peter S. replied that it depends on the land, especially the topography.
6. Attendees suggested the following:
 - Gate the park at night to prevent after-hours motor vehicle access.
7. Views for and against incorporating a dog park into the site.
 - Concerns about noise.
 - Suggestion that dogs can make a hiker walker feel safer.
8. While it was agreed that a restroom is needed, discussion as to the type (sewered / composting).
9. Potential partners to the Township included:
 - 4H
 - Boy Scouts and Girl Scouts
 - Audubon
 - Schools
 - Perkiomen Watershed Association
 - Highland Manor

PUBLIC MEETING 2 is scheduled in-person and virtually for 4-7-2022.

This report represents the Professional’s summation of the proceedings and is not a transcript. Unless written notice of any correction or clarification is received by the Professional within ten days of issue, the report shall be considered factually correct and shall become part of the official project record.

Sincerely,
SIMONE COLLINS, INC.

LANDSCAPE ARCHITECTURE

A handwritten signature in black ink, reading "Fiona Eickman". The signature is fluid and cursive, with the first name "Fiona" and last name "Eickman" clearly distinguishable.

Fiona Eickman

ALS

AFETY

FACTS

HIDDEN
DRIVEWAY

QUIET
AREA

CONCEPTS

TRAILS

CONNECT
WHOLE
PARK

HIKING
TRAILS

CREATE
HABITAT

BIRD WATCHING

PRESERVE
TREES

ADA
ACCESSIBLE

PORT-A-POTTY

PERVIOUS
TRAILS

MOUNTAIN
BIKING

BIRDHOUSES

INSECT BOXES/
BEE BOXES

INTERPRETIVE
SIGNAGE

TREE I.D.

COMMUNITY
GARDEN

DIVERSITY
OF
HABITAT

GARDENS

NO
PLAYGROUND

PERKIMEN
WATERSHED
ASSOCIATION

NATURE-BASED
PLAY

WILDLIFE
PRESERVE/
SANCTUARY

PARKING

ACCESS POINTS
TO
SCHOOL

BATHROOMS

POTABLE
WATER

BENCHES

NO DOG PARK

GATED
PARKING
LOT

PROVIDE FOR
ALL AGES

OUTDOOR GRILLS

PICNIC AREAS

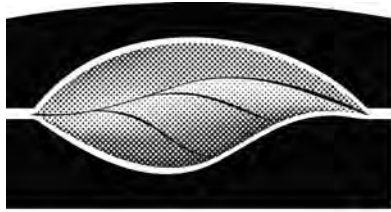
SHADE STRUCTURE
/ PAVILION

SHADE TREES

PARTNERS

AUDUBON/
BOYSCOUT
PROJECTS

HIGHLAND
MANDR



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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	3.31.2022 7:00pm – 8:30pm
Re:	Committee Meeting #2	Issue Date:	4.1.2021

ATTENDEES:

Perkiomen Township: Kevin Motsavage

Simone Collins: Peter Simone, Emma Haley

Committee Members: Brein Conway, Diane Melville, Jacqueline Ziegler, Keith Gilchrist, Lisa Poelck, Mary Louise Blauert, Pamela Gural-Bear, Peter Blauert, Sarah Whetstone, Summer Uchin, Stewart Kupfer, Tina Jabs

INFORMATION TO SEND:

Simone Collins to Perkiomen Township + Committee Members:

- Committee Meeting #2 Notes
- Committee Meeting #2 Presentation
- Public Meeting Flyer

Perkiomen Township + Committee Members to Simone Collins

- Contact info for various focus group members and key person interviews.

MEETING SUMMARY:

Simone Collins (SC) presented site analysis mapping, project overview and then reviewed the initial three concept plans.

Concept 1

- Concerned about the trail's proximity to the homes adjacent to the site on the west side.
- OK with about 20+ parking spaces being proposed on the property.
- Likes the picnic tables along the west side trail but would like to see them further away from the homes.

Concept 2

- Does not want a dog park on the west side of the site.
- Would like more information on the fence proposed between the homes on the west side and the vegetated buffer.

Concept 3

- Prefers the layout of this concept the best – having all the amenities on the east side and most of the trail system on the west side.
- Would get rid of the exercise stations and replace with benches/seating areas.
- Likes that only trails are on the west side; however, would like to see more of a trail system like on Concept 1.
- Would like to see all woodland plantings (reforestation) on the west side, instead of meadow.
- Would like to see picnic tables added to the west side trails, but far away enough from the homes.
- Would like to see the stream observation deck on the west side moved somewhere else where it would not be looking at a water tower.
- Thinks the number of look out stations might be too much.
 - SC mentioned that those could be small 5'x8' wooden decks with Adirondack chairs bolted down and would not take up that much space.
 - Committee liked the idea.
- Likes the idea of an open picnic area for people at Highland Manor to come over with family and friends.
- Likes the boardwalk over the wetland.

Precedent Images

- Prefers the pavilion with the restrooms built into the building.
- Open to the idea of a composting toilet.
- Likes the idea of raised beds for the community garden but concerned about the maintenance of the community garden beds.
 - SC mentioned reaching out to the elementary school, Highland Manor, and/or other groups to sponsor the beds.
- Concerned about getting water to the garden.
 - SC mentioned that it would just be a matter of installing water supply pipe into the site.
- Interest in the nature-based play photos vs. the manufactured play equipment photos.
- Concerned about cost of fence around the dog park.
 - SC mentioned the big-picture process of obtaining grants to cover the cost.

Potential Key Person Interviews and Focus Groups

- Committee members suggested reaching out to the following for Key Person Interviews:
 - Perkiomen Watershed Conservancy (contact Ryan)
 - Freeland Hills Service Unit of Girl Scouts
 - Boy Scouts, Troop 105
 - Garden Club (contact Bill)

- Rotary Club, Central Perk.
- SC suggested grouping the site's surrounding neighbors – Schwenksville Elementary, Highland Manor, and the Maple Hill HOA – as a focus group.
 - The committee members agreed.

Closing Statements

- Committee members expressed wanting to visit the site during the next meeting.
- Plan on meeting at the Highland Manor side of the site before next meeting. More information to come.

PUBLIC MEETING 2 is scheduled in-person and virtually for 4-7-2022.

This report represents the Professional's summation of the proceedings and is not a transcript. Unless written notice of any correction or clarification is received by the Professional within ten days of issue, the report shall be considered factually correct and shall become part of the official project record.

Sincerely,
SIMONE COLLINS, INC.
LANDSCAPE ARCHITECTURE

A handwritten signature in black ink, appearing to read 'E. Haley'.

Emma Haley



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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	4.07.2022 7:00pm – 8:30pm
Re:	Public Meeting #2	Issue Date:	4.14.2022

ATTENDEES:

Perkiomen Township: Kevin Motsavage

Simone Collins (SC): Peter Simone, Emma Haley, Fiona Eickman (virtual)

Community Members: Community Members – see attached attendance list.

INFORMATION TO SEND:

Simone Collins to Perkiomen Township:

- Public Meeting #2 Notes
- Public Meeting #2 Presentation

MEETING SUMMARY:

Fence

- Residents stated that the 8-foot fence would block views of the park's natural beauty.

Dog Park

- Several guests stated they do not want a dog park at the park. SC responded that a dog park will be proposed as something that will have a lot of pros and cons. This is ultimately decided upon by the Board of Supervisors so they can make an informed decision.
- The dog park in Concept 3 is the preferred option, as it is away from adjacent residential properties. SC stated that people could walk their dogs during all times of the day, and to have people in park at all times of day is good for safety. SC also stated that some places have key cards for access, where an agreement is signed by dog park users to abide by the park rules.

Perkiomen Trail

- A guest asked why the property wouldn't be an addition to the Perkiomen trail. SC stated that this space is owned by Township and the Perkiomen Trail is owned by the County and this park will not connect to the Perkiomen Trail.

Traffic, Parking & Vehicular Access

- A guest asked why parking is necessary. SC responded that if there is no parking within the park, people will park on the street. SC stated if there is activity deeper into the park, there would need to be vehicular access to make those elements accessible for those who could not walk such a long distance.
- Parking from Concept 2 was preferred by some if parking is necessary. Another attendee liked the parking layout in Concept 1.
- The public asked if speed calming elements would be possible on Township Line Road. SC noted that Township Line Road is a PennDOT road, and therefore it would be impossible to include speed calming elements such as speed bumps.
- Several guests asked what kind of traffic would be drawn to Salem Road with the parking access on Concepts 2 & 3. SC stated that traffic would not be heavy on either Salem Road or Township Line Road parking accesses, due to the type of park this will become, essentially a neighborhood park.

Meadow with Habitat Boxes

- The meadow element was appreciated by several attendees. Some attendees preferred the meadow over the reforestation on the western side of the park.
- Habitat boxes could potentially be funded by a Montgomery County grant.

Security

- An attendee asked if this park would be monitored by rangers. SC stated that the Township does not have rangers, and a way to make the park safer is to ensure that there is activity within the park throughout the whole day. SC stated that this park would likely be visited by mostly neighbors.

Materials

- An attendee asked if the team knows what kind of materials would be used for paved areas. SC responded that at this phase of the design, we have not gotten to that detail yet, but for the kind of activity we are proposing, there will be a variety of ADA accessible surfaces, like crushed stone or asphalt, in addition to earthen hiking trails.

Fox Heath Access

- An attendee asked if access from the Fox Heath residential subdivision would be possible. SC responded that the steepness and creek would require a bridge that would be more expensive than other pedestrian access shown on the plan. This would be difficult to obtain permits and access without disrupting existing residential properties.

Design Process

- Several attendees inquired about the design process and public input versus the committee. SC responded that all opinions are considered in the design process, and that the board of Supervisors will ultimately make an informed decision to approve the plan.

Food Forest

- An attendee suggested a food forest would be a good educational element. SC responded that would require bringing in a specialist to ensure this was done safely and appropriately, at a higher level of design than a conceptual plan. This would need

to be deer fenced during establishment. Another potential is that this is a food forest for just wildlife.

Funding

- SC informed the public that this park would be built in phases. A phased approach is dictated by funding.
- An attendee asked if a grant was awarded for the park could the same grant or funding be awarded few years later. SC responded that DCNR has a record of reoccurring funding applicants and Montgomery County also has grants available.

PUBLIC MEETING 3 is scheduled in-person and virtually for 5-26-2022.

This report represents the Professional's summation of the proceedings and is not a transcript. Unless written notice of any correction or clarification is received by the Professional within ten days of issue, the report shall be considered factually correct and shall become part of the official project record.

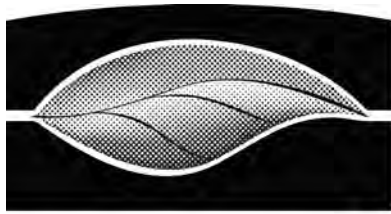
Sincerely,
SIMONE COLLINS, INC.
LANDSCAPE ARCHITECTURE

A handwritten signature in black ink, appearing to read 'Fiona Eickman', written in a cursive style.

Fiona Eickman

Public Meeting #2 – 04/07/22

[illegible]



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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	5.11.2022 7:00pm – 8:30pm
Re:	Committee Meeting #3	Issue Date:	5.16.2022

ATTENDEES:

Perkiomen Township: Kevin Motsavage

Simone Collins: Peter Simone, Emma Haley

Committee Members: Diane Melville, James Rodgers, Jeri Wagner, Manni McNeil, Pamela Margolis, Peter Blauert, Tina Jabs

INFORMATION TO SEND:

Simone Collins to Perkiomen Township + Committee Members:

- Committee Meeting #3 Notes
- Committee Meeting #3 Presentation
- Public Meeting #3 Flyer

Committee Members to Simone Collins:

- Fox Heath Development HOA contact (received)

MEETING SUMMARY:

Simone Collins (SC) presented the pre-draft master plan.

Pre-Draft Master Plan - comments

- Concerned about not having enough parking spots. SC responded with adding about 5 more parking spots to the front parking lot, but that should be more than enough to accommodate a park of this size.
- Does not like the idea of a parking lot off of Township Line Road, but accepts it for safety reasons. Would like to not add park signage over on this side to deter traffic a little. SC said this parking lot could be phased in last so that the Township can see if there is a demand for it or not.

- Likes the idea of the food forest.
- Concerned about proposing a dog park and having mulch in it. SC responded that the dog park will remain on the plan because of the results shown on the survey and that the material needs to be mulch or it will be a mud pit.
- Concerned about the distance from the loop trail to the resident's property line. SC identified this as a drafting error that will be corrected for the upcoming public meeting.
- Would like to have connection from Fox Heath Development to the park. SC requested having the contact for the HOA to ask about a connection from their property on the corner near the water tower.

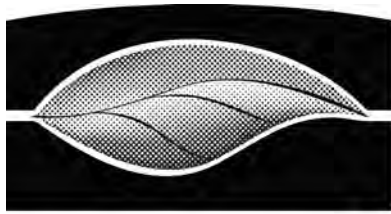
PUBLIC MEETING 3 is scheduled in-person and virtually for 5-26-2022.

This report represents the Professional's summation of the proceedings and is not a transcript. Unless written notice of any correction or clarification is received by the Professional within ten days of issue, the report shall be considered factually correct and shall become part of the official project record.

Sincerely,
SIMONE COLLINS, INC.
LANDSCAPE ARCHITECTURE

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Emma Haley



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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	5.26.2022 7:00pm – 8:30pm
Re:	Public Meeting #3	Issue Date:	6.1.2022

ATTENDEES:

Perkiomen Township: Kevin Motsavage

Simone Collins: Peter Simone, Emma Haley, Fiona Eickman (virtual)

Community Members: see attached attendance list

INFORMATION TO SEND:

Simone Collins to Perkiomen Township + Committee Members:

- Public Meeting #3 Notes
- Public Meeting #3 Presentation
- Public Meeting #4 Flyer

MEETING SUMMARY:

Simone Collins (SC) presented the draft master plan.

Draft Master Plan – comments

Dog Park

- An attendee was in favor of the dog park and stated the need for it.
- An attendee asked if we did not suggest a dog park in that area, what would be proposed there? SC stated we likely would propose more trails throughout the space.

Parking

- Concerns were stated from an attendee about a parking lot on Township Line Road, regarding safety, speeding and congestion. SC responded by stating the need to propose parking is to ensure people don't park on the side of the road. Also, the parking lot could be constructed in a later park development phase to ensure that it is needed.
- An attendee stated it does not seem there is much parking. SC responded that showing 22+- spaces will be enough parking spaces and with the concern of drawing in too many

people, as this will be a neighborhood park. There is also on street parking on Salem Road.

Access/ Pathways

- An attendee asked if this project included locating sidewalks outside of the park. SC stated that we kept our focus on inside the site, but it may be worth investigating the need for a sidewalk and crosswalk on opposite of Salem Road.
- Access into the site from Fox Heath was brought up by an attendee. SC stated that we will talk to the HOA about a steep footpath access from Fox Heath.
- An attendee asked if there are regulations for a first aid station. SC responded there are no regulations, but we are proposing an 8' wide asphalt trail to allow accessibility for emergency vehicles. The path will also allow maintenance vehicles access the entire park.
- An attendee asked if taking down invasives and prioritizing healthy plants is a consideration when designing the path routes. SC stated that we are not at that level of detail in the Master Plan stage, but during the construction phase, the pathways would be staked out to avoid healthy, native trees.

Reforestation

- An attendee mentioned that there are steep grades in the existing meadow and asked why to recommend reforestation. SC responded that ecologically, it would be healthier to continue the forest and would help create an effective naturalistic buffer. SC stated that reforestation is less maintenance and can help with water infiltration and reduce runoff, which in turn would prevent erosion happening downstream.

PUBLIC MEETING 4 is scheduled in-person and virtually for 9-14-2022.

This report represents the Professional's summation of the proceedings and is not a transcript. Unless written notice of any correction or clarification is received by the Professional within ten days of issue, the report shall be considered factually correct and shall become part of the official project record.

Sincerely,
SIMONE COLLINS, INC.
LANDSCAPE ARCHITECTURE



Fiona Eickman

Attendance List

Public Meeting #3 - 05/26/22

Name

Email Address

Stuart Oller

Diane Melville

Kristen Leach Reiter

October Grimes

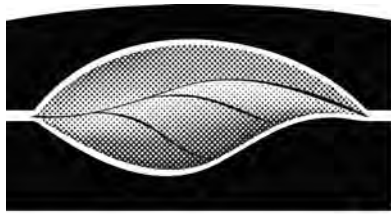
Adam Doyle

theozclfan@yahoo.com

dianegm@comcast.net

tobiesgrimes@gmail.com

adamdoyle@comcast.net



SIMONE COLLINS
LANDSCAPE ARCHITECTURE
119 EAST LAFAYETTE STREET NORRISTOWN, PA 19401
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MEETING NOTES

Project:	Highlands/Huber Park Master Plan	Project No.:	21018.10
Location:	Perkiomen Twp Administration 1 Trappe Road Collegeville, PA 19426	Meeting Date/Time:	9.15.2022 7:00pm – 8:00pm
Re:	Public Meeting #4	Issue Date:	9.19.2022

ATTENDEES:

Perkiomen Township: Cecile Daniel

Simone Collins: Emma Haley, Bryce Brucker

Community Members: see attached attendance list

INFORMATION TO SEND:

Simone Collins to Perkiomen Township + Committee Members:

- Final Masterplan Report (PDF)
- Six (6) physical copies of Masterplan Report

MEETING SUMMARY:

Simone Collins (SC) presented the final master plan presentation. This presentation included recommended funding, phasing, and costing.

Final Master Plan – Questions and Comments

- An attendee asked if the neighboring residents were recommending the reforestation portions of the park.
 - Emma responded stating that the residents which border the park wanted a buffer between their homes and the park, and reforestation was a minimal impact solution to this desire.
- An attendee was concerned with the improvements proposed in phase 1, thinking the main trail was not a part of this section.
 - Emma responded stating that the main trail is part of phase 1, but also reiterated the fact that the phasing elements are recommendations and can be changed based on desired outcomes.

- An attendee mentioned Ursinus College's environmental studies program in regard to the food forest and naturalized elements of the park. Suggested contacting Patrick Hurley for any future consultation.
- An attendee was concerned about neighboring naturalized farms being used as hunting areas. They asked if this activity would be stopping with the construction of the park.
 - Emma responded stating that this concern was not brought up before, however will be addressed in future phases.
 - A fellow attendee mentioned that hunters are responsible for the safety of those in the vicinity of their activity.
- Attendee was concerned about the timeline of the project, and how to get it underway quickly.
 - Emma described the funding process, explaining that the deadline for applications is April 2023. Emma also explained that the design and construction phase of the project should only take 6-8 months and the construction phase would follow quickly.
- An online attendee asked if there would be signage for renting structures or reporting damage.
 - Emma responded that the cost estimate includes numbers for signage and maintenance, therefore there would be signage like this.
- An attendee was concerned over the amount of public input for the project.
 - Emma quickly briefed the previous meetings, stating that it was a thorough process and had a decent level of turn out.
 - Bryce reiterated the online public input which saw several responses.

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Sincerely,
SIMONE COLLINS, INC.
LANDSCAPE ARCHITECTURE



Bryce Brucker

Public Meeting #4 – 09/15/22

[illegible]

21018.10 Highlands/Huber Park

Key Person Interview SUMMARIES

1. April 27, 2022

Andrew Gilchrist- Regional Advisor, DCNR

o *Feedback on Concepts*

- Likes the location of the nature-based play area near maple hill – thinks it would serve that community well
- Thinks that if the trail was a loop trail, it would draw more people into the park.
- Expresses concern that the community garden will require a champion to maintain it.
- Thinks if the community garden does not get any interest within the focus group meetings or community, then it should not be proposed.
- Thinks a mulched dog park area may be hard to maintain.
- Dog Park – concerned that the large dog park will get muddy if it is under an acre.
- Suggests making the dog vestibules larger to avoid concentrated areas being weathered.

o *General Feedback*

- States that DCNR likes to look at the big picture connections for parks and thinks that creating a connection to the Perkiomen trail would be beneficial.
- Would like the park to focus on ADA & age by involving Highland Manor and Schwenksville Elementary School. DCNR theme is access for all.
- Would like SC to begin to think of maintenance in terms of long term, as Perkiomen Township does not have a large maintenance staff
- Andrew asked about the farmland parcel directly north of the site.
- Andrew stated to add a regional parks map, to show context of site
- East Goshen interviewed schools regarding playgrounds, as a part of public outreach and called them playground engineers
- Andrew brought up the DCNR TPL 10-minute walk tool as something beneficial to give context of the location
- Andrew stated that overall, this project is hitting all the high notes and checks a lot of boxes

2. April 29, 2022

Dominic Bruzzese & Chris Husted - Perkiomen Environmental Advisory Council (Dominic B is an engineer by trade, with a passion for sustainable living; Chris H is an environmental engineer by trade)

o *Feedback on Concepts*

- Concept 1: woodland vs meadow. What about a food forest?
- Educational opportunity in that area, promoting native species education
- Is the BMPs intent to capture stormwater?

1. Has there been any opposition from residents about dog parks close to residents?

o *Themes Most Important to EAC*

- Opportunities to help spread the mission statement of the EAC: to help educate their community. Mission statement has themes of connection, education, and advocacy for residents to promote community health and wellbeing and would like to see those themes reflected in the park
- community outreach would be benefited by educational signage
- Outdoor classroom: could be a good hub for EAC outreach events or activities
- Formal or informal, great for kids and as a meeting place
- It needs to say what we are trying to teach: it should be natural/ sustainable materials (Should not be hardscaped, unless done sustainably)

3. May 2, 2022

Adam Doyle - Perkiomen Board of Supervisors

o *Feedback on Concepts*

2. Driveway access on two sides is key, 1B is best out of 3 on Township Line Road, with consideration to code law and our neighbors being okay with it.
3. A driveway needs to be there at the masterplan phase
4. Privacy fencing or habitat there could be a nice way to hide views of driveway from neighboring properties
5. Concept1: Pedestrian bridges are appreciated, as we wanted to connect the two parcels
6. Concept 3: parking is needed for maintenance
 - In a nature play area would we be bringing nature in?
 - Stream restoration is where community driven restoration project could be?
 - The educational aspect of signage is key
 - Educational opportunity in the streambank restoration area, promoting native species/ education

o *Themes Most Important to BOS*

7. AD wants our park to have something no one has, something to attract people, to have an attraction of habitat restoration or highlighting a certain habitat/ species, etc. but the community does not want that
8. Loved Concept 2 elements nature play and community garden
9. AD is not a fan of a dog park, seems like a lot of land, and is utilizing the largest piece of flat land
10. Are BMX-ers able to blaze a trail, utilizing a compacted dirt path?
11. AD is not sure exercise stations, would drive someone to come, but using natural environment for exercise stations sounds interesting

4. May 12, 2022

Vivian Schoeller – Perkiomen Board of Supervisors – Vice Chair

Joined parks and rec as she was elected. She was a part of the original vision of the park's location.

o Feedback on Pre-Draft Plan

- Pavilion at 20' x 20' / picnic area is walkable for Maple Hill as well
- We don't want to have a large parking lot. People can park in elementary school lot on weekends
- Nature playground be natural material?
- Did we decide on Township Line Rd?
- Bridges over gulley is nice
- Would EAC be interested in community garden?
- What would food forest would fruits be?
- Looks like what she envisioned, and more!
- Wants a dog park
- What is storage for? Maintenance?
- For the dog park an acre is plenty size, if smaller, less people will come
- Thinks mulch is best material for dog park

o General Feedback

- Originally thinking of Township Line Road maintenance storage
- Other dog parks in region include: 5 or 6 miles up 29, Lower Fredrick and in the other direction out towards Phoenixville

5. June 9, 2022

Ryan Beltz – Perkiomen Watershed Conservancy – Executive Director

o Feedback on Pre-Draft Plan

- What's the main concern with dog park?
- Likes food forest, nature-based play
- You have community buy-in

o General Feedback

- Berks nature has a nature playground there that was not used and then when it was fenced it became more used. It was located in Reading -Angelica Park may have been site specific
- We do quite a bit of BMPs. About 10 projects a year
- We would be willing to offer to township our volunteer base, keep us in mind for that
- We have a growing program as well, and a greenhouse as well
- If it's over an acre we pull in county conservancy and DEP, we don't do that, but we have people we farm that out to
- Perkiomen Township needs MS4 permits for DEP grants
- Happy to help with volunteers

6. June 23, 2022

Meredith Glodek and Kim Gillingham – Perkiomen Valley Library

- *Feedback on Draft Plan*
 - Likes the outdoor classroom
 - Concern for educational components throughout park
 - Does not prefer vehicular driveway into park from residential street (Salem Road); but agrees that the main point of entrance is better along Salem Road than Township Line Road.
- *General Feedback*
 - Likes the idea of a “outdoor library”
 - Would like to see interpretive signage to be a “Story Walk”
 - Thinks Township Line Road is busy and dangerous.
 - Suggested to reach out to the Rotary Club and Kiwanis Club.

7. June 23, 2022

Krista Venza and Emily Rice – Schwenksville Elementary School

- *Feedback on Draft Plan*
 - If meadow and/or perennials could be incorporated into site.
 - Likes that there is a playground, pavilion, and outdoor classroom being incorporated into the site.
 - Likes the ADA primary trail throughout the site, and could see it being used for their “exercise walk” program.
 - Thinks the connection into the park from the school should not be an issue.
 - Unsure of how much use the community garden in the Park would get since the school already has beds that already do not get a lot of use.
- *General Feedback*
 - Overall positive feedback and excitement for the Park.
 - Would like to incorporate the elements of the park as part of their curriculum.
 - The school has a garden club that might be interested in the community garden.
 - Could see the site being used for field trips.
 - There is a playground present at the school; however, it is not nature based.
 - Classroom size is about 20-23 kids.
 - Shared information about a park in North Coventry Township having a meadow that attracts a lot of birds. Thinks it is a good precedent to incorporate as part of an educational component.
 - The elementary school does not interact with Highland Manor
 - The school incorporate Positive Interaction and Support into their curriculum and thinks the Park could be used as “reward” for the kids.
 - Potential use during Earth Day.

8. July 5, 2022

Tony Verguldi – Scoutmaster, Troop 105

○ Feedback on Draft Plan

- Not a fan of the dog park – would rather see more naturalized area.
- Thinks there is a lot of naturalized space taken up from the driveway and parking.
- Would like to see a space for the boy scouts; whether that is a cabin or just a clear, opened area for camping.
- Would like to have driveway next to area to unload supplies/equipment.

○ General Feedback

- The troop is 107 years old and is not charted by any organization – they are part of a group of concerned citizens of Schwenksville.
- Works closely with Joe Selczer (?), Pennypacker Mills, churches for work and camp.
- Cabin was burned down years ago. Was originally used for year-round storage, meetings, and camping. The cabin was located in Central Perkiomen Valley Park near the creek. The layout was a large room (maybe 30x30) with a restroom, storage area, and attic, and could fit around 40 scouts and 10 adults.
- After it was burned down, they still used the area to place (6) six-person tents for camping.

9. July 21, 2022

Eric Jarrell, Anne Leavitt, Danielle Baer – Montgomery County Planning Commission

○ Feedback on Draft Plan

- Would like to see a trail connection to Fox Heath residential development. SC commented that we have contacted the HOA manager and he is going to find out from the HOA board if they are interested in making this connection.
- Would be great to make a path or trail connection to Central Perkiomen Youth Association. There is a Traffic Signal at Twp Line Rd. and Myers Road. This is very close by. Perhaps should be a future initiative by the Township to connect to CPYA.
- Anne asked if there are plans for a formal property line delineation between the park and the farm to the north. This farm has been permanently preserved through the farmland preservation program in or around 2020. SC mentioned that formal park boundary markers are recommended in the master plan.
- Danielle asked if there has been any township reaction to master plan zoning recommendations? SC noted none so far. All agreed to change the retirement community designation to R-2 would be better. If the land was purchased with general funds, it could be used for development in the future. It could also be used, for example, if the retirement home added height and needed additional land for its open space ratios.
- Pete asked if this park (or parts of it) might be a good candidate for a Montco – 2040 implementation grant. Anne responded that the reforestation, trails and nature-based play component all could be good application elements for a grant.

○ *General Feedback*

- Eric suggested that this plan might be of Interest to the regional planning commission and the township may wish to present this to them in the future.
- Eric noted that the School District is doing some environmentally focused work at the middle school and high school. Muhlenberg Woods at the Middle School and Lenape Arboretum at high school. Eric will send a link to SC about these initiatives.
- Eric suggested that the reforestation portion of the park could have an important educational aspect, a “how to” for landowners to create a forest. SC agreed and noted that Juvenile forests are needed in PA as habitats.

10. August 24, 2022

Ed McNellis, Josh Rozzi, Owen Hyde, Katrina Spychalsky, Tim Cook – Fox Heath Development HOA Board

○ *Feedback on Draft Plan*

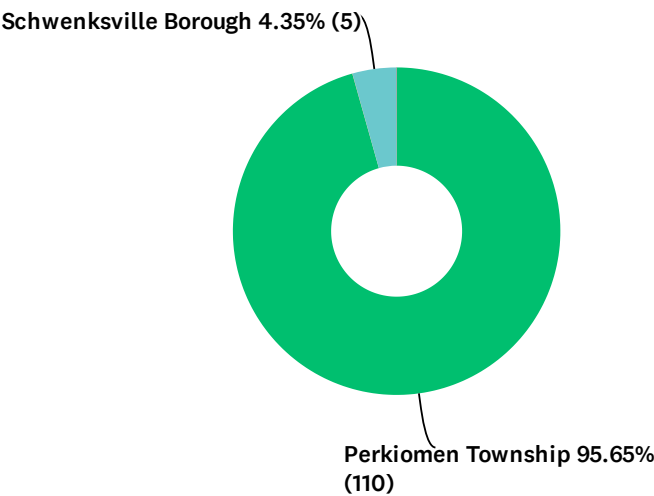
- Overall really likes the plan.
- They anticipate a lot of their residents to use the park.
- Would like to see an ADA accessible path connecting from the park to the lot that is private to the Fox Heath HOA (at water tower).
- Would like an ADA accessible path from the park to extend up to the Fox Heath Development “overflow” parking lot.
- Likes the idea of multiple parking lots throughout the site.
- Would like to see the Township Line Road parking lot come into fruition in order to help prevent non-residents from parking in the “overflow” parking lot.
- Would like to see their connection path become interactive with the stream. SC suggested a bridge would most likely have to be proposed to connect Fox Heath residents to the park trail system. Also, boulders could be proposed within the stream, next to the bridge, to allow for a more interactive experience with the water.
- Likes the idea of reforesting the western parcel for the residents’ privacy.
- Would help in anyway possible (i.e. provide letters of support) to get the park built.
- If necessary, would create an easement on the HOA parcel to provide a connection for the residents in the Fox Heath Development into the Park.

○ *General Feedback*

- The Fox Heath Development HOA owns the parcel adjacent to the water tower.
- The Parcel has a stormwater basin and small parking lot of about 5-6 spots that is available to residents/resident guests for overflow parking.
- A walking trail was proposed and built in the Development – many of the residents liked the idea; however, they wanted to make sure there was a screen/vegetated buffer from the path so it did not appear as if people are walking in the residents’ backyard.

Q1 What is the name of the municipality you live in?

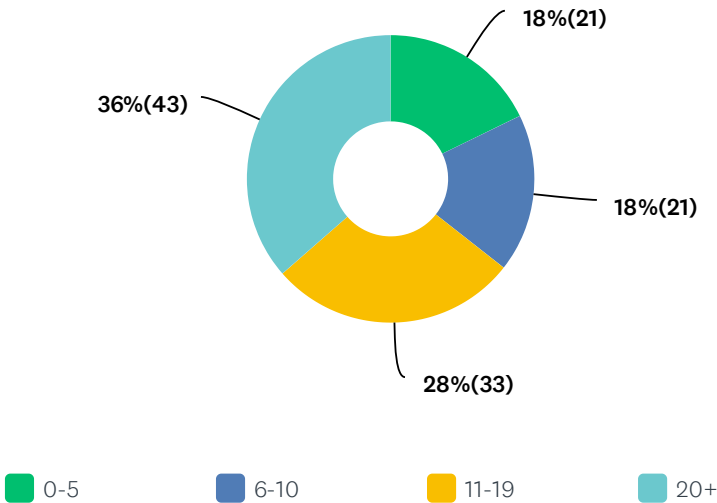
Answered: 115 Skipped: 4



ANSWER CHOICES	RESPONSES	
Perkiomen Township	95.65%	110
Collegeville Borough	0.00%	0
Lower Frederick Township	0.00%	0
Schwenksville Borough	4.35%	5
Trappe Borough	0.00%	0
Upper Frederick Township	0.00%	0
Other (please specify):	0.00%	0
TOTAL		115

Q2 How many years have you lived in your current municipality?

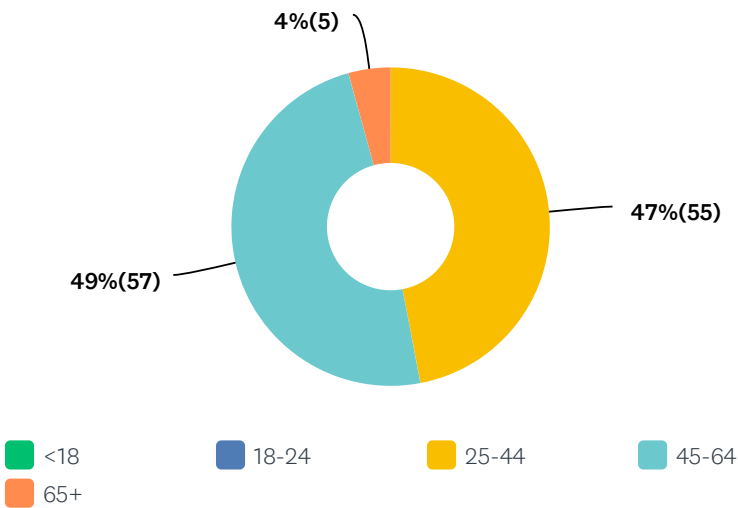
Answered: 118 Skipped: 1



	0-5	6-10	11-19	20+	TOTAL	WEIGHTED AVERAGE
(no label)	18% 21	18% 21	28% 33	36% 43	118	18.48

Q3 What is your age?

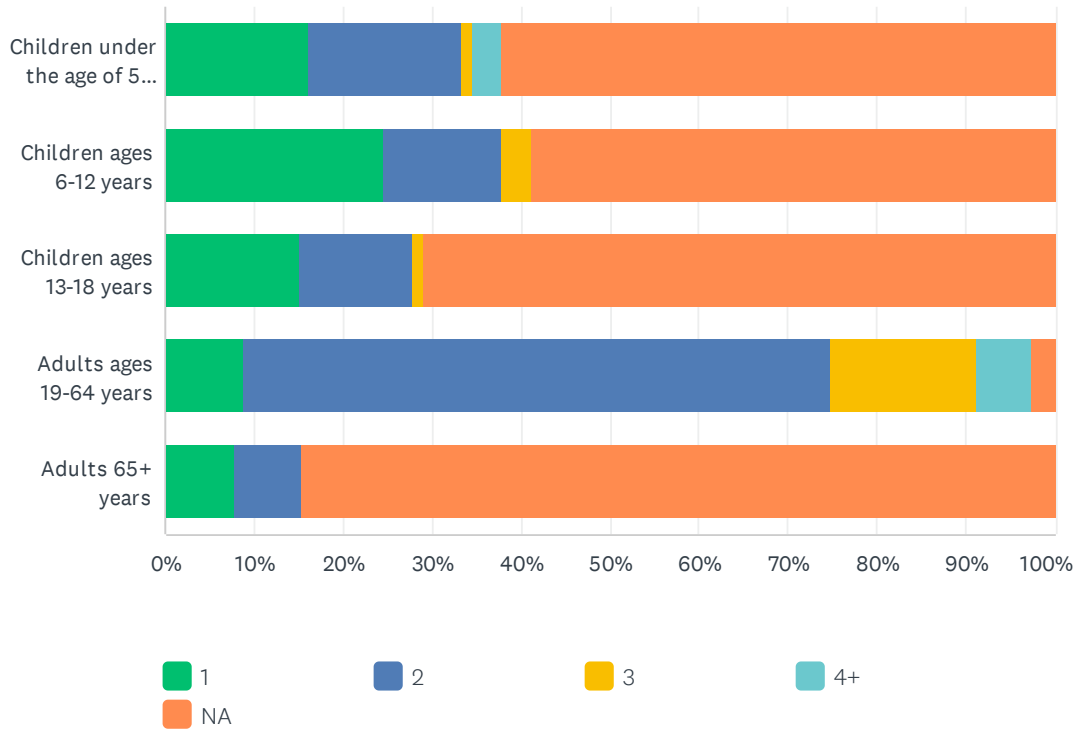
Answered: 117 Skipped: 2



	<18	18-24	25-44	45-64	65+	TOTAL	WEIGHTED AVERAGE
(no label)	0% 0	0% 0	47% 55	49% 57	4% 5	117	29.06

Q4 Please indicate how many people of each age group currently live in your household.

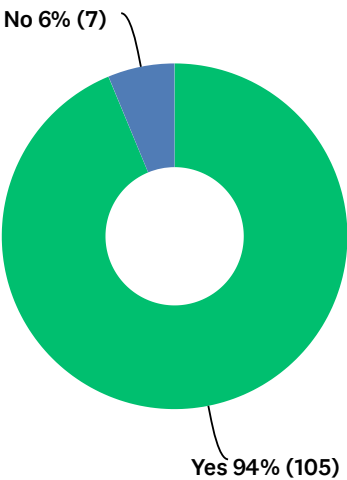
Answered: 118 Skipped: 1



	1	2	3	4+	NA	TOTAL	WEIGHTED AVERAGE
Children under the age of 5 years	16% 14	17% 15	1% 1	3% 3	62% 54	87	0.68
Children ages 6-12 years	24% 22	13% 12	3% 3	0% 0	59% 53	90	0.61
Children ages 13-18 years	15% 12	13% 10	1% 1	0% 0	71% 56	79	0.44
Adults ages 19-64 years	9% 10	66% 76	17% 19	6% 7	3% 3	115	2.15
Adults 65+ years	8% 5	8% 5	0% 0	0% 0	85% 55	65	0.23

Q5 In the past 12 months, has any member of your household participated in any passive activities in parks, natural areas, or open space areas in or around Perkiomen Township? This would include any passive activity, such as walking, biking, bird watching, etc.

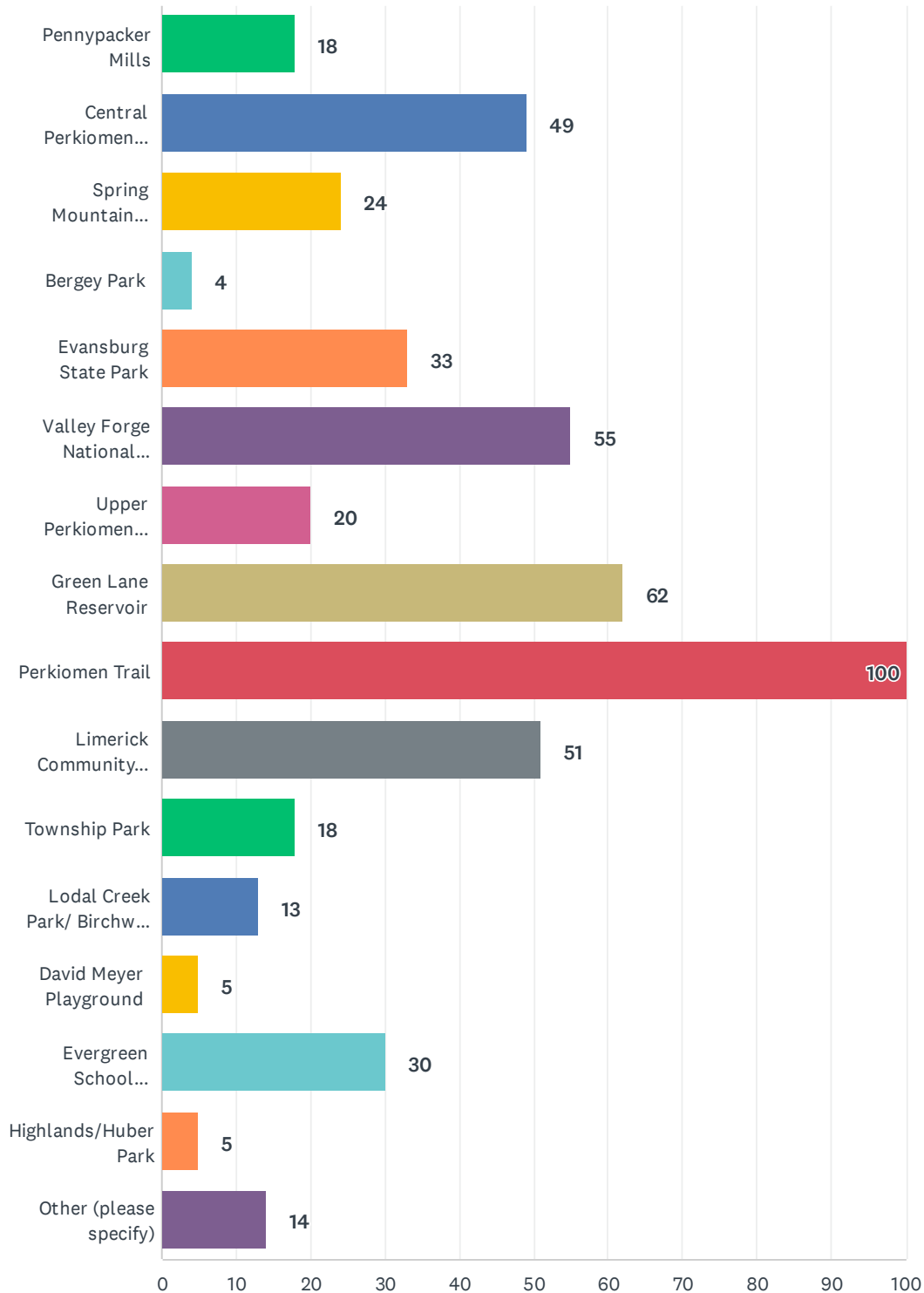
Answered: 112 Skipped: 7



ANSWER CHOICES	RESPONSES	
Yes	94%	105
No	6%	7
TOTAL		112

Q6 Which parks, natural areas, or open space areas do you visit for passive park purposes? (Check all that apply.)

Answered: 110 Skipped: 9

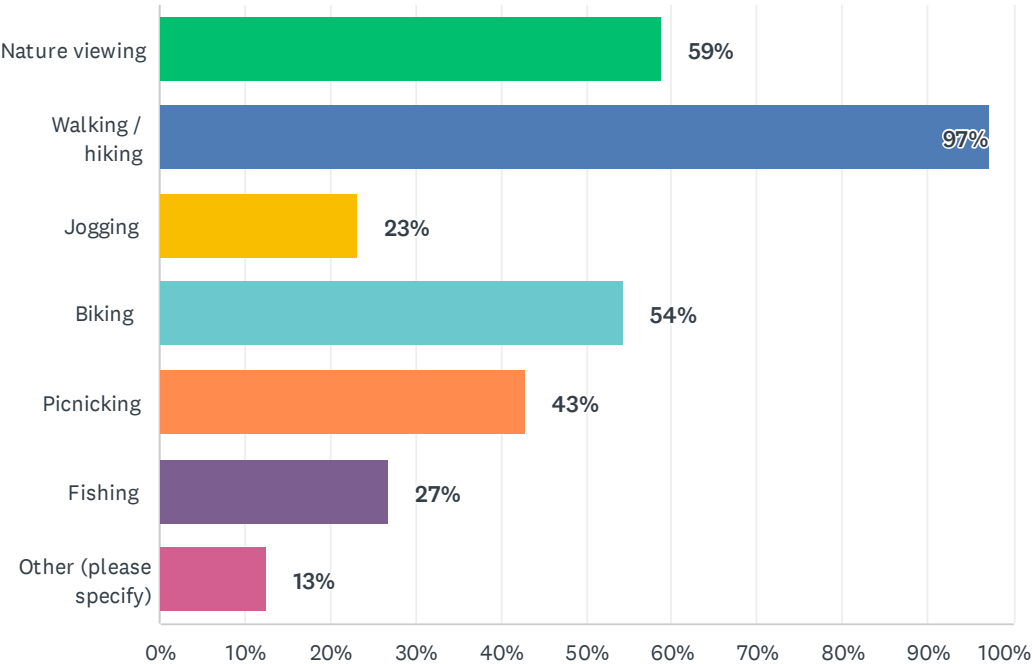


Highlands/Huber Park Public Opinion Survey

ANSWER CHOICES	RESPONSES	
Pennypacker Mills	16.36%	18
Central Perkiomen Valley Park	44.55%	49
Spring Mountain Preserve	21.82%	24
Bergey Park	3.64%	4
Evansburg State Park	30.00%	33
Valley Forge National Historic Park	50.00%	55
Upper Perkiomen Valley Park	18.18%	20
Green Lane Reservoir	56.36%	62
Perkiomen Trail	90.91%	100
Limerick Community Playground	46.36%	51
Township Park	16.36%	18
Lodal Creek Park/ Birchwood Meadow Park	11.82%	13
David Meyer Playground	4.55%	5
Evergreen School Playground	27.27%	30
Highlands/Huber Park	4.55%	5
Other (please specify)	12.73%	14
Total Respondents: 110		

Q7 Which passive activities do you enjoy? (Check all that apply.)

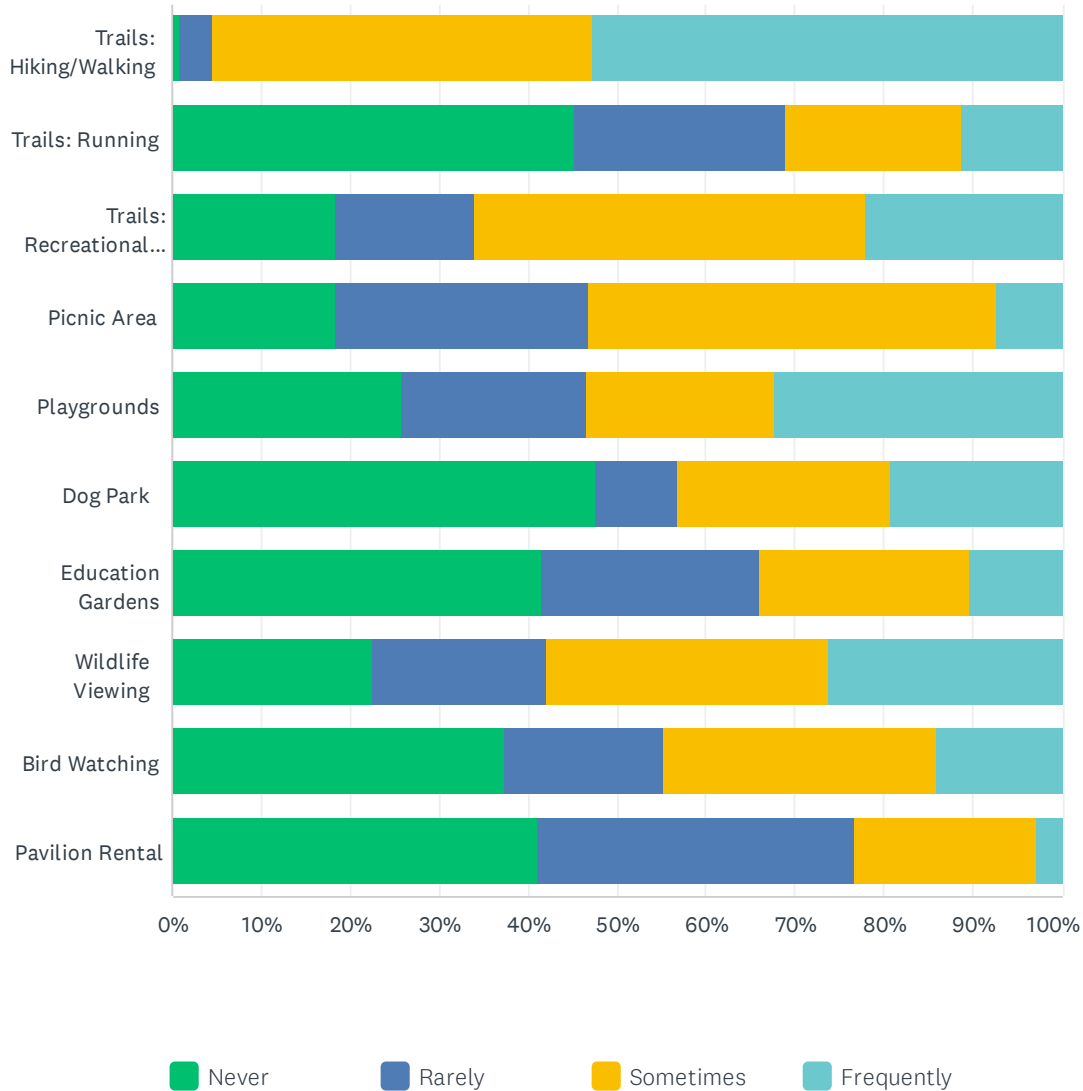
Answered: 112 Skipped: 7



ANSWER CHOICES	RESPONSES	
Nature viewing	59%	66
Walking / hiking	97%	109
Jogging	23%	26
Biking	54%	61
Picnicking	43%	48
Fishing	27%	30
Other (please specify)	13%	14
Total Respondents: 112		

Q8 How frequently (Never, Rarely, Sometimes, Frequently) do you use the following amenities and facilities or participate in the following activities?

Answered: 112 Skipped: 7

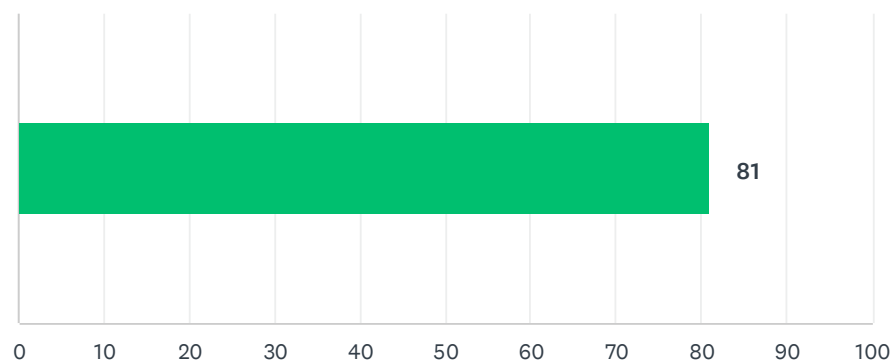


Highlands/Huber Park Public Opinion Survey

	NEVER	RARELY	SOMETIMES	FREQUENTLY	TOTAL	WEIGHTED AVERAGE
Trails: Hiking/Walking	0.89% 1	3.57% 4	42.86% 48	52.68% 59	112	3.47
Trails: Running	45.28% 48	23.58% 25	19.81% 21	11.32% 12	106	1.97
Trails: Recreational Biking	18.35% 20	15.60% 17	44.04% 48	22.02% 24	109	2.70
Picnic Area	18.35% 20	28.44% 31	45.87% 50	7.34% 8	109	2.42
Playgrounds	25.71% 27	20.95% 22	20.95% 22	32.38% 34	105	2.60
Dog Park	47.71% 52	9.17% 10	23.85% 26	19.27% 21	109	2.15
Education Gardens	41.51% 44	24.53% 26	23.58% 25	10.38% 11	106	2.03
Wildlife Viewing	22.43% 24	19.63% 21	31.78% 34	26.17% 28	107	2.62
Bird Watching	37.38% 40	17.76% 19	30.84% 33	14.02% 15	107	2.21
Pavilion Rental	41.12% 44	35.51% 38	20.56% 22	2.80% 3	107	1.85

Q9 On a scale of 1 to 5 (1 being Very Unimportant and 5 being Very Important), how important do you feel public parks, natural areas and open space areas are to the well-being and quality of life in your community?

Answered: 111 Skipped: 8

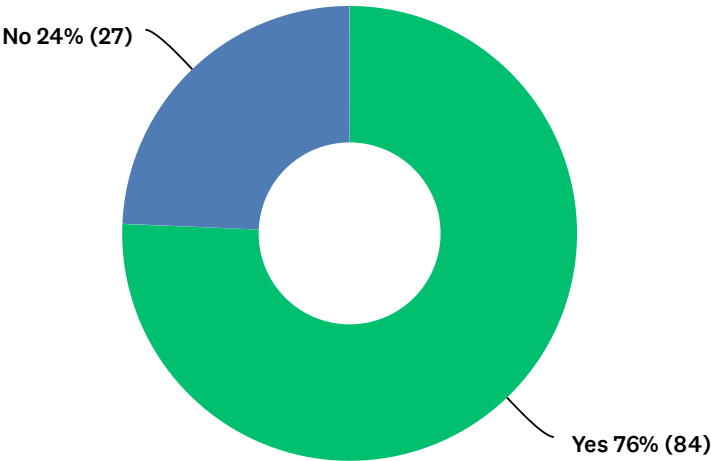


ANSWER CHOICES		AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
		81	8,998	111
Total Respondents: 111				

BASIC STATISTICS					
	MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION
	2.00	100.00	99.00	81.06	32.83

Q10 Generally, are your passive-recreational needs being met in your community?

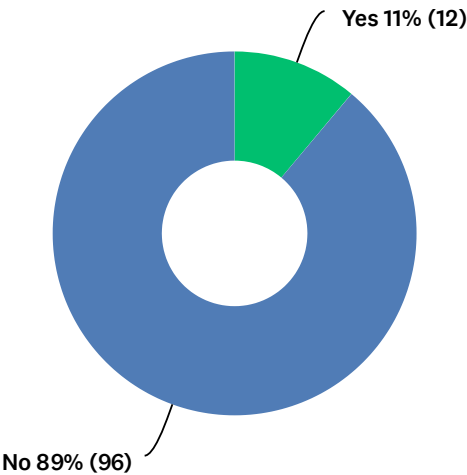
Answered: 111 Skipped: 8



ANSWER CHOICES		RESPONSES	
Yes		76%	84
No		24%	27
TOTAL			111

Q11 Do you or members of your household currently visit Highland/Huber Park?

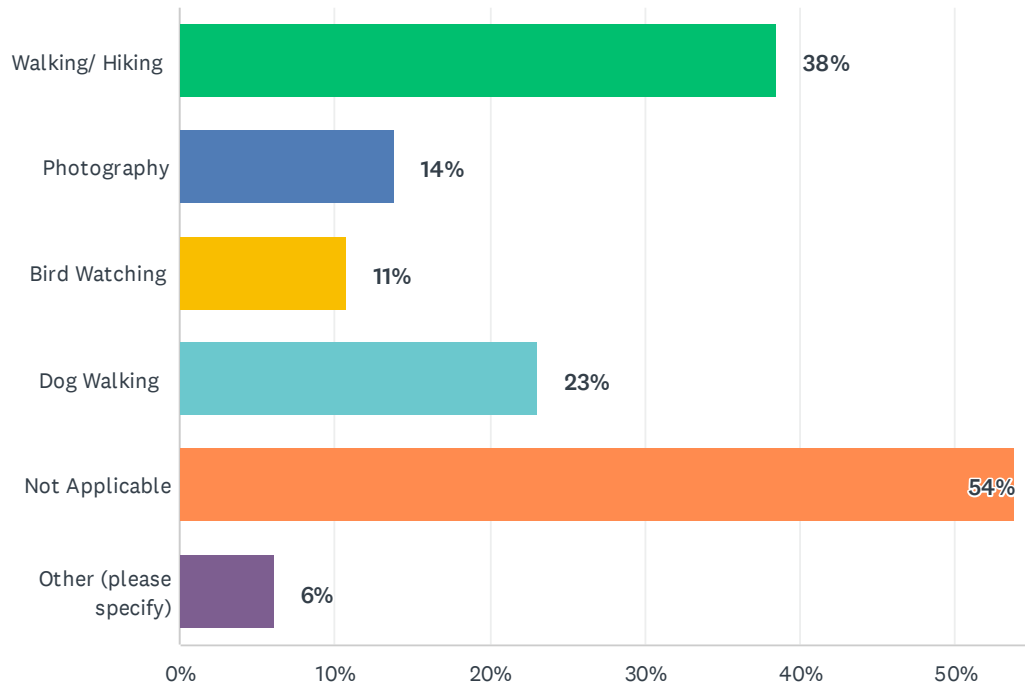
Answered: 108 Skipped: 11



ANSWER CHOICES		RESPONSES	
Yes		11%	12
No		89%	96
TOTAL			108

Q12 If you or members of your household visit Highland/Huber Park, please select the activities that you and/or members of your household participate in when going there. (Check all that apply.)

Answered: 65 Skipped: 54

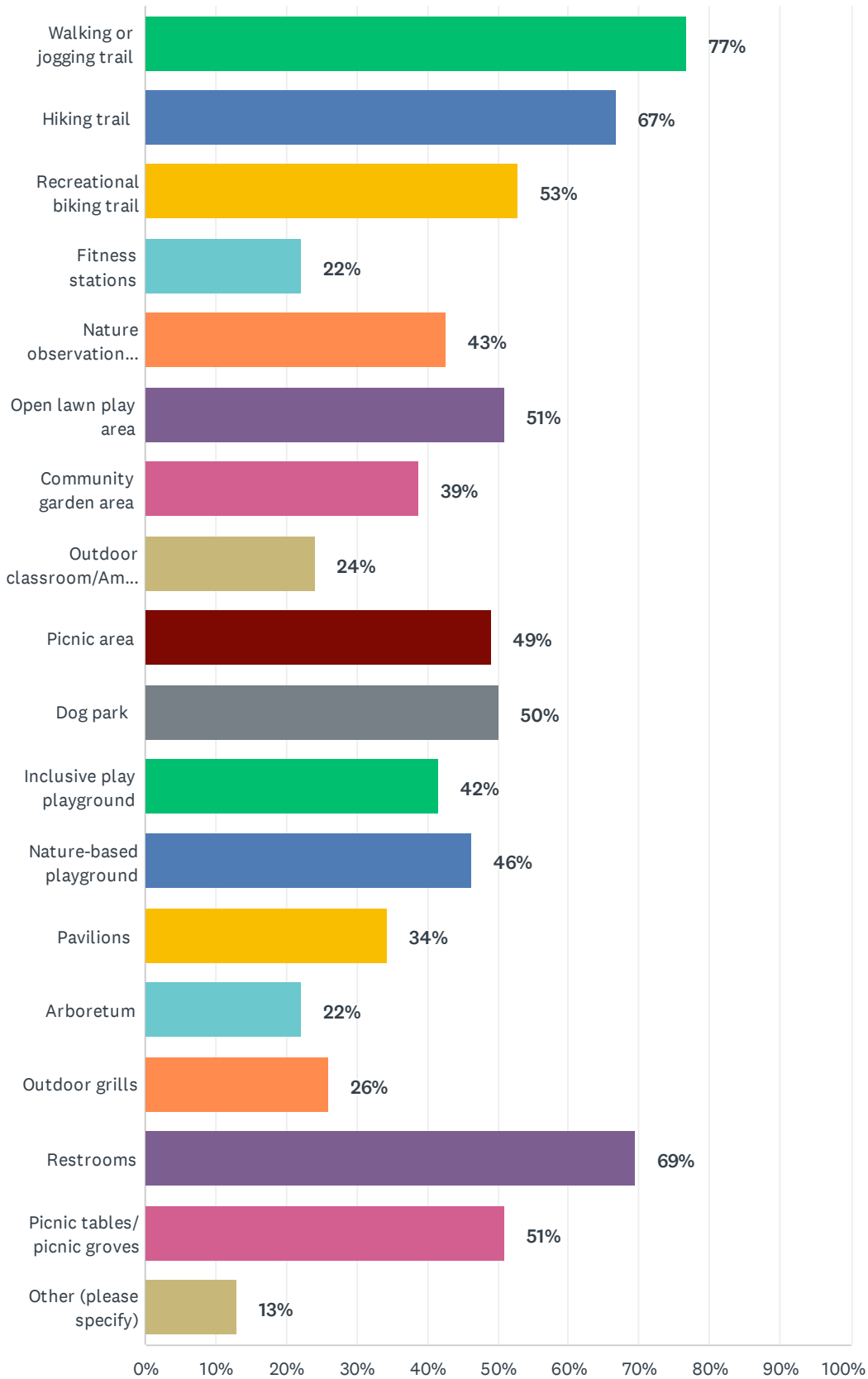


ANSWER CHOICES	RESPONSES	
Walking/ Hiking	38%	25
Photography	14%	9
Bird Watching	11%	7
Dog Walking	23%	15
Not Applicable	54%	35
Other (please specify)	6%	4
Total Respondents: 65		

Q13 Should Perkiomen Township consider any of the following activities and/or facilities for inclusion in their parks? (Check all that apply.)

Answered: 108 Skipped: 11

Highlands/Huber Park Public Opinion Survey



Highlands/Huber Park Public Opinion Survey

ANSWER CHOICES	RESPONSES	
Walking or jogging trail	77%	83
Hiking trail	67%	72
Recreational biking trail	53%	57
Fitness stations	22%	24
Nature observation area	43%	46
Open lawn play area	51%	55
Community garden area	39%	42
Outdoor classroom/Amphitheater	24%	26
Picnic area	49%	53
Dog park	50%	54
Inclusive play playground	42%	45
Nature-based playground	46%	50
Pavilions	34%	37
Arboretum	22%	24
Outdoor grills	26%	28
Restrooms	69%	75
Picnic tables/ picnic groves	51%	55
Other (please specify)	13%	14
Total Respondents: 108		

Q14 Please share any additional thoughts, comments, or ideas you would like to share about Highland/Huber Park.

Answered: 35 Skipped: 84

#	RESPONSES	DATE
1	Skatepark & pump track(macadam or concrete)	5/24/2022 6:21 PM
2	I have lived in maple hill for about 9 years. My current home has a wonderful view of wooded area and many forms of wildlife. I do not want the view and homes to wildlife be of blacktop or disturbed. When planning please consider the current residents and not take away from our privacy and our own views and enjoyment . I support the park just don't wish to give up my own privacy and view. Thank you	5/20/2022 8:26 AM
3	Pickleball courts would be nice since there are none available that I know of in the township. We currently travel to surrounding municipalities to play. I understand that a request was rejected by pvsd to line some tennis courts for Pickleball play. Fortunately other municipalities are not limiting play to residents only as yet. With the increased popularity of the sport courts are often full. It would be good to accommodate Pickleball playing residents somewhere within the township.	5/19/2022 3:18 PM
4	Clear and easy ways of who to contact when issues arise. I do have concerns about any additional work increasing the chance of flooding considering previous years of flooding	5/18/2022 3:07 PM
5	Never knew it existed	5/18/2022 11:06 AM
6	It is good that a master plan is being developed for this park area	5/17/2022 8:56 PM
7	Disc golf is a low maintenance idea	5/17/2022 6:06 PM
8	We love additional open space to walk, bike, picnic & enjoy nature. We live in a beautiful township.	5/12/2022 8:03 AM
9	N/a	5/12/2022 7:44 AM
10	Generally concerned about additional traffic pattern	5/12/2022 7:34 AM
11	It's a fairly big area, and it maintains the beauty in our township. There is already a tremendous amount of development in the area, and if this park was to be developed as well, we will see more traffic, trash and greater pollution in this area. We will also see more wildlife trying to find new places to feed and survive, which means, more wildest likely being killed by cars or other accidents. I fear this is just a way for developers capitalizing on a beautiful and decent property with absolutely no respect or regard for the people who live here or for the wildlife that exists in this area.	5/10/2022 9:58 AM
12	Na	5/9/2022 7:08 AM
13	Please keep teenagers and young adults aged 20-30. It's difficult to find stuff to do in the area that doesn't include drinking.	5/8/2022 5:57 PM
14	what we have at central perk is great. Including a dog park for dogs would be great.	5/6/2022 8:41 PM
15	N/a	5/5/2022 7:40 PM
16	We are in between 3 bike pump tracks in SEPA which have had an increase in popularity. Each of the 3 are an hour away. We have a decent sized cycling community here that would enjoy a pump track for kids and adults.	5/5/2022 2:58 PM
17	Didn't even know it was over there.	5/5/2022 2:33 PM
18	It would be nice to keep the area as natural as possible with plenty of wooded area. A lot of parks tend to have open fields, which is nice, but haveing some diversity in spaces would be preferable.	4/29/2022 2:15 PM

Highlands/Huber Park Public Opinion Survey

19	A dog park would be an excellent addition and keep dogs off the perk trail where runners and bikers are.	4/21/2022 7:44 PM
20	Emphasis should be placed on preserving natural areas and native plants. There are enough playgrounds and mowed open areas in the township, but not enough natural areas.	4/18/2022 9:15 PM
21	Consider a food forest / permaculture area - for education/community involvement and immersion	4/7/2022 9:19 PM
22	Recommend similar to Fischer's Park in Towamencin Township. It is wonderful!	3/29/2022 3:00 PM
23	Please consider ample parking at this site	3/15/2022 12:49 PM
24	I would love to see a fenced dog park added. I would be open to it being membership based that would help offset some of the costs to construct it and maintain it. We currently go to Speelhoffer Dog Park in Upper Frederick.	3/11/2022 10:51 AM
25	Living in Maple Hill Community, a worry is that traffic will increase and there will be illegally parked cars on our streets to get to the new park. Sufficient and convenient parking will need to be included in this plan and I hope it's already considered. It will also increase the number of people roaming in our area which may increase theft and/or vandalism. Are there plans for fences?	3/8/2022 1:30 PM
26	Please put in a dog park!	3/6/2022 10:45 AM
27	i know some people who are against a park development there but i know a few people who would like a park development there so maybe a minimalistic approach would be best for the park, maybe just trails and benches	3/5/2022 11:07 AM
28	Where it would be will be a plus for surrounding area an the Maple Hill Community.	3/3/2022 6:49 PM
29	We need more dog parks in the community! Traveling to neighboring communities for dog park access is not ideal, and having one close to home would be spectacular! I would also volunteer my time to the general upkeep of the dog park.	3/3/2022 2:38 PM
30	There are plenty of parks in the area and as a resident of Maple Hill we do not wish to have this park. It will bring people from outside the Maple Hill community into our area that would decrease the safety of our homes and vehicles.	3/3/2022 2:03 PM
31	Joining forces with the Schwenksville Rotary Club and the Central Perk baseball complex could offer an extension of public space availability. A simple trail or walking path connecting the two could easily provide additional access and visibility to both areas. I have lived off Meyers Road for almost 20 years and my kids have been CP ball players for 12 years and I didn't even know Highlands!Huber park existed. I walk to the ball fields often and having a walking path so close by would be welcome.	2/21/2022 12:06 PM
32	It should be maintained as a small , low impact community park. Walking trails.	2/17/2022 9:40 PM
33	Would love to see an arboretum, childrens forest, natural play areas	2/17/2022 9:20 PM
34	Keep as natural as possible	2/17/2022 8:29 PM
35	I feel that playgrounds and picnic areas are not appropriate for this section, as they draw too much trampling and trash. We have enough locations in the area for those types of activities- this needs to support a more natural and nature setting	2/17/2022 5:28 PM

DATE: 12/14/20

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PERKIOMEN TOWNSHIP
1 TRIMPRE ROAD COLLEGETOWN, PA 19028
HIGHLANDS SURVEY
MONTGOMERY COUNTY, PENNSYLVANIA
OVERALL SITE PLAN
COPYRIGHT 2020 SPOTTS, STEVENS & MCCOY

SPOTTS, STEVENS & MCCOY
Engineers and Consultants
1000 N. 10TH STREET
SUITE 200
COLLEGETOWN, PA 19028
TEL: 610-338-1100
WWW.SSM-PA.COM

PROJECT MANAGER: N. B. SPOTTS
DESIGNED BY: HMM
CHECKED BY: HMM
DATE: 12/14/20
RELEASED FOR: CLIENT REVIEW
NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	MADE	CHQD	APVD
1	1/1/21	ADDED WETLANDS	NS	NS	NS

DATE: 12/14/20

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PERKIOMEN TOWNSHIP
1 TRIMPE ROAD COLLEGEVILLE, PA 19308
HIGHLANDS SURVEY
OVERALL SITE PLAN
MONTGOMERY COUNTY, PENNSYLVANIA
COPYRIGHT 2020 SPOTTS, STEVENS & MCCOY

SPOTTS, STEVENS & MCCOY
Engineers and Consultants
1000 N. 10TH STREET
SUITE 200
COLLEGEVILLE, PA 19308
TEL: 610-261-1000
WWW.SSM-PA.COM

PROJECT MANAGER: N.B.
DESIGNED BY: N.B.
CHECKED BY: N.B.
DATE: 12/14/20
RELEASED FOR: CLIENT REVIEW
NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	MADE	CHGD	APVD
1	1/15/21	ADOPTED WETLANDS	HMM	NS	NS
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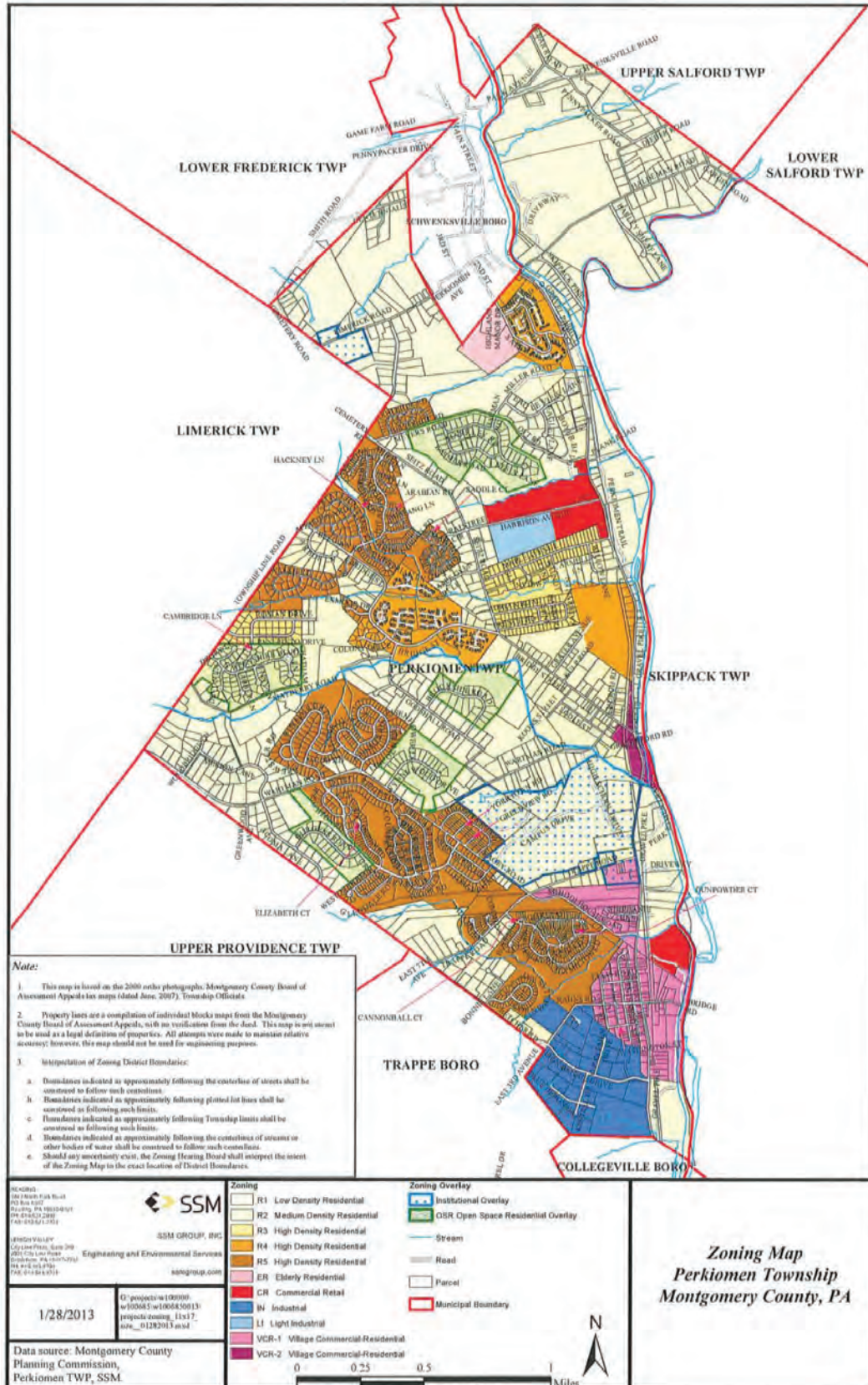
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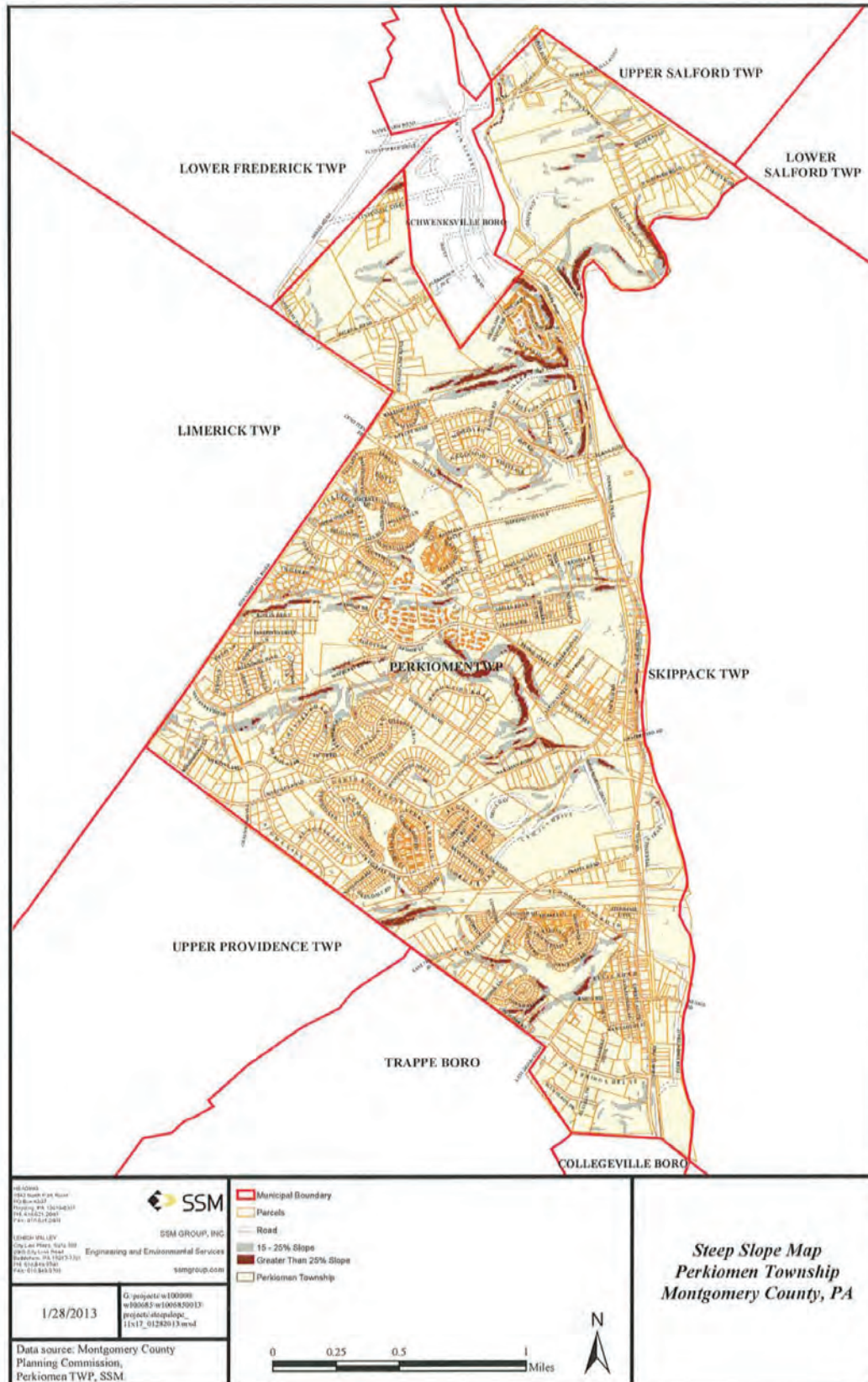
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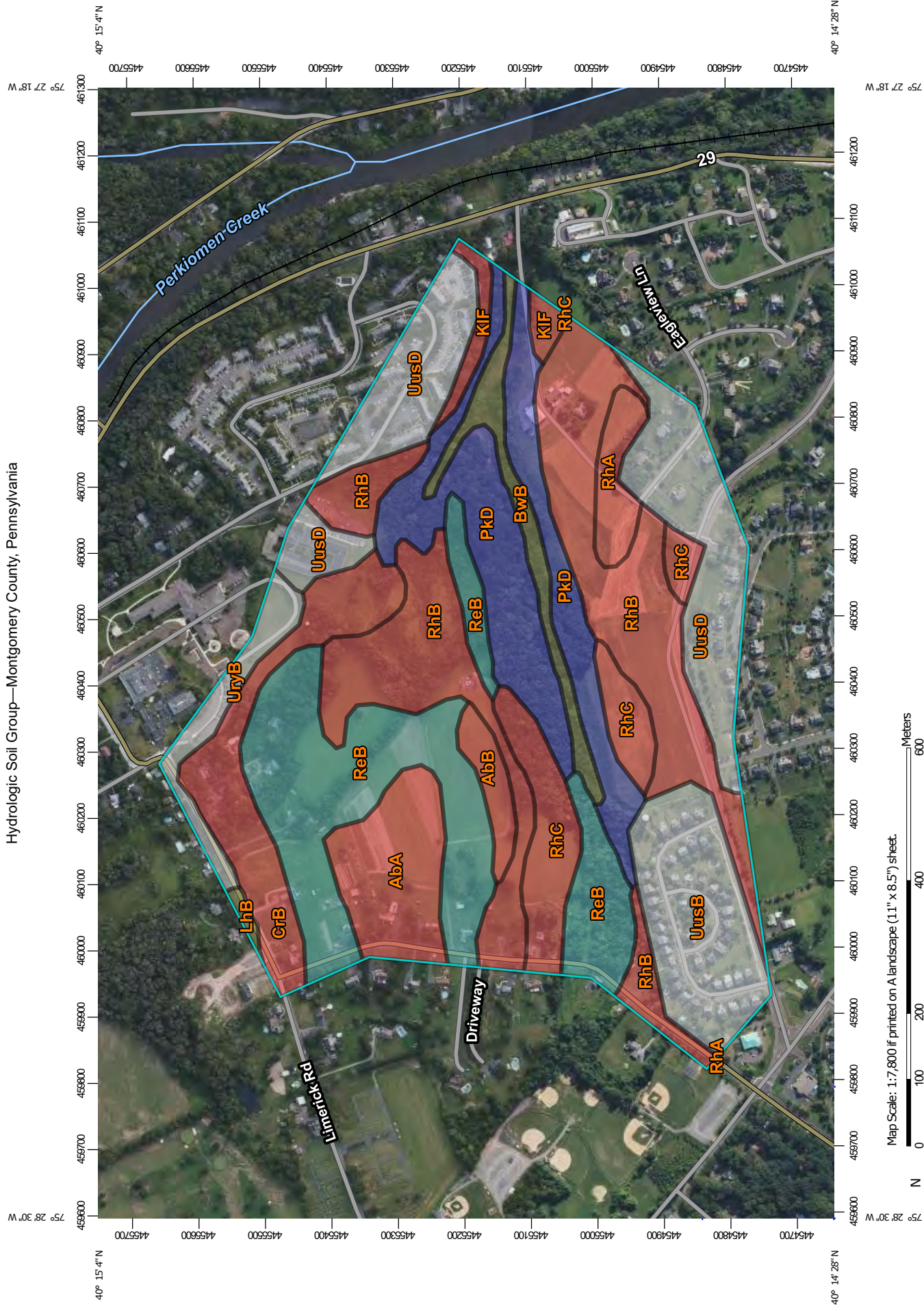
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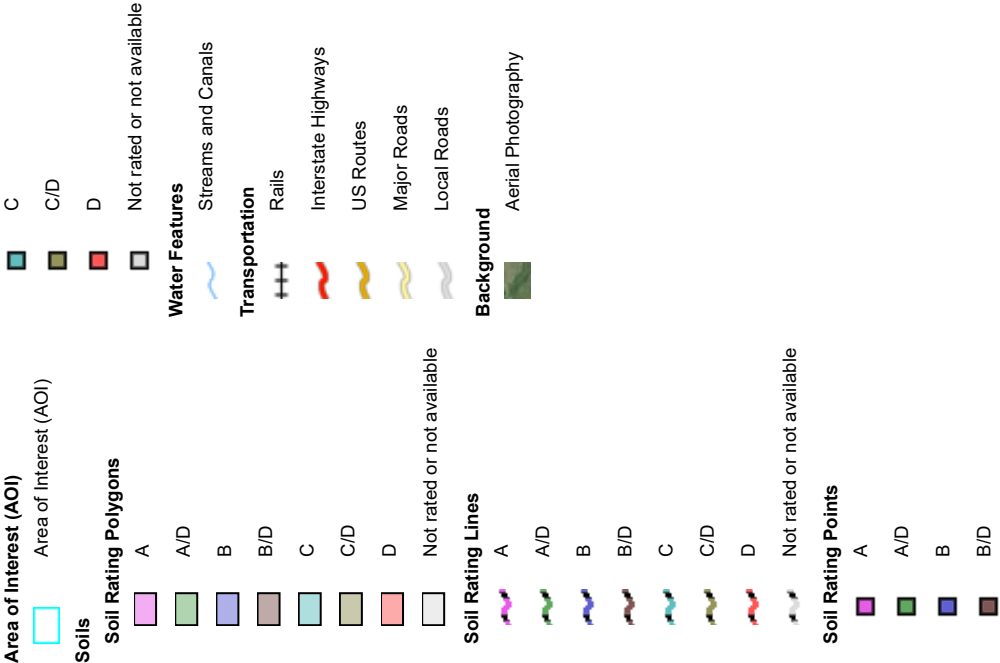
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Hydrologic Soil Group—Montgomery County, Pennsylvania



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 16, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 28, 2020—Sep 19, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	D	9.6	5.4%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	D	2.6	1.4%
BwB	Buckingham silt loam, 3 to 8 percent slopes	C/D	5.3	2.9%
CrB	Croton silt loam, occasionally ponded, 3 to 8 percent slopes	D	12.3	6.9%
KIF	Klinesville channery silt loam, 35 to 60 percent slopes	D	2.5	1.4%
LhB	Lehigh silt loam, 3 to 8 percent slopes	C/D	0.4	0.2%
PkD	Penn-Klinesville channery silt loams, 15 to 25 percent slopes	B	22.3	12.5%
ReB	Readington silt loam, 3 to 8 percent slopes	C	30.0	16.8%
RhA	Reaville silt loam, 0 to 3 percent slopes	D	3.4	1.9%
RhB	Reaville silt loam, 3 to 8 percent slopes	D	38.2	21.4%
RhC	Reaville silt loam, 8 to 15 percent slopes	D	10.4	5.8%
UryB	Urban land-Readington complex, 0 to 8 percent slopes		4.4	2.4%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes		13.7	7.7%
UusD	Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes		23.6	13.2%
Totals for Area of Interest			178.6	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



HISTORY & BACKGROUND

Perkiomen Valley School District and Ursinus College are 'Welcoming Home' the Lenape people to the Perkiomen Valley community. The Lenape people are the indigenous inhabitants of this region who were forcibly removed and dispersed over 250 years ago. This resulted in them being divided into five separate tribes that are currently located in Oklahoma, Wisconsin, and Canada.

In 2021, the United Nations called upon all communities worldwide to partner with their local indigenous people in order to develop environmental projects that support conservation and ecosystem restoration. It aims to prevent, halt and reverse the degradation of ecosystems on every continent and in every ocean. PVSD reached out to the Delaware Tribe of Indians (Oklahoma) and Ursinus College. We envisioned the creation of two arboretums; Lenape Arboretum (Main Campus) and Muhlenberg Woods (West Campus). Together they are known as 'PV Woods' and these two sites cover 76 acres; Lenape Arboretum is 30 acres and Muhlenberg Woods is 46 acres. Our vision is to inspire students to care for the earth and be leaders in environmental action, social equity, and inclusion. As an irreplaceable watershed and forest, Lenape Arboretum and Muhlenberg Woods, provides a place for wonder, exploration, relaxation, learning, and joy that promotes environmental stewardship and conservation by enabling ALL students to explore the roots of our community.

Lenape Arboretum (Main Campus) is named in honor of the Lenape people who have been stewards of this land for over 10,000 years. The Lenape history, language, and culture are directly connected to this parti



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While several authentic Lenape texts on our region, there is a dog, turtle, oak tree, and sweet grass that are all named in his honor. Additionally, he was the first president of Franklin College which was the first co-educational institution as well as the first bilingual institution in our nation. His father, Heinrich Melchoir Muhlenberg, emigrated from Germany and established the first Lutheran congregation in North America. Muhlenberg's maternal grandfather, Conrad Weiser, was the chief interpreter and negotiator between the Pennsylvania colony and local indigenous nations. Both Lenape Arboretum and Muhlenberg Woods share a joint mission to educate the community about the Lenape people who are the indigenous inhabitants as well as immigrants with a particular focus on women and children and additionally the stories of enslaved and free Africans in Montgomery County.

For many years, individuals and institutions of learning would dig up indigenous burial grounds to take sacred objects and place the human remains on display. This gruesome and despicable practice was ended in 1990 when the US Congress passed NAGPRA. This legislation recognized that 'human remains, funerary objects, sacred objects, and objects of cultural patrimony' belong to the indigenous tribal descendants. The Lenape people will finally start the healing process of re-burying their ancestors this April 11, 2022 with the re-burial of 200 Lenape ancestors at Pennsbury Manor in Bucks County. There are still thousands more ancestral remains and objects that still need to be reburied. For this sacred occasion, the largest gathering in Pennsylvania of Lenape people in over 250 years will be arriving this April. This will also be the first time that all five chiefs will be together. During this solemn time, the Lenape people will also be honoring us with their presence at our Lenape Arboretum Dedication and Community Day event on April 10, 2022. The entire Perkiomen Valley community are invited to join us in welcoming home the Lenape people at our community day and celebratory feast. This will be a truly historic event for our entire community.



celebratory events and activities for the entire community at West Campus.

All of the tree identification labels will provide the English name, scientific name, and Lenape name. Tree identification is a key step in gaining Level 1 certification as an arboretum. Both Lenape Arboretum and Muhlenberg Woods aspire to become the FIRST two public school arboretums in the nation!

RESOURCES



Land Acknowledgement



Statement Of Mutual Intentions



Quick Links

Schools

3 Iron Bridge
Drive
Collegeville, PA
19426

610-489-8506

webmaster@pv
sd.org

Career
Opportunities

Community
Bulletin Board

Facilities Usage
& Rental

ParentVUE

Staff Directory

Evergreen Elementary	Middle School East
Schwenksville Elementary	Middle School West
Skippack Elementary	High School
South Elementary	North Montco Technical Career



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External links sites are not supervised by or within the control of the Perkiomen Valley School District.

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June 29, 2020

Ms. Cecile M. Daniel, Manager
Perkiomen Township
1 Trappe Road
Collegeville PA, 19426

RE: Dog Park – Driveway Sight Distance & Location
Address: 546 Township Line Road
SSM File 100685.2020

Dear Cecile:

As requested we performed sight distance measurements for a potential Dog Park two-way driveway entrance at the existing driveway location at the address 546 Township Line Road, formerly known as the Huber Property, which was acquired by the Township as part of a County grant in 2009. This property contained a dwelling which was recently demolished and now is a vacant lot. The greater portion of the property was acquired by the Township in 2003. This portion of the property has limited access to Township Line Road and consists primarily of a grass field and woodlands. The sight distance measurements were conducted to determine if adequate sight distance is available for safe ingress and egress to the property, based upon PennDOT standards. We also evaluated the available sight distance at the 50-foot wide arm of the property at the guiderail opening just south of 542 Township Line Road near a small pipe culvert. Based on these site visits and sight distance measurements we compiled a list of pros and cons in regard to placing the driveway at either of the two locations.



Image from Montgomery County Map Search



An aerial photograph of a rural property. A road, labeled 'Township Line Rd' in two locations, runs vertically on the left side. The property is mostly green with scattered trees and a few buildings. Red text '1A' and '1B' are overlaid on the image. '1A' is located near a small, light-colored building in the lower-left quadrant. '1B' is located near a larger, light-colored building in the upper-left quadrant. The road is a two-lane asphalt road with a yellow center line. The property is surrounded by other green fields and trees.

Image from Google Maps of 546 Township Line Road



Image from Google Maps of Right-of-Way Location / Guiderail Opening

In order to determine the minimum sight distance, PennDOT form M-950S titled “Driveway Sight Distance Measurements” was utilized. This form lists the minimum safe sight distance based on speed limit and slope of the roadway. Township Line Road (SR 4014) has a speed limit of 40 MPH.

(1A) We performed on site investigation to determine the available sight distance at the existing driveway entrance on January 21, 2020 at the 546 Township Line Road Property. The slope of Township Line Road at this location is approximately 4%, going downhill from north to south. This results in a minimum safe sight distance looking out of the driveway to the north (i.e. looking right) of 338 ft, and to the south (i.e. looking left) of 295 ft.

The measured available sight distance was 500+ ft to the north, but only a 240 ft to the south which was 55 ft short of the minimum safe sight distance. There is a large bush and embankment obstructing sight distance to the south. The bush was determined to be an item which could be easily removed with property owner permission; however, the embankment supports the house and cannot be altered; therefore, the minimum sight distance could not be achieved.



Obstructions: Plant / Bush & Embankment



1A Looking Left / Obstructions



1A Looking Right

(1B) Due to the sight distance issue at the existing driveway we evaluated sight distances for a potential driveway location on the same property but approximately 70 ft north of the existing driveway location. At this location (designated as 1B) the available sight distance was 475 ft sight distance to the north, which was adequate, and 296 ft to the south, assuming the bush on the adjacent property was removed. This would require property owner cooperation to remove the bush.

Physical features on site for this property were that the site was generally vacant consisting primarily of grass with 4-5 trees and a large bush near the northernmost property line. The site had a slope similar to the roadway from north to south.



1B Looking Left / Obstructions



1B Looking Right

(2) We also performed on-site investigation to determine the available sight distance at the 50 ft wide property frontage at the guiderail opening just south of 542 Township Line Road near a small pipe culvert. The slopes along Township Line Road are approximately 4% downhill from both directions, this location being a low point in the road. This results in a minimum safe sight distance of approximately 338 ft in both directions.

At this location the available sight distance was 500+ ft to the north and 500+ ft to the south. This would be a feasible location for the driveway based on the available sight distance.



2 Looking Left



2 Looking Right

Physical features at this location consist of a steep grass drive off of Township Line Road at the guard rail opening, a guardrail opening which would be required to be widened, a small vegetated riparian buffer along what appeared to be an intermittent stream, and wet wooded areas.

In order to assist Perkiomen Township make a determination on the driveway location a list pros and cons is provided below for each potential driveway location:

Driveway Location (1A) – 546 Township Line Road – Existing Driveway Location

Pros

- Location of existing residential driveway.
- Requires no tree removal or clearing.
- More separation from northern property owner / somewhat centered on site.
- Overall area does not require significant grading or stormwater improvements.

Cons

- A PennDOT Highway Occupancy Permit (HOP) will likely NOT be granted at due to the deficient sight distance to the south.
- Due to the deficient sight distance, a driveway here would expose the Township to added liability.

Driveway Location (1B) – 546 Township Line Road – Driveway at Northern Portion of Site

Pros

- Adequate sight distance can potentially be achieved through removal of the bush on the adjacent private property.
- Overall area does not require significant grading or stormwater improvements.
- Is still on the property acquired previously specific for open space access.

Cons

- Available sight distance is marginal and may be subject to a PennDOT field study.
- Requires private property owner cooperation for bush removal.
- Requires removal of bushes and trees on Township property.
- Limited separation between driveway and adjacent property. Privacy fence or vegetative screening may be desirable.
- Proximity to fire hydrant must be considered.

Driveway Location (2) – Guiderail Opening (542 Township Line Road)

Pros

- This location has best available sight distance.
- Location is within Township property frontage.

Cons

- May require significant grading / stormwater consideration for driveway construction.
- Will require guiderail modifications.
- Limited separation between driveway and adjacent property.
- Driveway may be within the Riparian Buffer zone.
- Driveway entrance area may be subject to frequent flooding.
- Requires removal of a significant amount of bushes and trees.

We trust the provided information will assist the Township and Park and Recreation Board in determining the desired location of the driveway to the future dog park.

Please feel free to contact me directly in regard to our sight distance survey.

Sincerely,
Spotts, Stevens and McCoy

A handwritten signature in black ink that reads "Nick Szeredai". The signature is stylized with a large, looped initial "N" and a cursive-style name.

Nicholas Szeredai, P.E.
Municipal / Civil Engineer
nick.szeredai@ssmgroup.com

Enclosure

cc: Kevin Motsavage



315 W. James Street, Suite 205, Lancaster, PA 17603 717-517-5000 Fax 717-517-5004 www.libertyenviro.com

**NEGATIVE PHASE I BOG TURTLE HABITAT ASSESSMENT
COURTESY COPY FOR USFWS RECORDS**

January 28, 2021

US Fish and Wildlife Service
Endangered Species Biologist
110 Radnor Road, Suite 101
State College, Pennsylvania 16801

**Re: Regulated Waters Delineation and Phase I Bog Turtle Habitat Assessment
Highlands Dog Park Project Site
Perkiomen Township, Montgomery County, Pennsylvania
Liberty Project No. 200688
PNDI Search #725558**

Dear Biologist:

Liberty Environmental, Inc. (Liberty) is pleased to provide this letter report summarizing a Regulated Waters Delineation (RWD) and a Phase I Bog Turtle Habitat Assessment recently completed at the Highlands Dog Park project site located west of Salem Road and north of Miller Road in Perkiomen Township, Montgomery County, Pennsylvania. The Perkiomen Township Board of Supervisors are planning to develop a public use dog park on the property. The investigation area is approximately 16 acres in size and consists of a forested riparian corridor, upland grass fields, four wetlands (Wetlands E, F, G, I) and six watercourses (Watercourses A, B, C, D, H, and J). A Site Location Map is provided as Attachment 1.

METHODOLOGY

The study area was investigated for wetlands and other regulated waters on December 14, 2020 and January 11, 2021 as defined by the *1987 Corps of Engineers Wetland Delineation Manual* (1987 Manual), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Regional Supplement), and subsequent guidance. The 1987 Manual and Regional Supplement are the current Federal delineation manuals used in the Clean Water Act Section 404 regulatory program for the identification and delineation of wetlands. The approach requires positive evidence of hydrophytic vegetation, hydric soils, and wetland hydrology for the determination that an area qualifies as a wetland.

Wetlands and watercourses are regulated within the Commonwealth of Pennsylvania by the United States Army Corps of Engineers (USACE) and the Department of Environmental Protection (DEP). Both USACE and DEP define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The DEP, in PA Code Title 25 Chapter 87, defines an intermittent watercourse as a body of water flowing in a channel or bed composed primarily of substrates associated with flowing water, which, during periods of the year, is below the local water table and obtains its flow from both surface runoff and groundwater discharges. Chapter 87 further defines perennial watercourses as a body of water flowing in a channel or bed composed primarily of substrates associated with flowing waters and is capable, in the absence of pollution or other manmade stream disturbances, of supporting a benthic macroinvertebrate community which is composed of two or more recognizable taxonomic groups of organisms that live at least part of their life cycles within or upon available substrates in a body of water or water transport system.

A bog turtle (*Glyptemys muhlenbergii*) habitat screening is required for permit activities which will impact regulated waters within Montgomery County, one of the 15 counties known to support populations of bog turtles. A Pennsylvania Natural Diversity Inventory (PNDI) search on January 25, 2021 (Project Search ID: 725558) indicated a state and federally listed species of concern may be present within the project area. The PNDI Project Environmental Review Receipt is provided as Attachment 2. The investigation area was evaluated for potential bog turtle habitat on January 11, 2021 in accordance with the *United States Fish and Wildlife Service Guidelines for Bog Turtle Surveys*, revised April 2006. The approach requires positive evidence of bog turtle habitat, which include suitable hydrology, suitable soils, and suitable vegetation.

FIELD OBSERVATIONS

The investigation area consists of an approximate 16-acre area located in Perkiomen Township, Montgomery County, Pennsylvania. The investigation area contains four wetlands (Wetlands, E, F, G, and I) and six watercourses (Watercourses A, B, C, D, H, and I). A Regulated Waters Location Map is provided as Attachment 3. Photographs of the investigation area are included as Attachment 4. Regulated Wetland Delineation Data Forms are included as Attachment 5. Phase I Bog Turtle Habitat Assessment Field Forms are provided as Attachment 6. The USDA's Natural Resource Conservation Series (NRCS) WebSoil Survey Information, which was used as a reference to cross-verify observed soil types, is provided as Attachment 7. Resumes for the site investigators are provided as Attachment 8. Waters within the investigation area drain to Perkiomen Creek which is listed within the PA DEP Chapter 93 *Water Quality Standards* for protection of Warm Water Fishes and Migratory Fishes (WWF, MF).

Watercourse A is a low flow intermittent channel that begins in the northeastern portion of the investigation flows into Watercourse C. Watercourse A was flagged along the western bank with 66 flags (C-A1 at culvert to C-A60 and C-A201 to C-A206) and on the eastern bank with 67 flags (C-A101 at culvert to C-A160 and C-A301 to C-A307 joins C-A201). Watercourse A is approximately three to eight inches deep and five inches to five feet wide with a silt, gravel, and cobble substrate.

Watercourse B is a low flow ephemeral channel that begins in the northeastern portion of the investigation and flows into Watercourse A. Watercourse B was flagged along the northern bank with eight flags (C-B1 to C-B8 joins C-A34) and on the southern bank with eight flags (C-B101 to C-B108 joins C-A35). Watercourse B is approximately three to five inches deep and three to ten inches wide with a vegetated substrate.

Watercourse C is a high flow intermittent channel drains from Wetland E and flows out of the investigation area to the east. Watercourse C was flagged along the southern bank with 60 flags (C-C1 to C-C49 and

C-C201 joins C-A1 to C-C211 at fence) and on the northern bank with 63 flags (C-C101 to C-C154 and C-C301 at fence to C-C309 joins C-A). Watercourse C is approximately one to four inches deep and six inches to two feet wide with a gravel, cobble, and boulder substrate.

Watercourse D is a low flow ephemeral channel that begins in the central portion of investigation and flows into Watercourse C. Watercourse D was flagged along the eastern bank with nine flags (C-D1 to C-D9 joins C-C131) and on the western bank with ten flags (C-D101 to C-D110 joins C-C132). Watercourse D is approximately zero to three inches deep and six to 18 inches wide with a silt and gravel substrate.

Wetland E is a palustrine emergent (PEM) and palustrine forested (PFO) wetland less than one acre in size and is located in the central portion of the investigation area. Wetland E was delineated with 23 flags (W-E1 to W-E23 closed) Vegetation within Wetland E consists of pin oak (*Quercus palustris*, FACW), cottongrass bulrush (*Scripus cyperinus*, FACW), lamp rush (*Juncus effuses*, FACW), Japanese stilt grass (*Microstegium vimineum*, FAC), and flat-top goldentop (*Euthamia graminifolia*, FAC). Soils within Wetland E are brown (7.5YR 4/3) silt loam with red (2.5YR 5/8) mottles from zero to 14 inches. Indicators of hydrology within Wetland E include geomorphic position, oxidized rhizospheres on living roots, microtopographic relief, drainage patterns, saturation, and surface water. Hydrology is provided to Wetland E from surface water and groundwater. **Bog turtle habitat is not present within Wetland E due to the absence of the appropriate soils and hydrology.**

Wetland F is a PEM wetland less than one acre in size and is located in the central portion of the investigation area. Wetland F was delineated with four flags (W-F1 to W-F4 closed). Vegetation within Wetland F consists of lamp rush, Japanese stilt grass, and flat-top goldentop. Soils within Wetland F are reddish brown (5YR 4/4) silt loam with yellowish red (5YR 5/8) mottles from zero to 12 inches. Indicators of hydrology within Wetland F include geomorphic position, surface water, and saturation. Hydrology is provided to Wetland F from surface water. **Bog turtle habitat is not present within Wetland F due to the absence of the appropriate soils and hydrology.**

Wetland G is a PEM wetland less than one acre in size and is located in the northern portion of the investigation area. Wetland G was delineated with eight flags (W-G1 joins to C-H101 to W-G8 joins C-H1). Vegetation within Wetland G consists lamp rush, Japanese stilt grass, flat-top goldentop, purple-leaf willowherb (*Epilobium coloratum*, FACW), and New England aster (*Symphotrichum novae-angliae*, FACW). Soils within Wetland G are brown (7.5YR 4/3) silt loam with red (2.5YR 5/8) mottles from zero to twelve inches. Indicators of hydrology within Wetland G include geomorphic position, drainage patterns, oxidized rhizospheres on living roots, and saturation. Hydrology is provided to Wetland G from surface water and groundwater. **Bog turtle habitat is not present within Wetland G due to the absence of the appropriate soils and hydrology.**

Watercourse H is a low flow ephemeral channel that drains from Wetland G and flows into Wetland I. Watercourse H was flagged along the southern bank with nine flags (C-H1 to C-H9 end) and on the northern bank with nine flags (C-H101 to C-H109 end). Watercourse H is approximately one to two inches deep and three to ten inches wide with a silt and gravel substrate.

Wetland I is a PEM wetland less than one acre in size and is located in the northern portion of the investigation area. Wetland I was delineated with seven flags (W-I1 joins C-H9 to W-I7 joins C-H109).

Vegetation within Wetland I consists of purple-leaf willowherb, lamp rush, Japanese stilt grass, New England aster, and seedbox (*Ludwigia alternifolia*, FACW). Soils within Wetland I are brown (7.5YR 4/3) silt loam with yellowish red (5YR 5/6) mottles from zero to 14 inches. Indicators of hydrology within Wetland I include saturation, geomorphic position, and drainage patterns. Hydrology is provided to Wetland I from surface water. **Bog turtle habitat is not present within Wetland I due to the absence of the appropriate soils and hydrology.**

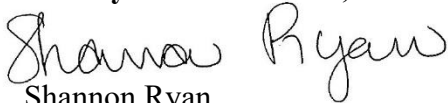
Watercourse J is a high/low flow perennial/ephemeral/intermittent channel that begins and end in the eastern portion of the investigation area. Watercourse J was flagged along the southern bank with seven flags (C-J1 to C-J7 end) and on the northern bank with seven flags (C-J101 to C-J107 end). Watercourse J is approximately one to two inches deep and three to six inches wide with a silt and gravel substrate.

CONCLUSIONS

Liberty Environmental, Inc. investigated for regulated waters within the approximate 16-acre area located at the Highlands Dog Park project site in Perkiomen Township, Montgomery County, Pennsylvania. Four wetlands (Wetland E, F, G, and I) and six watercourses (Watercourses A, B, C, D, H, and J) were delineated within the investigation area as defined by the *1987 Corps of Engineers Wetland Delineation Manual* (1987 Manual) and subsequent guidance. A Phase I Bog Turtle Habitat Assessment was also performed within Wetlands E, F, G, and I. **Bog turtle habitat was not present within Wetlands E, F, G, and I due to the absence of the appropriate soils and hydrology associated with the species.** If you have any questions regarding this report, please feel free to contact us at (717) 517-5000.

Sincerely,

Liberty Environmental, Inc.



Shannon Ryan
Project Scientist II



Teresa Amitrone
Project Manager
PA Qualified Bog Turtle Surveyor

Attachment 1: Site Location Map

Attachment 2: Pennsylvania Natural Diversity Inventory Search Receipt

Attachment 3: Regulated Waters Location Map

Attachment 4: Site Photographic Log

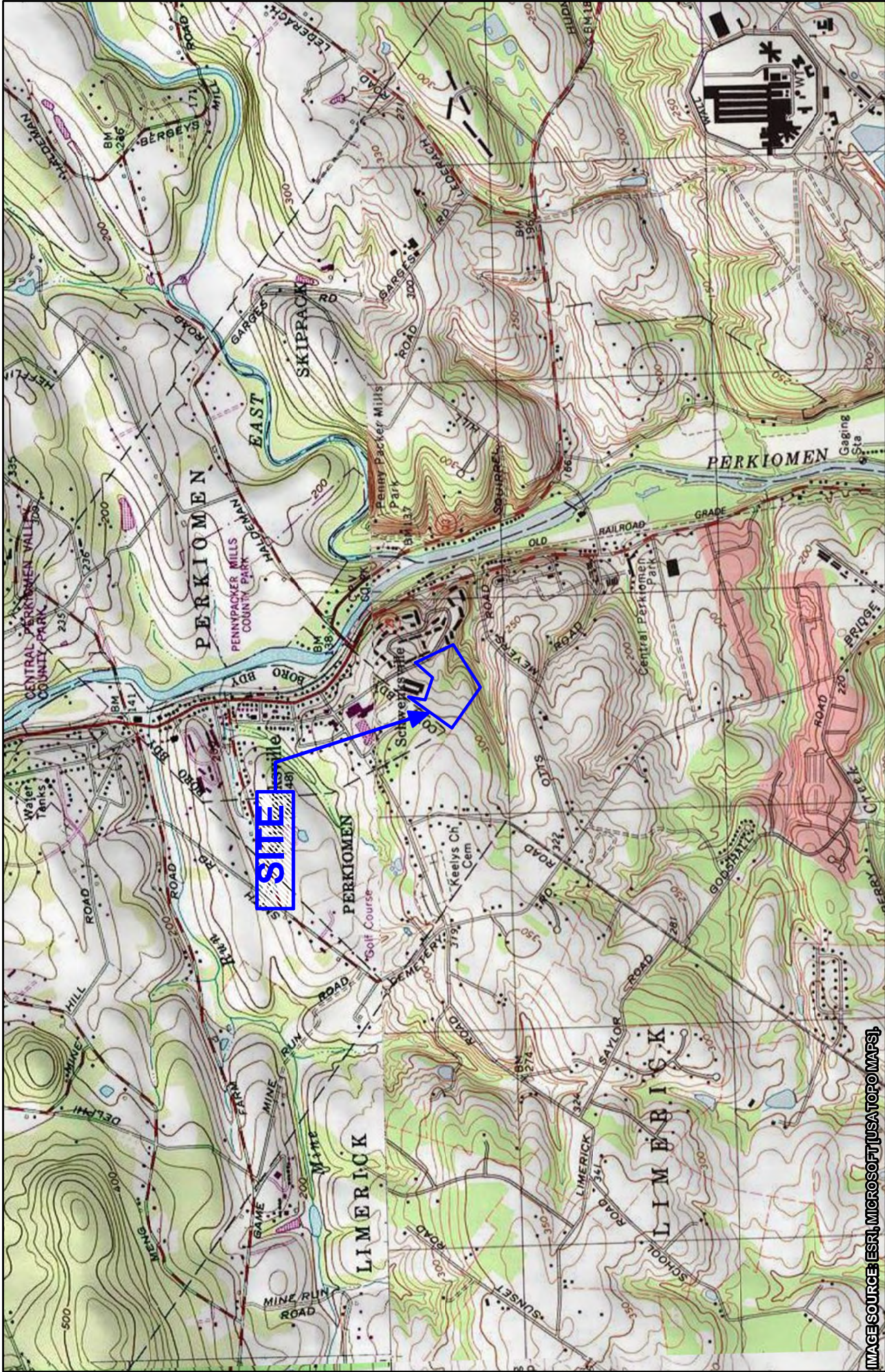
Attachment 5: Wetland Determination Forms

Attachment 6: Phase I Bog Turtle Habitat Survey Data Forms

Attachment 7: WebSoil Survey Results

Attachment 8: Investigator Resumes

**ATTACHMENT 1
SITE LOCATION MAP**



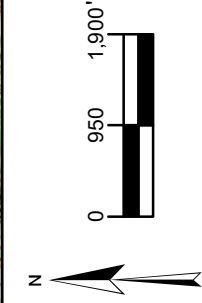
ATTACHMENT 1 - SITE LOCATION MAP

HIGHLANDS DOG PARK

PERKIOMEN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

PROJECT NO. 200688 REV: 0 PREPARED BY: SJR

DATE: JANUARY 18, 2021 SCALE: 1" = 2,000' APPROVED BY: TMA



315 West James Street,
Suite 205
Lancaster, PA 17603
Phone: 717-517-5000
Fax: 717-517-5004
www.libertyenviro.com

Liberty
Environmental, Inc.

ATTACHMENT 2
PENNSYLVANIA NATURAL DIVERSITY
INVENTORY RECEIPT

1. PROJECT INFORMATION

Project Name: **Highland Park**

Date of Review: **1/25/2021 02:23:41 PM**

Project Category: **Development, New public/community development (school, library, church, museum)**

Project Area: **16.53 acres**

County(s): **Montgomery**

Township/Municipality(s): **PERKIOMEN TOWNSHIP; SCHWENKSVILLE**

ZIP Code:

Quadrangle Name(s): **COLLEGEVILLE**

Watersheds HUC 8: **Schuylkill**

Watersheds HUC 12: **Lower Perkiomen Creek**

Decimal Degrees: **40.246962, -75.463501**

Degrees Minutes Seconds: **40° 14' 49.643" N, 75° 27' 48.6025" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Potential Impact	MORE INFORMATION REQUIRED, See Agency Response

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Highland Park

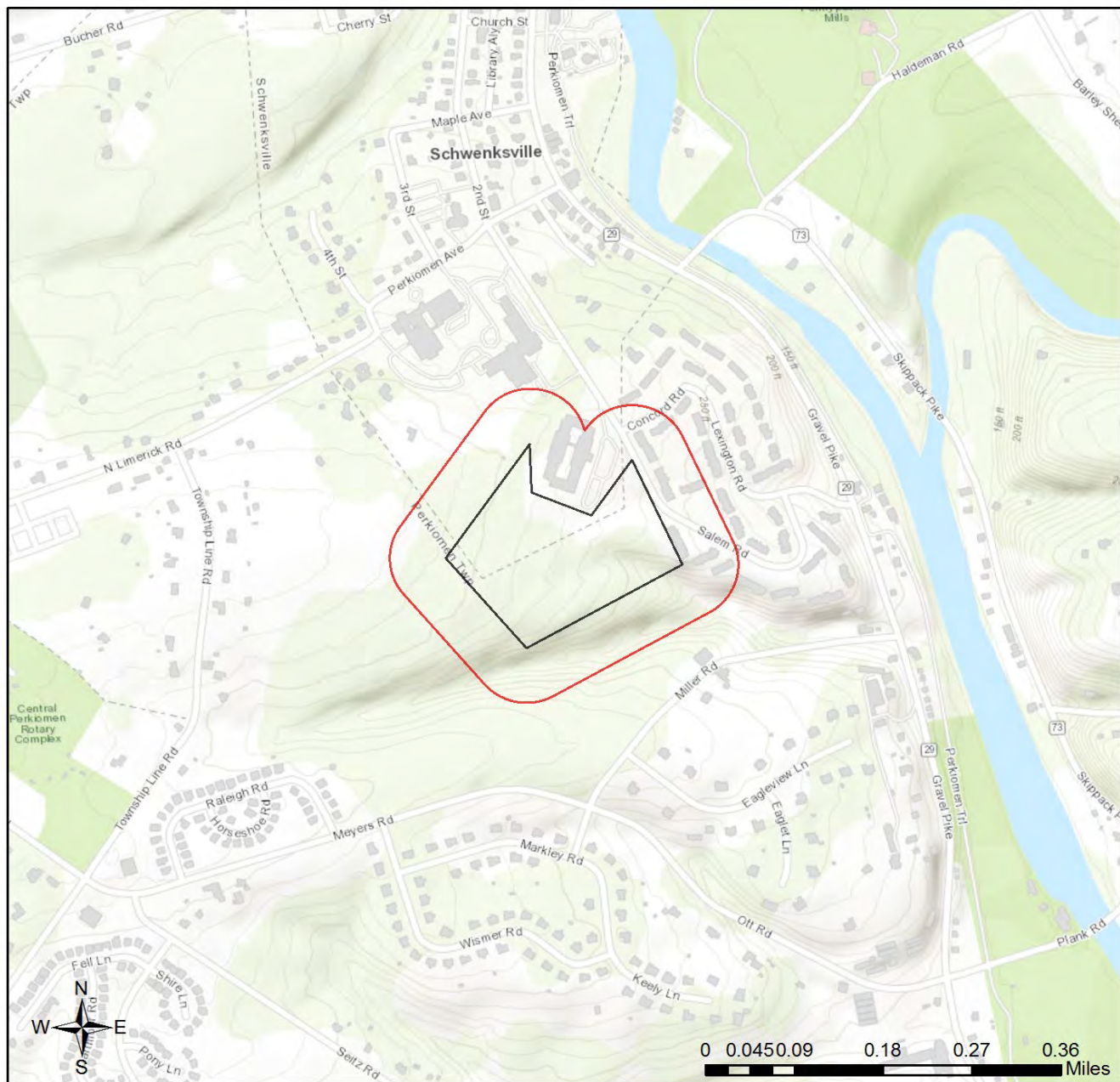


- Project Boundary
- Buffered Project Boundary



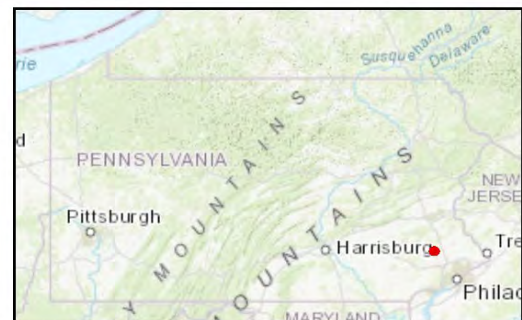
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China

Highland Park



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



RESPONSE TO QUESTION(S) ASKED

Q1: Which of the following closest describes the proposed project?

Your answer is: No groundwater extraction (e.g., water supply well, well for irrigation, groundwater pumping to facilitate mining, pump-and-treat operation) is proposed in order to implement or support this project.

Q2: Are there any perennial or intermittent waterways (rivers, streams, creeks, tributaries) in or near the project area, or on the land parcel?

Your answer is: Yes

Q3: Describe how wastewater (effluent) will be handled (select one). For the purpose of this question, wastewater/effluent does not include stormwater runoff. If the project involves solely the renewal or modification of an existing discharge permit (e.g., NPDES permit), select from options 3, 4, 5, or 6 below.

Your answer is: This project/activity (including construction, maintenance, and operation of the completed project) will not generate any wastewater/effluent; therefore, none will be discharged.

Q4: Accurately describe what is known about wetland presence in the project area or on the land parcel. "Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur.

Your answer is: The specific project area (that is, project layout or "footprint") has not yet been identified, but the land parcel on which the project will occur has been investigated by someone qualified to identify and delineate wetlands, and wetlands were located.

Q5: Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. "Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur.

Your answer is: The specific project area (that is, project layout or "footprint") has not yet been identified, but the land parcel on which the project will occur has been investigated by someone qualified to identify and delineate wetlands, and wetlands were located.

Q6: The proposed project is in the range of the Indiana bat. Describe how the project will affect bat habitat (forests, woodlots and trees) and indicate what measures will be taken in consideration of this. Round acreages up to the nearest acre (e.g., 0.2 acres = 1 acre).

Your answer is: The project will affect 1 to 39 acres of forests, woodlots and trees.

Q7: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats?

Your answer is: Unknown

Q8: Is tree removal, tree cutting or forest clearing of 40 acres or more necessary to implement all aspects of this project?

Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Threatened

U.S. Fish and Wildlife Service

RESPONSE:

Information Request: Conduct a Bog Turtle Habitat (Phase 1) Survey in accordance with USFWS Guidelines for Bog Turtle Surveys (April 2020). Evaluate all wetlands within 300 feet of the project area, which includes all areas that will be impacted by earth disturbance or project features (e.g., roads, structures, utility lines, lawns, detention basins, staging areas, etc.). IF THE PHASE 1 SURVEY IS DONE BY A QUALIFIED BOG TURTLE SURVEYOR (see <https://www.fws.gov/northeast/pafo/endangered/surveys.html>): 1) Send positive results to USFWS for concurrence, along with a project description documenting how impacts will be avoided. OR, conduct a Phase 2 survey and send Phase 1 and 2 results to USFWS for concurrence. 2) Send a courtesy copy of negative results to USFWS (label as "Negative Phase 1 Survey Results by Qualified Bog Turtle Surveyor: USFWS Courtesy Copy"). USFWS approval of negative results is not necessary when a qualified surveyor does the survey in full accordance with USFWS guidelines. IF THE PHASE 1 SURVEY IS NOT DONE BY A QUALIFIED SURVEYOR: Send ALL Phase 1 results to USFWS for concurrence, and if potential habitat is found, also send a project description documenting how impacts will be avoided. As a qualified bog turtle surveyor, I Teresa M. Amitrone (name) certify that I conducted a Phase 1 survey of all wetlands in and within 300 feet of the project area on 1-14-21 (date) and determined that bog turtle habitat is absent.

____ (Signature)

Avoidance Measure: Do not conduct this project/activity within 50 feet of any streams, rivers, creeks, or tributaries. This includes both perennial and intermittent waterways.

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:
_____(Signature)

SPECIAL NOTE: If you agree to implement the above Avoidance Measure and if applicable, any Information Requests, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required. If you are not able to comply with the Avoidance Measures, you are required to coordinate with this agency - please send project information to this agency for review (see "What to Send" section).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION). For projects showing "Potential Impacts" with USFWS, please send project information to that agency by email IR1_ESPenn@fws.gov (preferred) or regular mail.

Check-list of Minimum Materials to be submitted:

____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Kim Fasnacht
Company/Business Name: Spotts, Stevens and McCoy
Address: 1047 North Park Road
City, State, Zip: Reading PA 19610
Phone: (610) 621-2000 Fax: (610) 621-2001
Email: kim.fasnacht@ssmgroup.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Kimberly M Fasnacht
applicant/project proponent signature

01/25/21
date

ATTACHMENT 3
REGULATED WATERS LOCATION MAP

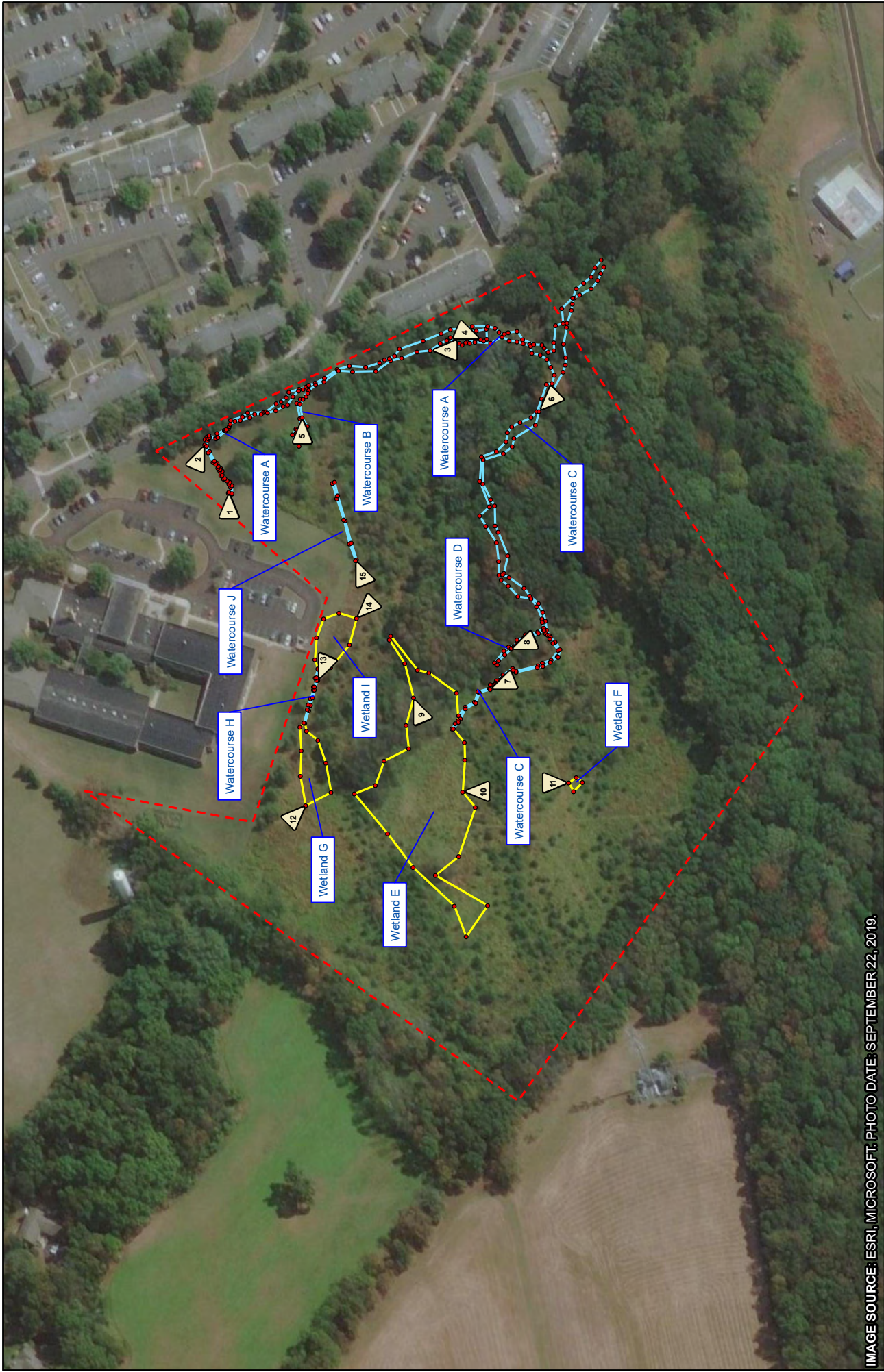


IMAGE SOURCE: ESRI, MICROSOFT. PHOTO DATE: SEPTEMBER 22, 2019.

ATTACHMENT 3 - REGULATED WATERS LOCATION MAP			
HIGHLANDS DOG PARK			
PERKIOMEN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA			
PROJECT NO. 200688	REV: 0	PREPARED BY: SJR	
DATE: JANUARY 12, 2021	SCALE: 1" = 200'	APPROVED BY: TMA	

ATTACHMENT 4
SITE PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG


Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 1	Date: 12/14/20		
Direction Photo Taken: East			
Description: View of Watercourse A from C-A102.			

Photo No. 2	Date: 12/14/20	
Direction Photo Taken: East-southeast		
Description: View of Watercourse A from C-A114.		



PHOTOGRAPHIC LOG

Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 3	Date: 12/14/20		
Direction Photo Taken: North			
Description: View of Watercourse A from C-A45.			

Photo No. 4	Date: 12/14/20	
Direction Photo Taken: South-southwest		
Description: View of Watercourse A from C-A302.		



PHOTOGRAPHIC LOG

Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 5	Date: 12/14/20		
Direction Photo Taken: East			
Description: View of Watercourse B from C-B105.			

Photo No. 6	Date: 12/14/20	
Direction Photo Taken: Northwest		
Description: View of Watercourse C from C-C7.		



PHOTOGRAPHIC LOG


Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 7	Date: 1/11/21		
Direction Photo Taken: North-northwest			
Description: View of Watercourse C from C-C43.			

Photo No. 8	Date: 1/11/21	
Direction Photo Taken: North-northwest		
Description: View of Watercourse D from C-D103.		



PHOTOGRAPHIC LOG


Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 9	Date: 1/11/21		
Direction Photo Taken: East-northeast			
Description: View of Wetland E from W-E7.			

Photo No. 10	Date: 1/11/21	
Direction Photo Taken: North		
Description: View of Wetland E from W-E21.		



PHOTOGRAPHIC LOG


Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 11	Date: 1/11/21		
Direction Photo Taken: South			
Description: View of Wetland F from W-F4 closed.			

Photo No. 12	Date: 1/11/21	
Direction Photo Taken: Southeast		
Description: View of Wetland G from W-G4.		



PHOTOGRAPHIC LOG

Client Name: Spotts, Stevens, & McCoy		Site Location: Perkiomen Township, Montgomery County, Pennsylvania	Project No. 200688
Photo No. 13	Date: 1/11/21		
Direction Photo Taken: West-northwest			
Description: View of Watercourse H from C-H7.			

Photo No. 14	Date: 1/11/21	
Direction Photo Taken: Northwest		
Description: View of Wetland I for W-I3.		



PHOTOGRAPHIC LOG

Client Name:
Spotts, Stevens, & McCoy

Site Location: Perkiomen Township, Montgomery
County, Pennsylvania

Project No.
200688

Photo No.
15

Date:
1/11/21

**Direction Photo
Taken:**

East-northeast

Description:

View of Watercourse J
from C-J103.



ATTACHMENT 5
WETLAND DETERMINATION DATA FORMS



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-1					
Applicant/Owner:		Spotts, Stevens, McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania							
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental													
Landform (hillslope, terrace, etc.):				hillslope				Local relief (concave, convex, none):				concave			
Slope (%):		NA		Lat:		40.240707		Long:		-75.40372		Datum:		NAD83	
Soil Map Unit Name:				Reaville silt loam				NWI classification:				PEM, PFO			
Are climatic / hydrologic conditions on the site typical for this time of year?								Yes		<input checked="" type="checkbox"/>		No		(If no, explain in Remarks.)	
Are "Normal Circumstances" present?				Yes		<input checked="" type="checkbox"/>		No							
Are Vegetation,		No		Soil,		No		or Hydrology		no		significantly disturbed?			
Are Vegetation,		No		Soil,		No		or Hydrology		No		naturally problematic?			
(If needed, explain any answers in Remarks.)															

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		<input checked="" type="checkbox"/>		No				Is the Sampled Area within a Wetland?		Yes		<input checked="" type="checkbox"/>		No			
Hydric Soil Present?		Yes		<input checked="" type="checkbox"/>		No													
Wetland Hydrology Present?		Yes		<input checked="" type="checkbox"/>		No				If yes, optional Wetland Site ID:		W-E							
Remarks: (Explain alternative procedures here or in a separate report.)																			

HYDROLOGY

Wetland Hydrology Indicators:														
Primary Indicators (minimum of 1 is required)										Secondary Indicators (min. of 2 required)				
<input checked="" type="checkbox"/>	Surface Water (A1)				Aquatic Fauna (B13)				Surface Soil Cracks (B6)					
	High Water Table (A2)				True Aquatic Plants (B14)			<input checked="" type="checkbox"/>	Drainage Patterns (B10)					
<input checked="" type="checkbox"/>	Saturation (A3)				Hydrogen Sulfide Odor (C1)				Moss Trim Lines (B16)					
	Water Marks (B1)			<input checked="" type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)				Dry-Season Water Table (C2)					
	Sediment Deposits (B2)				Presence of Reduced Iron (C4)				Crayfish Burrows (C8)					
	Drift Deposits (B3)				Recent Iron Reduction in Tilled Soils (C6)				Saturation Visible on Aerial Imagery (C9)					
	Algal Mat or Crust (B4)				Thin Muck Surface (C7)				Stunted or Stressed Plants (D1)					
	Iron Deposits (B5)				Other (Explain in Remarks)			<input checked="" type="checkbox"/>	Geomorphic Position (D2)					
	Inundation Visible on Aerial Imagery (B7)							<input checked="" type="checkbox"/>	Shallow Aquitard (D3)					
	Water-Stained Leaves (B9)							<input checked="" type="checkbox"/>	Microtopographic Relief (D4)					
									FAC-Neutral Test (D5)					
									Sparsely Vegetated Concave Surface (B8)					
Field Observations:														
Surface Water Present?		Yes	<input checked="" type="checkbox"/>	No		Depth (inches):		0		Wetland Hydrology Present?		Yes	<input checked="" type="checkbox"/>	No
Water Table Present?		Yes		No	<input checked="" type="checkbox"/>	Depth (inches):								
Saturation Present? (includes capillary fringe)		Yes	<input checked="" type="checkbox"/>	No		Depth (inches):		0						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:														
Remarks:														



VEGETATION

Sampling Point: SP-1

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.	<i>Quercus palustris</i>		5	Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:		3	(A)
2.						Total Number of Dominant Species Across All Strata:		3	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		100	(C)
4.						Prevalence Index worksheet:			
5.			5	=Total Cover		<u>Total % Cover of:</u>		<u>Multiply by:</u>	
<u>Sapling/Shrub Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	OBL species	0	X 1=	0
						FACW species	70	X 2=	140
						FAC species	105	X 3=	315
						FACU species	0	X 4=	0
						UPL species	0	X 5=	0
						Totals (A)	175	(B)	455
						Prevalence Index =		B/A =	2.6
						Hydrophytic Vegetation Indicators:			
						1 - Rapid Test for Hydrophytic Vegetation			
<u>Herb Stratum</u>		(Plot size: <u>5'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	x	2 - Dominance Test is >50%		
						x	3 - Prevalence Index is ≤3.0 ¹		
1.	<i>Scripus cyperinus</i>		20		FACW	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
2.	<i>Juncus effusus</i>		45	Y	FACW				
3.	<i>Microstegium vimineum</i>		85	Y	FAC				
4.	<i>Euthamia graminifolia</i>		20		FAC				
						Problematic Hydrophytic Vegetation ¹ (Explain)			
						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
						Definitions of Vegetation Strata:			
						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
			170	=Total Cover		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
<u>Vine Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Woody vines – All woody vines greater than 3.28 ft in height.			
1.						Hydrophytic Vegetation Present?			
2.									
3.									
4.									
5.									
				=Total Cover		Yes	x	No	

Remarks: (Include photo numbers here or on a separate sheet.)



SOIL

Sampling Point: SP-1

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	7.5YR 4/3	95	2.5YR 5/8	5	C	M	Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)	x	Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes	x	No	
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-2	
Applicant/Owner:		Spotts, Stevens, McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania			
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental									
Landform (hillslope, terrace, etc.):								Local relief (concave, convex, none):		convex	
Slope (%):		NA		Lat:		40.24660		Long:		-75.46398	
Soil Map Unit Name:		Reaville silt loam				NWI classification:					
Are climatic / hydrologic conditions on the site typical for this time of year?						Yes		x		No	
						(If no, explain in Remarks.)					
Are "Normal Circumstances" present?				Yes		x		No			
Are Vegetation,		No		Soil,		No		or Hydrology		no	
										significantly disturbed?	
Are Vegetation,		No		Soil,		No		or Hydrology		No	
										naturally problematic?	
(If needed, explain any answers in Remarks.)											

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		No		X		Is the Sampled Area within a Wetland?		Yes		No		x	
Hydric Soil Present?		Yes		No		X									
Wetland Hydrology Present?		Yes		No		x		If yes, optional Wetland Site ID:							
Remarks: (Explain alternative procedures here or in a separate report.)															

HYDROLOGY

Wetland Hydrology Indicators:																			
Primary Indicators (minimum of 1 is required)										Secondary Indicators (min. of 2 required)									
Surface Water (A1)					Aquatic Fauna (B13)					Surface Soil Cracks (B6)									
High Water Table (A2)					True Aquatic Plants (B14)					Drainage Patterns (B10)									
Saturation (A3)					Hydrogen Sulfide Odor (C1)					Moss Trim Lines (B16)									
Water Marks (B1)					Oxidized Rhizospheres on Living Roots (C3)					Dry-Season Water Table (C2)									
Sediment Deposits (B2)					Presence of Reduced Iron (C4)					Crayfish Burrows (C8)									
Drift Deposits (B3)					Recent Iron Reduction in Tilled Soils (C6)					Saturation Visible on Aerial Imagery (C9)									
Algal Mat or Crust (B4)					Thin Muck Surface (C7)					Stunted or Stressed Plants (D1)									
Iron Deposits (B5)					Other (Explain in Remarks)					Geomorphic Position (D2)									
Inundation Visible on Aerial Imagery (B7)										Shallow Aquitard (D3)									
Water-Stained Leaves (B9)										Microtopographic Relief (D4)									
										FAC-Neutral Test (D5)									
										Sparsely Vegetated Concave Surface (B8)									
Field Observations:																			
Surface Water Present?		Yes		No		X		Depth (inches):				Wetland Hydrology Present?		Yes		No		x	
Water Table Present?		Yes		No		X		Depth (inches):											
Saturation Present? (includes capillary fringe)		Yes		No		x		Depth (inches):											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																			
Remarks:																			



VEGETATION

Sampling Point: SP-2

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.						Number of Dominant Species That Are OBL, FACW, or FAC:		0	(A)
2.						Total Number of Dominant Species Across All Strata:		2	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		0	(C)
4.						Prevalence Index worksheet:			
5.			5	=Total Cover		<u>Total % Cover of:</u>		<u>Multiply by:</u>	
<u>Sapling/Shrub Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	OBL species	0	X 1=	0
						FACW species	0	X 2=	0
						FAC species	0	X 3=	0
						FACU species	155	X 4=	620
						UPL species	0	X 5=	0
						Totals (A)	155	(B)	620
						Prevalence Index =		B/A =	4
						Hydrophytic Vegetation Indicators:			
						1 - Rapid Test for Hydrophytic Vegetation			
						2 - Dominance Test is >50%			
						3 - Prevalence Index is ≤3.0 ¹			
						4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
						Problematic Hydrophytic Vegetation ¹ (Explain)			
						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
						Definitions of Vegetation Strata:			
						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
			155	=Total Cover		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
<u>Vine Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Woody vines – All woody vines greater than 3.28 ft in height.			
1.						Hydrophytic Vegetation Present?		Yes	No
2.									
3.									
4.									
5.									
				=Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-2

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	5YR 5/5	100					Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)		Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes		No	x
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-3					
Applicant/Owner:				Spotts, Stevens, and McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania					
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental													
Landform (hillslope, terrace, etc.):				hillslope				Local relief (concave, convex, none):				concave			
Slope (%):		NA		Lat:		40.24656		Long:		-75.46397		Datum:		NAD83	
Soil Map Unit Name:				Reaville silt loam				NWI classification:				PEM			
Are climatic / hydrologic conditions on the site typical for this time of year?								Yes		<input checked="" type="checkbox"/>		No		(If no, explain in Remarks.)	
Are "Normal Circumstances" present?				Yes		<input checked="" type="checkbox"/>		No							
Are Vegetation,		No		Soil,		No		or Hydrology		No		significantly disturbed?			
Are Vegetation,		No		Soil,		No		or Hydrology		No		naturally problematic?			
(If needed, explain any answers in Remarks.)															

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		<input checked="" type="checkbox"/>		No				Is the Sampled Area within a Wetland?		Yes		<input checked="" type="checkbox"/>		No			
Hydric Soil Present?		Yes		<input checked="" type="checkbox"/>		No													
Wetland Hydrology Present?		Yes		<input checked="" type="checkbox"/>		No				If yes, optional Wetland Site ID:		W-F							
Remarks: (Explain alternative procedures here or in a separate report.)																			

HYDROLOGY

Wetland Hydrology Indicators:															
Primary Indicators (minimum of 1 is required)										Secondary Indicators (min. of 2 required)					
<input checked="" type="checkbox"/>	Surface Water (A1)				Aquatic Fauna (B13)				Surface Soil Cracks (B6)						
	High Water Table (A2)				True Aquatic Plants (B14)				Drainage Patterns (B10)						
<input checked="" type="checkbox"/>	Saturation (A3)				Hydrogen Sulfide Odor (C1)				Moss Trim Lines (B16)						
	Water Marks (B1)				Oxidized Rhizospheres on Living Roots (C3)				Dry-Season Water Table (C2)						
	Sediment Deposits (B2)				Presence of Reduced Iron (C4)				Crayfish Burrows (C8)						
	Drift Deposits (B3)				Recent Iron Reduction in Tilled Soils (C6)				Saturation Visible on Aerial Imagery (C9)						
	Algal Mat or Crust (B4)				Thin Muck Surface (C7)				Stunted or Stressed Plants (D1)						
	Iron Deposits (B5)				Other (Explain in Remarks)			<input checked="" type="checkbox"/>	Geomorphic Position (D2)						
	Inundation Visible on Aerial Imagery (B7)								Shallow Aquitard (D3)						
	Water-Stained Leaves (B9)								Microtopographic Relief (D4)						
									FAC-Neutral Test (D5)						
									Sparsely Vegetated Concave Surface (B8)						
Field Observations:															
Surface Water Present?		Yes	<input checked="" type="checkbox"/>	No		Depth (inches):		0		Wetland Hydrology Present?		Yes	<input checked="" type="checkbox"/>	No	
Water Table Present?		Yes		No	<input checked="" type="checkbox"/>	Depth (inches):									
Saturation Present? (includes capillary fringe)		Yes	<input checked="" type="checkbox"/>	No		Depth (inches):		0							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:															
Remarks:															



VEGETATION

Sampling Point: SP-3

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.						Number of Dominant Species That Are OBL, FACW, or FAC:		1	(A)
2.						Total Number of Dominant Species Across All Strata:		1	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		100	(C)
4.						Prevalence Index worksheet:			
5.						Total % Cover of:		Multiply by:	
6.						OBL species	0	X 1=	0
7.						FACW species	85	X 2=	170
						FAC species	50	X 3=	150
						FACU species	0	X 4=	0
						UPL species	0	X 5=	0
						Totals (A)	135	(B)	320
						Prevalence Index =		B/A =	2.37
						Hydrophytic Vegetation Indicators:			
						1 - Rapid Test for Hydrophytic Vegetation			
						2 - Dominance Test is >50%			
						3 - Prevalence Index is ≤3.0 ¹			
						4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
						Problematic Hydrophytic Vegetation ¹ (Explain)			
						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
						Definitions of Vegetation Strata:			
						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
			135			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
						Woody vines – All woody vines greater than 3.28 ft in height.			
						Hydrophytic Vegetation Present?			
						Yes	x	No	
						=Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-3

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	5YR 4/4	97	5YR 5/8	3	C	M	Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
	Histosol (A1)		Dark Surface (S7)
	Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)
	Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)	x	Depleted Matrix (F3)
	2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)
	Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)
	Thick Dark Surface (A12)		Redox Depressions (F8)
	Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)
	Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)
	Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)
	Stripped Matrix (S6)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes	x	No	
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-4	
Applicant/Owner:		Spotts, Stevens, McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania			
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental									
Landform (hillslope, terrace, etc.):				hillslope		Local relief (concave, convex, none):				convex	
Slope (%):		NA		Lat:		40.24660		Long:		-75.46398	
Soil Map Unit Name:		Reaville silt loam				NWI classification:					
Are climatic / hydrologic conditions on the site typical for this time of year?						Yes		x		No	
						(If no, explain in Remarks.)					
Are "Normal Circumstances" present?				Yes		x		No			
Are Vegetation,		No		Soil,		No		or Hydrology		no	
										significantly disturbed?	
Are Vegetation,		No		Soil,		No		or Hydrology		No	
										naturally problematic?	
(If needed, explain any answers in Remarks.)											

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		No		x		Is the Sampled Area within a Wetland?		Yes		No		x	
Hydric Soil Present?		Yes		No		x									
Wetland Hydrology Present?		Yes		No		x		If yes, optional Wetland Site ID:							
Remarks: (Explain alternative procedures here or in a separate report.)															

HYDROLOGY

Wetland Hydrology Indicators:																			
Primary Indicators (minimum of 1 is required)										Secondary Indicators (min. of 2 required)									
Surface Water (A1)					Aquatic Fauna (B13)					Surface Soil Cracks (B6)									
High Water Table (A2)					True Aquatic Plants (B14)					Drainage Patterns (B10)									
Saturation (A3)					Hydrogen Sulfide Odor (C1)					Moss Trim Lines (B16)									
Water Marks (B1)					Oxidized Rhizospheres on Living Roots (C3)					Dry-Season Water Table (C2)									
Sediment Deposits (B2)					Presence of Reduced Iron (C4)					Crayfish Burrows (C8)									
Drift Deposits (B3)					Recent Iron Reduction in Tilled Soils (C6)					Saturation Visible on Aerial Imagery (C9)									
Algal Mat or Crust (B4)					Thin Muck Surface (C7)					Stunted or Stressed Plants (D1)									
Iron Deposits (B5)					Other (Explain in Remarks)					Geomorphic Position (D2)									
Inundation Visible on Aerial Imagery (B7)										Shallow Aquitard (D3)									
Water-Stained Leaves (B9)										Microtopographic Relief (D4)									
										FAC-Neutral Test (D5)									
										Sparsely Vegetated Concave Surface (B8)									
Field Observations:																			
Surface Water Present?		Yes		No		x		Depth (inches):				Wetland Hydrology Present?		Yes		No		x	
Water Table Present?		Yes		No		x		Depth (inches):											
Saturation Present? (includes capillary fringe)		Yes		No		x		Depth (inches):											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																			
Remarks:																			



VEGETATION

Sampling Point: SP-4

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.						Number of Dominant Species That Are OBL, FACW, or FAC:		0	(A)
2.						Total Number of Dominant Species Across All Strata:		2	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		0	(C)
4.						Prevalence Index worksheet:			
5.			5	=Total Cover		<u>Total % Cover of:</u>		<u>Multiply by:</u>	
<u>Sapling/Shrub Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	OBL species	0	X 1=	0
						FACW species	0	X 2=	0
						FAC species	0	X 3=	0
						FACU species	155	X 4=	620
						UPL species	0	X 5=	0
						Totals (A)	155	(B)	620
						Prevalence Index =		B/A =	4
						Hydrophytic Vegetation Indicators:			
						1 - Rapid Test for Hydrophytic Vegetation			
						2 - Dominance Test is >50%			
						3 - Prevalence Index is ≤3.0 ¹			
						4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
						Problematic Hydrophytic Vegetation ¹ (Explain)			
						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
						Definitions of Vegetation Strata:			
						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
						Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
						Woody vines – All woody vines greater than 3.28 ft in height.			
<u>Vine Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Hydrophytic Vegetation Present?		Yes	No
1.									
2.									
3.									
4.									
5.									
						=Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-4

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	5YR 5/5	100					Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)		Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes		No	x
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-5					
Applicant/Owner:				Spotts, Stevens, and McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania					
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental													
Landform (hillslope, terrace, etc.):				terrace				Local relief (concave, convex, none):				concave			
Slope (%):		NA		Lat:		40.24770		Long:		-75.46366		Datum:		NAD83	
Soil Map Unit Name:				Croton silt loam				NWI classification:				PEM			
Are climatic / hydrologic conditions on the site typical for this time of year?								Yes		<input checked="" type="checkbox"/>		No		(If no, explain in Remarks.)	
Are "Normal Circumstances" present?				Yes		<input checked="" type="checkbox"/>		No							
Are Vegetation,		No		Soil,		No		or Hydrology		No		significantly disturbed?			
Are Vegetation,		No		Soil,		No		or Hydrology		No		naturally problematic?			
(If needed, explain any answers in Remarks.)															

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		<input checked="" type="checkbox"/>		No				Is the Sampled Area within a Wetland?		Yes		<input checked="" type="checkbox"/>		No			
Hydric Soil Present?		Yes		<input checked="" type="checkbox"/>		No													
Wetland Hydrology Present?		Yes		<input checked="" type="checkbox"/>		No				If yes, optional Wetland Site ID:		W-G							
Remarks: (Explain alternative procedures here or in a separate report.)																			

HYDROLOGY

Wetland Hydrology Indicators:																													
Primary Indicators (minimum of 1 is required)										Secondary Indicators (min. of 2 required)																			
	Surface Water (A1)						Aquatic Fauna (B13)						Surface Soil Cracks (B6)																
	High Water Table (A2)						True Aquatic Plants (B14)					<input checked="" type="checkbox"/>	Drainage Patterns (B10)																
<input checked="" type="checkbox"/>	Saturation (A3)						Hydrogen Sulfide Odor (C1)						Moss Trim Lines (B16)																
	Water Marks (B1)					<input checked="" type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)						Dry-Season Water Table (C2)																
	Sediment Deposits (B2)						Presence of Reduced Iron (C4)						Crayfish Burrows (C8)																
	Drift Deposits (B3)						Recent Iron Reduction in Tilled Soils (C6)						Saturation Visible on Aerial Imagery (C9)																
	Algal Mat or Crust (B4)						Thin Muck Surface (C7)						Stunted or Stressed Plants (D1)																
	Iron Deposits (B5)						Other (Explain in Remarks)					<input checked="" type="checkbox"/>	Geomorphic Position (D2)																
	Inundation Visible on Aerial Imagery (B7)												Shallow Aquitard (D3)																
	Water-Stained Leaves (B9)												Microtopographic Relief (D4)																
												FAC-Neutral Test (D5)																	
													Sparsely Vegetated Concave Surface (B8)																
Field Observations:										Wetland Hydrology Present?				Yes				<input checked="" type="checkbox"/>				No							
Surface Water Present?		Yes		<input checked="" type="checkbox"/>		No																				Depth (inches):		0	
Water Table Present?		Yes				No		<input checked="" type="checkbox"/>																		Depth (inches):			
Saturation Present? (includes capillary fringe)		Yes		<input checked="" type="checkbox"/>		No																				Depth (inches):		0	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																													
Remarks:																													



VEGETATION

Sampling Point: SP-5

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.						Number of Dominant Species That Are OBL, FACW, or FAC:		1	(A)
2.						Total Number of Dominant Species Across All Strata:		1	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		100	(C)
4.						Prevalence Index worksheet:			
5.						=Total Cover		Total % Cover of:	
6.						Multiply by:			
7.									
<u>Sapling/Shrub Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	OBL species	0	X 1=	0
						FACW species	50	X 2=	100
						FAC species	90	X 3=	270
						FACU species	0	X 4=	0
						UPL species	0	X 5=	0
						Totals (A)	140	(B)	370
						Prevalence Index =		B/A =	2.64
						Hydrophytic Vegetation Indicators:			
						=Total Cover			
<u>Herb Stratum</u>		(Plot size: <u>5'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	X	1 - Rapid Test for Hydrophytic Vegetation		
						x	2 - Dominance Test is >50%		
							3 - Prevalence Index is ≤3.0 ¹		
							4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)		
							Problematic Hydrophytic Vegetation ¹ (Explain)		
							¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
						Definitions of Vegetation Strata:			
						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
						Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
			140	=Total Cover		Woody vines – All woody vines greater than 3.28 ft in height.			
<u>Vine Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Hydrophytic Vegetation Present?			
						Yes	x	No	
						=Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-5

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	5YR 4/3	95	2.5YR 5/8	5	C	M	Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)	x	Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes	x	No	
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-6					
Applicant/Owner:		Spotts, Stevens, McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania							
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental													
Landform (hillslope, terrace, etc.):				hillslope				Local relief (concave, convex, none):				convex			
Slope (%):		NA		Lat:				Long:				Datum:		NAD83	
Soil Map Unit Name:				Croton silt loam				NWI classification:							
Are climatic / hydrologic conditions on the site typical for this time of year?								Yes		<input checked="" type="checkbox"/>		No		(If no, explain in Remarks.)	
Are "Normal Circumstances" present?				Yes		<input checked="" type="checkbox"/>		No							
Are Vegetation,		No		Soil,		No		or Hydrology		no		significantly disturbed?			
Are Vegetation,		No		Soil,		No		or Hydrology		No		naturally problematic?			
(If needed, explain any answers in Remarks.)															

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>		Is the Sampled Area within a Wetland?		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>	
Hydric Soil Present?		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>											
Wetland Hydrology Present?		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>		If yes, optional Wetland Site ID:									
Remarks: (Explain alternative procedures here or in a separate report.)																			

HYDROLOGY

Wetland Hydrology Indicators:																					
Primary Indicators (minimum of 1 is required)										Secondary Indicators (min. of 2 required)											
		Surface Water (A1)						Aquatic Fauna (B13)						Surface Soil Cracks (B6)							
		High Water Table (A2)						True Aquatic Plants (B14)						Drainage Patterns (B10)							
		Saturation (A3)						Hydrogen Sulfide Odor (C1)						Moss Trim Lines (B16)							
		Water Marks (B1)						Oxidized Rhizospheres on Living Roots (C3)						Dry-Season Water Table (C2)							
		Sediment Deposits (B2)						Presence of Reduced Iron (C4)						Crayfish Burrows (C8)							
		Drift Deposits (B3)						Recent Iron Reduction in Tilled Soils (C6)						Saturation Visible on Aerial Imagery (C9)							
		Algal Mat or Crust (B4)						Thin Muck Surface (C7)						Stunted or Stressed Plants (D1)							
		Iron Deposits (B5)						Other (Explain in Remarks)						Geomorphic Position (D2)							
		Inundation Visible on Aerial Imagery (B7)												Shallow Aquitard (D3)							
		Water-Stained Leaves (B9)												Microtopographic Relief (D4)							
												FAC-Neutral Test (D5)									
														Sparsely Vegetated Concave Surface (B8)							
Field Observations:														Wetland Hydrology Present?		Yes		No		x	
Surface Water Present?		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>		Depth (inches):											
Water Table Present?		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>		Depth (inches):											
Saturation Present? (includes capillary fringe)		Yes		<input type="checkbox"/>		No		<input checked="" type="checkbox"/>		Depth (inches):											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks:																					



VEGETATION

Sampling Point: SP-6

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.	<i>Juniperus virginiana</i>		20	Y	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:		0	(A)
2.						Total Number of Dominant Species Across All Strata:		4	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		0	(C)
4.									
5.									
6.									
7.									
			20	=Total Cover		Prevalence Index worksheet:			
<u>Sapling/Shrub Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	<u>Total % Cover of:</u>		<u>Multiply by:</u>	
						OBL species	0	X 1=	0
						FACW species	0	X 2=	0
1.	<i>Pyrus calleryana</i>		40	Y	NL	FAC species	0	X 3=	0
2.						FACU species	115	X 4=	460
3.						UPL species	0	X 5=	0
4.						Totals (A)	115	(B)	460
5.						Prevalence Index =		B/A =	4
6.									
7.									
			40	=Total Cover		Hydrophytic Vegetation Indicators:			
<u>Herb Stratum</u>		(Plot size: <u>5'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	1 - Rapid Test for Hydrophytic Vegetation			
						2 - Dominance Test is >50%			
						3 - Prevalence Index is ≤3.0 ¹			
1.	<i>Asclepias syriaca</i>		20	Y	FACU	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
2.	<i>Solidago canadensis</i>		20	Y	FACU				
3.	<i>Rosa multiflora</i>		15		FACU				
4.						Problematic Hydrophytic Vegetation ¹ (Explain)			
5.						1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
6.									
7.									
8.									
9.						Definitions of Vegetation Strata:			
10.						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
11.						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
12.						Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
			55	=Total Cover		Woody vines – All woody vines greater than 3.28 ft in height.			
<u>Vine Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>				
1.									
2.									
3.									
4.									
5.									
				=Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-6

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	5YR 5/5	100					Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)		Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes		No	x
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-7	
Applicant/Owner:		Spotts, Stevens, and McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania			
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental									
Landform (hillslope, terrace, etc.):				terrace		Local relief (concave, convex, none):				concave	
Slope (%):		NA		Lat:		40.24759		Long:		-75.46319	
Soil Map Unit Name:		Croton silt loam				NWI classification:		PEM			
Are climatic / hydrologic conditions on the site typical for this time of year?						Yes		<input checked="" type="checkbox"/>		No	
						(If no, explain in Remarks.)					
Are "Normal Circumstances" present?				Yes		<input checked="" type="checkbox"/>		No			
Are Vegetation,		No		Soil,		No		or Hydrology		No	
										significantly disturbed?	
Are Vegetation,		No		Soil,		No		or Hydrology		No	
										naturally problematic?	
(If needed, explain any answers in Remarks.)											

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes		<input checked="" type="checkbox"/>		No				Is the Sampled Area within a Wetland?		Yes		<input checked="" type="checkbox"/>		No			
Hydric Soil Present?		Yes		<input checked="" type="checkbox"/>		No													
Wetland Hydrology Present?		Yes		<input checked="" type="checkbox"/>		No				If yes, optional Wetland Site ID:		W-1							
Remarks: (Explain alternative procedures here or in a separate report.)																			

HYDROLOGY

Wetland Hydrology Indicators:														
Primary Indicators (minimum of 1 is required)								Secondary Indicators (min. of 2 required)						
	Surface Water (A1)				Aquatic Fauna (B13)				Surface Soil Cracks (B6)					
	High Water Table (A2)				True Aquatic Plants (B14)			<input checked="" type="checkbox"/>	Drainage Patterns (B10)					
<input checked="" type="checkbox"/>	Saturation (A3)				Hydrogen Sulfide Odor (C1)				Moss Trim Lines (B16)					
	Water Marks (B1)				Oxidized Rhizospheres on Living Roots (C3)				Dry-Season Water Table (C2)					
	Sediment Deposits (B2)				Presence of Reduced Iron (C4)				Crayfish Burrows (C8)					
	Drift Deposits (B3)				Recent Iron Reduction in Tilled Soils (C6)				Saturation Visible on Aerial Imagery (C9)					
	Algal Mat or Crust (B4)				Thin Muck Surface (C7)				Stunted or Stressed Plants (D1)					
	Iron Deposits (B5)				Other (Explain in Remarks)			<input checked="" type="checkbox"/>	Geomorphic Position (D2)					
	Inundation Visible on Aerial Imagery (B7)								Shallow Aquitard (D3)					
	Water-Stained Leaves (B9)							Microtopographic Relief (D4)						
								FAC-Neutral Test (D5)						
								Sparsely Vegetated Concave Surface (B8)						
Field Observations:														
Surface Water Present?		Yes		No	<input checked="" type="checkbox"/>	Depth (inches):				Wetland Hydrology Present?		Yes	<input checked="" type="checkbox"/>	No
Water Table Present?		Yes		No	<input checked="" type="checkbox"/>	Depth (inches):								
Saturation Present? (includes capillary fringe)		Yes	<input checked="" type="checkbox"/>	No		Depth (inches):		0						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:														
Remarks:														



VEGETATION

Sampling Point: SP-7

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.						Number of Dominant Species That Are OBL, FACW, or FAC:		1	(A)
2.						Total Number of Dominant Species Across All Strata:		1	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		100	(C)
4.						Prevalence Index worksheet:			
5.						=Total Cover		Total % Cover of:	
6.						Multiply by:			
7.						OBL species	0	X 1=	0
						FACW species	55	X 2=	110
						FAC species	90	X 3=	270
						FACU species	0	X 4=	0
						UPL species	0	X 5=	0
						Totals (A)	145	(B)	380
						Prevalence Index =		B/A =	2.62
						Hydrophytic Vegetation Indicators:			
						=Total Cover			
						1 - Rapid Test for Hydrophytic Vegetation			
						X 2 - Dominance Test is >50%			
						x 3 - Prevalence Index is ≤3.0 ¹			
						4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
						Problematic Hydrophytic Vegetation ¹ (Explain)			
						¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
						Definitions of Vegetation Strata:			
						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
						Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
						Woody vines – All woody vines greater than 3.28 ft in height.			
						Hydrophytic Vegetation Present?			
						Yes	x	No	
						=Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-7

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	7.5YR 4/3	95	5YR 5/6	5	C	M	Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)	x	Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes	x	No	
Type						
Depth (inches):						
Remarks:						



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site:		Highlands Dog Park		Sampling Date:		1/11/2021		Sampling Point:		SP-6	
Applicant/Owner:		Spotts, Stevens, McCoy				Location:		Perkiomen Township, Montgomery County, Pennsylvania			
Investigator(s):		Shannon Ryan and Joseph Atzert, Liberty Environmental									
Landform (hillslope, terrace, etc.):				hillslope		Local relief (concave, convex, none):				convex	
Slope (%):		NA		Lat:				Long:			
Soil Map Unit Name:		Croton silt loam				NWI classification:					
Are climatic / hydrologic conditions on the site typical for this time of year?						Yes		x		No	
						(If no, explain in Remarks.)					
Are "Normal Circumstances" present?				Yes		x		No			
Are Vegetation,		No		Soil,		No		or Hydrology		no	
										significantly disturbed?	
Are Vegetation,		No		Soil,		No		or Hydrology		No	
										naturally problematic?	
(If needed, explain any answers in Remarks.)											

SUMMARY OF FINDINGS –

Hydrophytic Vegetation Present?		Yes				No		X		Is the Sampled Area within a Wetland?		Yes				No		x	
Hydric Soil Present?		Yes				No		X											
Wetland Hydrology Present?		Yes				No		x		If yes, optional Wetland Site ID:									
Remarks: (Explain alternative procedures here or in a separate report.)																			

HYDROLOGY

Wetland Hydrology Indicators:													
Primary Indicators (minimum of 1 is required)								Secondary Indicators (min. of 2 required)					
		Surface Water (A1)						Aquatic Fauna (B13)				Surface Soil Cracks (B6)	
		High Water Table (A2)						True Aquatic Plants (B14)				Drainage Patterns (B10)	
		Saturation (A3)						Hydrogen Sulfide Odor (C1)				Moss Trim Lines (B16)	
		Water Marks (B1)						Oxidized Rhizospheres on Living Roots (C3)				Dry-Season Water Table (C2)	
		Sediment Deposits (B2)						Presence of Reduced Iron (C4)				Crayfish Burrows (C8)	
		Drift Deposits (B3)						Recent Iron Reduction in Tilled Soils (C6)				Saturation Visible on Aerial Imagery (C9)	
		Algal Mat or Crust (B4)						Thin Muck Surface (C7)				Stunted or Stressed Plants (D1)	
		Iron Deposits (B5)						Other (Explain in Remarks)				Geomorphic Position (D2)	
		Inundation Visible on Aerial Imagery (B7)										Shallow Aquitard (D3)	
		Water-Stained Leaves (B9)										Microtopographic Relief (D4)	
												FAC-Neutral Test (D5)	
												Sparsely Vegetated Concave Surface (B8)	
Field Observations:													
Surface Water Present?		Yes				No		X		Depth (inches):			
Water Table Present?		Yes				No		X		Depth (inches):			
Saturation Present? (includes capillary fringe)		Yes				No		x		Depth (inches):			
								Wetland Hydrology Present?		Yes		No	
										x			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:													
Remarks:													



VEGETATION

Sampling Point: SP-6

<u>Tree Stratum</u>		(Plot size: <u>30'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:			
1.	<i>Juniperus virginiana</i>		20	Y	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:		0	(A)
2.						Total Number of Dominant Species Across All Strata:		4	(B)
3.						Percent of Dominant Species That Are OBL, FACW, or FAC:		0	(C)
4.									
5.									
6.									
7.									
			20	=Total Cover		Prevalence Index worksheet:			
<u>Sapling/Shrub Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	<u>Total % Cover of:</u>		<u>Multiply by:</u>	
						OBL species	0	X 1=	0
						FACW species	0	X 2=	0
1.	<i>Pyrus calleryana</i>		40	Y	NL	FAC species	0	X 3=	0
2.						FACU species	115	X 4=	460
3.						UPL species	0	X 5=	0
4.						Totals (A)	115	(B)	460
5.						Prevalence Index =		B/A =	4
6.									
7.									
			40	=Total Cover		Hydrophytic Vegetation Indicators:			
<u>Herb Stratum</u>		(Plot size: <u>5'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	1 - Rapid Test for Hydrophytic Vegetation			
						2 - Dominance Test is >50%			
						3 - Prevalence Index is ≤3.0 ¹			
1.	<i>Asclepias syriaca</i>		20	Y	FACU	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
2.	<i>Solidago canadensis</i>		20	Y	FACU				
3.	<i>Rosa multiflora</i>		15		FACU				
4.						Problematic Hydrophytic Vegetation ¹ (Explain)			
5.						1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
6.									
7.									
8.									
9.						Definitions of Vegetation Strata:			
10.						Tree – Woody plants 3 in. or more in DBH, regardless of height.			
11.						Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft tall.			
12.						Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall			
			55	=Total Cover		Woody vines – All woody vines greater than 3.28 ft in height.			
<u>Vine Stratum</u>		(Plot size: <u>15'</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>				
1.									
2.									
3.									
4.									
5.									
				=Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)									



SOIL

Sampling Point: SP-6

Profile Description:								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	5YR 5/5	100					Silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)	Coast Prairie Redox (A16) (MLRA 147, 148)
Black Histic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)		Depleted Matrix (F3)	Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N)		Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)		Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)		Hydric Soil Present?	Yes		No	x
Type						
Depth (inches):						
Remarks:						

ATTACHMENT 6
PHASE I BOG TURTLE HABITAT SURVEY
DATA FORMS

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020) Please do not edit document.

Wetland ID: E

PNDI # (for PA): 725558

General Info

Property/Project Name Highlands Dog Park Dog Park
 Coordinates 40.24070, -75.40327 Project Type Additions to existing park
 Entity Requesting Phase 1 Survey SPOTS, Stevens + McCoy
 County/Township/Municipality Perkiomen Twp; Schuentsville PA
 Lead Surveyor Teresa M. Amtrone Affiliation Liberty environmental
 Other Assistants Present Shannon J. Ryan, Joe Atzert

Date/Condition

Date of Survey 1-11-21 Time In 09:40 Time Out 10:30 Air Temp. 34 (°F) (°C)
 Last Precipitation ☒ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☐ Yes ☒ No ☐ Unknown
 Drought Index*¹ (Circle): none (D0) D1 D2 D3 D4 Wetland Photos Taken ☒ Yes ☐ No (Provide photo location map)
 Notes (e.g., details about drought, flood, abnormally dry, and/or snow/ice conditions, and any other seasonal conditions observed):
current rain event

Wetland Info

Wetland Size _____ acres, if known # Wetlands w/in Project Area² 4
 Estimate wetland size (acres) ☐ < 0.1 ☐ 0.1 - 0.5 ☐ 0.5 - 1 ☐ 1 - 2 ☒ 2 - 4 ☐ 5+ ☐ 10+
 Estimate % Canopy Cover*³ ☐ 0% ☒ ≤ 5 ☐ 6-20 ☐ 21-40 ☐ 41-60 ☐ > 60
 Hydrology and Soils (check all that apply): use additional pages to further discuss pertinent general wetland information
☒ Springs/Seeps ☐ Springhouse ☐ Trib/Stream ☐ Pond ☐ Stormwater ☐ Iron Bacteria ☐ Watercress
☐ Water Visible on Surface Evidence of Flooding ☐ Yes ☒ No If yes, (☐ Seasonal Flooding⁴ ☐ Routine Flooding⁵)
☐ Rivulets (_____ inches deep) ☐ Subsurface Tunnel/Rivulets ☐ Tire Ruts (_____ inches deep)
☒ Small Puddles/Depressions (1 inches deep) ☒ Saturated soils present? If yes, year-round? ☐ Likely ☒ Unlikely ☐ Unk
☐ Yes ☒ No Are there any signs of disturbance to hydrology (e.g., drainage ditches, tile drainages, berms, culverts, fill material, ponds, roads, beaver activity)?
 Estimate time period (in years) of disturbance*: ☐ ≤ 5 ☐ 6-10 ☐ 11-20 ☐ > 20
 For ditches that may be present, is there bog turtle habitat? If yes, describe:

¹ (*) Denotes reference to the Supplemental Information document that provides more details on this particular question.

² Each wetland must have a separate Phase 1 habitat assessment data form completed.

³ Determine percent cover of abundant species for the wetland, not by wetland type. Abundant species are those that are most prominent in the wetland and have the highest percent of coverage compared to other species.

⁴ Seasonal flooding in wetlands/streams can occur as a result of spring snow melt/heavy rain that increases water levels in these systems.

⁵ Routine flooding refers to tidally-influenced wetland/stream systems or the occurrence of normal rain patterns throughout the year.

Wetland ID: EYes ☒ No Are there any signs of disturbance to vegetation (e.g., mowing, pasturing, burning)? If yes, describe:

Wetland Info

Rate (scale of 1-4) level of vegetation disturbance* (Circle): 1. Light to moderate grazing or mowing 2. No grazing, mowing, burning observed⁶ 3. Moderate to high grazing or mowing 4. Mowing occurs during bog turtle active seasonSoil types present*: silt loamHow much suitable habitat is in this wetland? Estimate acreage or percentage: 0

Wetland Type	% of Total Wetland	% of Wetland Type w/Muck	Avg. Muck Depth	Max. Muck Depth
PEM Portion of Wetland:	<u>95%</u>	<u>0</u>	<u>in.</u>	<u>in.</u>
PSS Portion of Wetland:	<u>in.</u>	<u>in.</u>	<u>in.</u>	<u>in.</u>
PFO Portion of Wetland:	<u>5%</u>	<u>0</u>	<u>in.</u>	<u>in.</u>
POW/PUB Portion of Wetland:	<u>in.</u>	<u>in.</u>	<u>in.</u>	<u>in.</u>

CIRCLE all vegetation* from list below that is dominant ($\geq 20\%$ for each wetland type listed above) and add other species you observe that are not listed in table in the "notes" space provided below or in the extra table cells.

Wetland Type/Vegetation

Alder Spp. <i>Alnus</i> spp.	Common Reed <i>Phragmites australis</i>	Jewelweed <i>Impatiens capensis</i>	Rice Cutgrass <i>Leersia oryzoides</i>	Spicebush <i>Lindera benzoin</i>	Willow spp. <i>Salix</i> spp.
Alder-leaved Buckthorn <i>Rhamnus alnifolia</i>	Dogwood Spp. <i>Cornus</i> spp.	Mile-A-Minute <i>Persicaria perfoliata</i>	Rough-leaved Goldenrod <i>Solidago patula</i>	Spike-Rush <i>Eleocharis palustris</i>	Woolly-fruited Sedge <i>Carex lasiocarpa</i>
American Elm <i>Ulmus americana</i>	Duck Potato <i>Sagittaria latifolia</i>	Multiflora Rose <i>Rosa multiflora</i>	Sensitive Fern <i>Onoclea sensibilis</i>	Swamp Rose <i>Rosa palustris</i>	Woolly Bulrush or Woolgrass <i>Scirpus cyperinus</i>
Arrowhead <i>Sagittaria latifolia</i>	Eastern Red Cedar <i>Juniperus virginiana</i>	Poison Sumac <i>Toxicodendron vernix</i>	Shrubby Cinquefoil <i>Dasiphora fruticosa</i>	Sweetflag <i>Acorus calamus</i>	Yellow-Green Sedge <i>Cyperus esculentus</i>
Carpetgrass <i>Axonopus fissifolius</i>	Eastern Tamarack <i>Larix laricina</i>	Porcupine Sedge <i>Carex hystericina</i>	Skunk Cabbage <i>Symplocarpus foetidus</i>	Tearthumb Spp. <i>Polygonum</i> spp.	
Cattail <i>Typha</i> spp.	Grass-of-Parnassus <i>Parnassia glauca</i>	Purple Loosestrife <i>Lythrum salicaria</i>	Smooth Sawgrass <i>Cladium mariscoides</i>	Tussock Sedge <i>Carex stricta</i>	
Cinnamon Fern <i>Osmundastrum cinnamomeum</i>	Inland sedge <i>Carex interior</i>	Red Maple <i>Acer rubrum</i>	Soft Rush or Common Rush <i>Juncus effusus</i>	Viburnum Spp. <i>Viburnum</i> spp.	
Common Boneset <i>Eupatorium perfoliatum</i>	Japanese Stiltgrass <i>Microstegium vimineum</i>	Reed Canary Grass <i>Phalaris arundinacea</i>	Sphagnum Moss <i>Sphagnum</i> spp.	White turtlehead <i>Chelone glabra</i>	

Notes on additional plant species (e.g., sedge, rush, grass, shrub, tree species):

Flat-top goldenrod⁶ No grazing, mowing, or burning is given a "2" rank as this is considered more harmful to bog turtle wetlands than Rank 1 (light to moderate grazing or mowing). Light to moderate habitat management is beneficial to suppressing succession of native and non-native plant species.

Wetland ID: E

Describe surrounding landscape (e.g., wetlands, forest, subdivision, agricultural field, fallow field, etc.):

~~Public park for dogs + humans~~
Fields + Forested areas - bounded by
Commercial development to the northeast

Landscape Info

How much of this wetland is located **off-site** (i.e., outside the property boundaries or right-of-way)?

- ☒ None of it - the entire wetland is within the property boundaries
☐ Some of it - _____ Acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the **off-site portion** was surveyed (on foot)?

- ☐ None of it ☐ All of it ☐ Part of it (_____ acres or _____ % of the off-site portion)

Is there potential bog turtle habitat **within 300 feet***? ☐ Yes ☐ No ☒ Unk Habitat **off-site**? ☐ Yes ☐ No ☒ Unk

If yes, how did you conclude this?

Species

Were any bog turtles observed? ☐ Yes ☒ No If yes, how many? _____
Other herps observed? ☐ Yes ☒ No If yes, which ones?

*Note that you must be permitted by the state you are conducting the survey in to handle bog turtles.

*Report bog turtle observations to your local FWS Field Office and state wildlife office within 48 hrs.

Lead Surveyor Opinion

- ☐ Yes ☒ No ☐ Unsure The **hydrology** criterion for bog turtle habitat is met.
☐ Yes ☒ No ☐ Unsure The **soils** criterion for bog turtle habitat is met.
☒ Yes ☐ No ☐ Unsure The **vegetation** criterion for bog turtle habitat is met.
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (fair to good quality).
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (low to very low quality).
☒ This wetland does **NOT** have potential bog turtle habitat. ☐ **UNSURE** if suitable habitat is present.

Notes (How did you reach this opinion?): Absence of appropriate soils + hydrology

Lead Surveyor - please sign below certifying to the best of your knowledge that all of the information provided herein is accurate and complete.

Print Name Teresa M Amitrone Signature [Signature]

Date 1-11-21

Contact Information tamitrone@libertyenviro.com

****Important**** Please include all Phase 1 data forms in a final Phase 1 bog turtle habitat assessment report (see Attachment 3 in *Guidelines for Bog Turtle Surveys* for checklist) and submit to your local state wildlife agency and U.S. Fish and Wildlife Service Field Office (see Attachment 1 in *Guidelines for Bog Turtle Surveys*).

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020)

Wetland ID:

E

Additional space for notes, color photos, or maps/sketch of wetland (or attach printed map with each wetland type carefully outlined; include all wetland types [PEM, PSS, PFO, POW/PUB], streams/ditches, north arrow, property/project borders, and areas of core bog turtle habitat. Include **color photos** for each wetland assessed and separate Phase 1 data forms for each when submitting to agencies, as well as any reptile and amphibian species you encounter, if possible.

see report (attached)

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020) Please do not edit document.

Wetland ID: F

PNDI # (for PA): 725558

General Info

Property/Project Name Highlands Dog Park
Coordinates 40.24656, -75.46397 Project Type Dog Park
Entity Requesting Phase 1 Survey Spotts, Stevens + McCoy
County/Township/Municipality Perkiomien Township; Schuylkill PA
Lead Surveyor Teresa M. Amatore Affiliation Liberty Environmental
Other Assistants Present Shannon Ryan & Joe Atzert

Date/Condition

Date of Survey 1-11-21 Time In 10:50 Time Out 11:15 Air Temp. 34 °F
Last Precipitation ☒ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☐ Yes ☒ No ☐ Unknown
Drought Index*¹ (Circle): none D0 D1 D2 D3 D4 Wetland Photos Taken ☒ Yes ☐ No (Provide photo location map)
Notes (e.g., details about drought, flood, abnormally dry, and/or snow/ice conditions, and any other seasonal conditions observed):
Current rain event

Wetland Info

Wetland Size ☒ acres, if known # Wetlands w/in Project Area² 4
Estimate wetland size (acres) ☒ < 0.1 ☐ 0.1 - 0.5 ☐ 0.5 - 1 ☐ 1 - 2 ☐ 2 - 4 ☐ 5+ ☐ 10+
Estimate % Canopy Cover*³ ☒ 0% ☐ ≤ 5 ☐ 6-20 ☐ 21-40 ☐ 41-60 ☐ > 60
Hydrology and Soils (check all that apply): use additional pages to further discuss pertinent general wetland information
☐ Springs/Seeps ☐ Springhouse ☐ Trib/Stream ☐ Pond ☐ Stormwater ☐ Iron Bacteria ☐ Watercress
☐ Water Visible on Surface Evidence of Flooding ☐ Yes ☒ No If yes, (☐ Seasonal Flooding⁴ ☐ Routine Flooding⁵)
☐ Rivulets (☐ inches deep) ☐ Subsurface Tunnel/Rivulets ☐ Tire Ruts (☐ inches deep)
☒ Small Puddles/Depressions (2 inches deep) ☒ Saturated soils present? If yes, year-round? ☐ Likely ☒ Unlikely ☐ Unk
☐ Yes ☒ No Are there any signs of disturbance to hydrology (e.g., drainage ditches, tile drainages, berms, culverts, fill material, ponds, roads, beaver activity)?

Estimate time period (in years) of disturbance*: ☐ ≤ 5 ☐ 6-10 ☐ 11-20 ☐ > 20

For ditches that may be present, is there bog turtle habitat? If yes, describe:

¹ (*) Denotes reference to the **Supplemental Information** document that provides more details on this particular question.

² Each wetland must have a separate Phase 1 habitat assessment data form completed.

³ Determine percent cover of abundant species for the wetland, not by wetland type. Abundant species are those that are most prominent in the wetland and have the highest percent of coverage compared to other species.

⁴ Seasonal flooding in wetlands/streams can occur as a result of spring snow melt/heavy rain that increases water levels in these systems.

⁵ Routine flooding refers to tidally-influenced wetland/stream systems or the occurrence of normal rain patterns throughout the year.

Wetland ID: F

Yes ☒ No Are there any signs of disturbance to vegetation (e.g., mowing, pasturing, burning)? If yes, describe:

Wetland Info

Rate (scale of 1-4) level of vegetation disturbance* (Circle): 1. Light to moderate grazing or mowing 2. No grazing, mowing, burning observed⁶ 3. Moderate to high grazing or mowing 4. Mowing occurs during bog turtle active season

Soil types present*: Silt Loam

How much suitable habitat is in this wetland? Estimate acreage or percentage: 0

Wetland Type	% of Total Wetland	% of Wetland Type w/Muck	Avg. Muck Depth	Max. Muck Depth
PEM Portion of Wetland:	<u>100%</u>	<u>0</u>	<u>in.</u>	<u>in.</u>
PSS Portion of Wetland:	<u> </u>	<u> </u>	<u>in.</u>	<u>in.</u>
PFO Portion of Wetland:	<u> </u>	<u> </u>	<u>in.</u>	<u>in.</u>
POW/PUB Portion of Wetland:	<u> </u>	<u> </u>	<u>in.</u>	<u>in.</u>

CIRCLE all vegetation* from list below that is dominant ($\geq 20\%$ for each wetland type listed above) and add other species you observe that are not listed in table in the "notes" space provided below or in the extra table cells.

Wetland Type/Vegetation

Alder Spp. <i>Alnus</i> spp.	Common Reed <i>Phragmites australis</i>	Jewelweed <i>Impatiens capensis</i>	Rice Cutgrass <i>Leersia oryzoides</i>	Spicebush <i>Lindera benzoin</i>	Willow spp. <i>Salix</i> spp.
Alder-leaved Buckthorn <i>Rhamnus alnifolia</i>	Dogwood Spp. <i>Cornus</i> spp.	Mile-A-Minute <i>Persicaria perfoliata</i>	Rough-leaved Goldenrod <i>Solidago patula</i>	Spike-Rush <i>Eleocharis palustris</i>	Woolly-fruited Sedge <i>Carex lasiocarpa</i>
American Elm <i>Ulmus americana</i>	Duck Potato <i>Sagittaria latifolia</i>	Multiflora Rose <i>Rosa multiflora</i>	Sensitive Fern <i>Onoclea sensibilis</i>	Swamp Rose <i>Rosa palustris</i>	Woolly Bulrush or Woolgrass <i>Scirpus cyperinus</i>
Arrowhead <i>Sagittaria latifolia</i>	Eastern Red Cedar <i>Juniperus virginiana</i>	Poison Sumac <i>Toxicodendron vernix</i>	Shrubby Cinquefoil <i>Dasiphora fruticosa</i>	Sweetflag <i>Acorus calamus</i>	Yellow-Green Sedge <i>Cyperus esculentus</i>
Carpetgrass <i>Axonopus fissifolius</i>	Eastern Tamarack <i>Larix laricina</i>	Porcupine Sedge <i>Carex hystericina</i>	Skunk Cabbage <i>Symplocarpus foetidus</i>	Tearthumb Spp. <i>Polygonum</i> spp.	
Cattail <i>Typha</i> spp.	Grass-of-Parnassus <i>Parnassia glauca</i>	Purple Loosestrife <i>Lythrum salicaria</i>	Smooth Sawgrass <i>Cladium mariscoides</i>	Tussock Sedge <i>Carex stricta</i>	
Cinnamon Fern <i>Osmundastrum cinnamomeum</i>	Inland sedge <i>Carex interior</i>	Red Maple <i>Acer rubrum</i>	Soft Rush or Common Rush <i>Juncus effusus</i>	Viburnum Spp. <i>Viburnum</i> spp.	
Common Boneset <i>Eupatorium perfoliatum</i>	Japanese Stiltgrass <i>Microstegium vimineum</i>	Reed Canary Grass <i>Phalaris arundinacea</i>	Sphagnum Moss <i>Sphagnum</i> spp.	White turtlehead <i>Chelone glabra</i>	

Notes on additional plant species (e.g., sedge, rush, grass, shrub, tree species):

Flat-top soldentop

⁶ No grazing, mowing, or burning is given a "2" rank as this is considered more harmful to bog turtle wetlands than Rank 1 (light to moderate grazing or mowing). Light to moderate habitat management is beneficial to suppressing succession of native and non-native plant species.

Wetland ID: F

Describe surrounding landscape (e.g., wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Fields + Forested areas - bounded to the northwest by commercial development.

Landscape Info

How much of this wetland is located **off-site** (i.e., outside the property boundaries or right-of-way)?

- ☒ None of it – the entire wetland is within the property boundaries
☐ Some of it – _____ Acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the **off-site portion** was surveyed (on foot)?

- ☐ None of it ☐ All of it ☐ Part of it (_____ acres or _____ % of the off-site portion)

Is there potential bog turtle habitat **within 300 feet***? ☐ Yes ☐ No ☒ Unk Habitat **off-site**? ☐ Yes ☐ No ☒ Unk

If yes, how did you conclude this?

Species

Were any bog turtles observed? ☐ Yes ☒ No If yes, how many? _____
Other herps observed? ☐ Yes ☒ No If yes, which ones?

*Note that you must be permitted by the state you are conducting the survey in to handle bog turtles.

*Report bog turtle observations to your local FWS Field Office and state wildlife office within 48 hrs.

Lead Surveyor Opinion

- ☐ Yes ☒ No ☐ Unsure The **hydrology** criterion for bog turtle habitat is met.
☐ Yes ☒ No ☐ Unsure The **soils** criterion for bog turtle habitat is met.
☒ Yes ☐ No ☐ Unsure The **vegetation** criterion for bog turtle habitat is met.
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (fair to good quality).
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (low to very low quality).
☒ This wetland does **NOT** have potential bog turtle habitat. ☐ **UNSURE** if suitable habitat is present.

Notes (How did you reach this opinion?):

Absence of appropriate soils + hydrology.

Lead Surveyor – please sign below certifying to the best of your knowledge that all of the information provided herein is accurate and complete.

Print Name Teressa M. Amitrone Signature [Signature]

Date 1-11-21

Contact Information tamitrone@libertyenviro.com

****Important**** Please include all Phase 1 data forms in a final Phase 1 bog turtle habitat assessment report (see Attachment 3 in *Guidelines for Bog Turtle Surveys* for checklist) and submit to your local state wildlife agency and U.S. Fish and Wildlife Service Field Office (see Attachment 1 in *Guidelines for Bog Turtle Surveys*).

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020)

Wetland ID: F

Additional space for notes, color photos, or maps/sketch of wetland (or attach printed map with each wetland type carefully outlined; include all wetland types [PEM, PSS, PFO, POW/PUB], streams/ditches, north arrow, property/project borders, and areas of core bog turtle habitat. Include **color photos** for each wetland assessed and separate Phase 1 data forms for each when submitting to agencies, as well as any reptile and amphibian species you encounter, if possible.

See attached report

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020) Please do not edit document.

Wetland ID: GT
PNDI # (for PA): 725558

General Info

Property/Project Name Highlands Dog Park
Coordinates 40.24770, 75.46366 Project Type Dog Park
Entity Requesting Phase 1 Survey Spotts, Stevens & McCoy
County/Township/Municipality Perkiomen Twp; Schuylkill, PA
Lead Surveyor Teresa Amitone Affiliation Liberty Environmental
Other Assistants Present Shannon Ryan, Joe Atzert

Date/Condition

Date of Survey 1-11-21 Time In 11:15 Time Out 11:30 Air Temp. 34 F °C
Last Precipitation ☒ < 24 hours ☒ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☐ Yes ☒ No ☐ Unknown
Drought Index*¹ (Circle): none D0 D1 D2 D3 D4 Wetland Photos Taken ☐ Yes ☐ No (Provide photo location map)
Notes (e.g., details about drought, flood, abnormally dry, and/or snow/ice conditions, and any other seasonal conditions observed):
Recent ~~current~~ rain event
& current

Wetland Info

Wetland Size _____ acres, if known # Wetlands w/in Project Area² 4
Estimate wetland size (acres) ☐ < 0.1 ☒ 0.1 - 0.5 ☐ 0.5 - 1 ☐ 1 - 2 ☐ 2 - 4 ☐ 5+ ☐ 10+
Estimate % Canopy Cover*³ ☒ 0% ☐ ≤ 5 ☐ 6-20 ☐ 21-40 ☐ 41-60 ☐ > 60
Hydrology and Soils (check all that apply): use additional pages to further discuss pertinent general wetland information
☐ Springs/Seeps ☐ Springhouse ☐ Trib/Stream ☐ Pond ☒ Stormwater ☐ Iron Bacteria ☐ Watercress
☒ Water Visible on Surface Evidence of Flooding ☐ Yes ☒ No If yes, (☐ Seasonal Flooding⁴ ☐ Routine Flooding⁵)
☐ Rivulets (____ inches deep) ☐ Subsurface Tunnel/Rivulets ☐ Tire Ruts (____ inches deep)
☒ Small Puddles/Depressions (1" inches deep) ☐ Saturated soils present? If yes, year-round? ☐ Likely ☒ Unlikely ☐ Unk
☐ Yes ☒ No Are there any signs of disturbance to hydrology (e.g., drainage ditches, tile drainages, berms, culverts, fill material, ponds, roads, beaver activity)?
Estimate time period (in years) of disturbance*: ☐ ≤ 5 ☐ 6-10 ☐ 11-20 ☐ > 20
For ditches that may be present, is there bog turtle habitat? If yes, describe:

¹ (*) Denotes reference to the **Supplemental Information** document that provides more details on this particular question.

² Each wetland must have a separate Phase 1 habitat assessment data form completed.

³ Determine percent cover of abundant species for the wetland, not by wetland type. Abundant species are those that are most prominent in the wetland and have the highest percent of coverage compared to other species.

⁴ Seasonal flooding in wetlands/streams can occur as a result of spring snow melt/heavy rain that increases water levels in these systems.

⁵ Routine flooding refers to tidally-influenced wetland/stream systems or the occurrence of normal rain patterns throughout the year.

Wetland ID: G

Yes ☒ No Are there any signs of disturbance to vegetation (e.g., mowing, pasturing, burning)? If yes, describe:

Wetland Info

Rate (scale of 1-4) level of vegetation disturbance* (Circle): 1. Light to moderate grazing or mowing 2. No grazing, mowing, burning observed⁶ 3. Moderate to high grazing or mowing 4. Mowing occurs during bog turtle active season

Soil types present*:

How much suitable habitat is in this wetland? Estimate acreage or percentage: 0

Wetland Type	% of Total Wetland	% of Wetland Type w/Muck	Avg. Muck Depth	Max. Muck Depth
PEM Portion of Wetland:	<u>100%</u>	<u>0</u>	<u> </u> in.	<u> </u> in.
PSS Portion of Wetland:	<u> </u>	<u> </u>	<u> </u> in.	<u> </u> in.
PFO Portion of Wetland:	<u> </u>	<u> </u>	<u> </u> in.	<u> </u> in.
POW/PUB Portion of Wetland:	<u> </u>	<u> </u>	<u> </u> in.	<u> </u> in.

CIRCLE all vegetation* from list below that is dominant ($\geq 20\%$ for each wetland type listed above) and add other species you observe that are not listed in table in the "notes" space provided below or in the extra table cells.

Wetland Type/Vegetation

Alder Spp. <i>Alnus</i> spp.	Common Reed <i>Phragmites australis</i>	Jewelweed <i>Impatiens capensis</i>	Rice Cutgrass <i>Leersia oryzoides</i>	Spicebush <i>Lindera benzoin</i>	Willow spp. <i>Salix</i> spp.
Alder-leaved Buckthorn <i>Rhamnus alnifolia</i>	Dogwood Spp. <i>Cornus</i> spp.	Mile-A-Minute <i>Persicaria perfoliata</i>	Rough-leaved Goldenrod <i>Solidago patula</i>	Spike-Rush <i>Eleocharis palustris</i>	Woolly-fruited Sedge <i>Carex lasiocarpa</i>
American Elm <i>Ulmus americana</i>	Duck Potato <i>Sagittaria latifolia</i>	Multiflora Rose <i>Rosa multiflora</i>	Sensitive Fern <i>Onoclea sensibilis</i>	Swamp Rose <i>Rosa palustris</i>	Woolly Bulrush or Woolgrass <i>Scirpus cyperinus</i>
Arrowhead <i>Sagittaria latifolia</i>	Eastern Red Cedar <i>Juniperus virginiana</i>	Poison Sumac <i>Toxicodendron vernix</i>	Shrubby Cinquefoil <i>Dasiphora fruticosa</i>	Sweetflag <i>Acorus calamus</i>	Yellow-Green Sedge <i>Cyperus esculentus</i>
Carpetgrass <i>Axonopus fissifolius</i>	Eastern Tamarack <i>Larix laricina</i>	Porcupine Sedge <i>Carex hystericina</i>	Skunk Cabbage <i>Symplocarpus foetidus</i>	Tearthumb Spp. <i>Polygonum</i> spp.	
Cattail <i>Typha</i> spp.	Grass-of-Parnassus <i>Parnassia glauca</i>	Purple Loosestrife <i>Lythrum salicaria</i>	Smooth Sawgrass <i>Cladium mariscoides</i>	Tussock Sedge <i>Carex stricta</i>	
Cinnamon Fern <i>Osmundastrum cinnamomeum</i>	Inland sedge <i>Carex interior</i>	Red Maple <i>Acer rubrum</i>	Soft Rush or Common Rush <i>Juncus effusus</i>	Viburnum Spp. <i>Viburnum</i> spp.	
Common Boneset <i>Eupatorium perfoliatum</i>	Japanese Stiltgrass <i>Microstegium vimineum</i>	Reed Canary Grass <i>Phalaris arundinacea</i>	Sphagnum Moss <i>Sphagnum</i> spp.	White turtlehead <i>Chelone glabra</i>	

Notes on additional plant species (e.g., sedge, rush, grass, shrub, tree species):

flat-top golden-top

⁶ No grazing, mowing, or burning is given a "2" rank as this is considered more harmful to bog turtle wetlands than Rank 1 (light to moderate grazing or mowing). Light to moderate habitat management is beneficial to suppressing succession of native and non-native plant species.

Wetland ID: GT

Describe surrounding landscape (e.g., wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Forested areas, fields & commercial development.

Landscape Info

How much of this wetland is located **off-site** (i.e., outside the property boundaries or right-of-way)?

- ☒ None of it – the entire wetland is within the property boundaries
☐ Some of it – _____ Acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the **off-site portion** was surveyed (on foot)?

- ☐ None of it ☐ All of it ☐ Part of it (_____ acres or _____ % of the off-site portion)

Is there potential bog turtle habitat **within 300 feet***? ☐ Yes ☐ No ☒ Unk Habitat **off-site**? ☐ Yes ☐ No ☒ Unk

If yes, how did you conclude this?

Species

Were any bog turtles observed? ☐ Yes ☒ No If yes, how many? _____
 Other herps observed? ☐ Yes ☒ No If yes, which ones?

*Note that you must be permitted by the state you are conducting the survey in to handle bog turtles.

*Report bog turtle observations to your local FWS Field Office and state wildlife office within 48 hrs.

Lead Surveyor Opinion

- ☐ Yes ☒ No ☐ Unsure The **hydrology** criterion for bog turtle habitat is met.
☐ Yes ☒ No ☐ Unsure The **soils** criterion for bog turtle habitat is met.
☒ Yes ☐ No ☐ Unsure The **vegetation** criterion for bog turtle habitat is met.
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (fair to good quality).
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (low to very low quality).
☒ This wetland does **NOT** have potential bog turtle habitat. ☐ **UNSURE** if suitable habitat is present.

Notes (How did you reach this opinion?): Absence of appropriate soils & hydrology

Lead Surveyor – please sign below certifying to the best of your knowledge that all of the information provided herein is accurate and complete.

Print Name Teresa Amitrone Signature Teresa Amitrone

Date 1-11-21

Contact Information T. Amitrone @ libertyenviro.com

****Important**** Please include all Phase 1 data forms in a final Phase 1 bog turtle habitat assessment report (see Attachment 3 in *Guidelines for Bog Turtle Surveys* for checklist) and submit to your local state wildlife agency and U.S. Fish and Wildlife Service Field Office (see Attachment 1 in *Guidelines for Bog Turtle Surveys*).

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020)

Wetland ID:

G

Additional space for notes, color photos, or maps/sketch of wetland (or attach printed map with each wetland type carefully outlined; include all wetland types [PEM, PSS, PFO, POW/PUB], streams/ditches, north arrow, property/project borders, and areas of core bog turtle habitat. Include **color photos** for each wetland assessed and separate Phase 1 data forms for each when submitting to agencies, as well as any reptile and amphibian species you encounter, if possible.

See attached report

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

(Revised April 29, 2020) Please do not edit document.

Wetland ID: I

PNDI # (for PA): 725558

General Info

Property/Project Name Highlands Park ~~Park~~ Dog Park
Coordinates 40.24759, -75.46319 Project Type Dog Park
Entity Requesting Phase 1 Survey Spotts, Stevens + McCoy
County/Township/Municipality Perkiomen Twp., Schwenksville, PA
Lead Surveyor Leresa M. Amitrone Affiliation Liberty Environmental
Other Assistants Present Shannon Ryan, Joe Atzert

Date/Condition

Date of Survey 1-11-21 Time In 13:00 Time Out 13:30 Air Temp. 34 °F °C
Last Precipitation ☒ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☐ Yes ☒ No ☐ Unknown
Drought Index*¹ (Circle): none (D0) D1 D2 D3 D4 Wetland Photos Taken ☒ Yes ☐ No (Provide photo location map)
Notes (e.g., details about drought, flood, abnormally dry, and/or snow/ice conditions, and any other seasonal conditions observed):

Wetland Info

Wetland Size _____ acres, if known # Wetlands w/in Project Area² 4
Estimate wetland size (acres) ☐ < 0.1 ☒ 0.1 - 0.5 ☐ 0.5 - 1 ☐ 1 - 2 ☐ 2 - 4 ☐ 5+ ☐ 10+
Estimate % Canopy Cover*³ ☒ 0% ☐ ≤ 5 ☐ 6-20 ☐ 21-40 ☐ 41-60 ☐ > 60
Hydrology and Soils (check all that apply): use additional pages to further discuss pertinent general wetland information
☐ Springs/Seeps ☐ Springhouse ☐ Trib/Stream ☐ Pond ☒ Stormwater ☐ Iron Bacteria ☐ Watercress
☒ Water Visible on Surface Evidence of Flooding ☐ Yes ☒ No If yes, (☐ Seasonal Flooding⁴ ☐ Routine Flooding⁵)
☐ Rivulets (____ inches deep) ☐ Subsurface Tunnel/Rivulets ☐ Tire Ruts (____ inches deep)
☒ Small Puddles/Depressions (1 inches deep) ☒ Saturated soils present? If yes, year-round? ☐ Likely ☒ Unlikely ☐ Unk
☒ Yes ☒ No Are there any signs of disturbance to hydrology (e.g., drainage ditches, tile drainages, berms, culverts, fill material, ponds, roads, beaver activity)? some stormwater from and adjacent parking lot.

Estimate time period (in years) of disturbance*: ☐ ≤ 5 ☐ 6-10 ☐ 11-20 ☒ > 20

For ditches that may be present, is there bog turtle habitat? If yes, describe:

¹ (*) Denotes reference to the Supplemental Information document that provides more details on this particular question.

² Each wetland must have a separate Phase 1 habitat assessment data form completed.

³ Determine percent cover of abundant species for the wetland, not by wetland type. Abundant species are those that are most prominent in the wetland and have the highest percent of coverage compared to other species.

⁴ Seasonal flooding in wetlands/streams can occur as a result of spring snow melt/heavy rain that increases water levels in these systems.

⁵ Routine flooding refers to tidally-influenced wetland/stream systems or the occurrence of normal rain patterns throughout the year.

Wetland D: I

✓ Yes ___ No Are there any signs of disturbance to vegetation (e.g., mowing, pasturing, burning)? If yes, describe:

some mowing

Wetland Info

Rate (scale of 1-4) level of vegetation disturbance* (Circle): 1. Light to moderate grazing or mowing 2. No grazing, mowing, burning observed⁶ 3. Moderate to high grazing or mowing 4 Mowing occurs during bog turtle active season

Soil types present*: Silt loam

How much suitable habitat is in this wetland? Estimate acreage or percentage: 0

Wetland Type	% of Total Wetland	% of Wetland Type w/Muck	Avg. Muck Depth	Max. Muck Depth
PEM Portion of Wetland:	<u>100%</u>	<u>0</u>	_____ in.	_____ in.
PSS Portion of Wetland:	_____	_____	_____ in.	_____ in.
PFO Portion of Wetland:	_____	_____	_____ in.	_____ in.
POW/PUB Portion of Wetland:	_____	_____	_____ in.	_____ in.

CIRCLE all vegetation* from list below that is dominant ($\geq 20\%$ for each wetland type listed above) and add other species you observe that are not listed in table in the "notes" space provided below or in the extra table cells.

Wetland Type/Vegetation

Alder Spp. <i>Alnus</i> spp.	Common Reed <i>Phragmites australis</i>	Jewelweed <i>Impatiens capensis</i>	Rice Cutgrass <i>Leersia oryzoides</i>	Spicebush <i>Lindera benzoin</i>	Willow spp. <i>Salix</i> spp.
Alder-leaved Buckthorn <i>Rhamnus alnifolia</i>	Dogwood Spp. <i>Cornus</i> spp.	Mile-A-Minute <i>Persicaria perfoliata</i>	Rough-leaved Goldenrod <i>Solidago patula</i>	Spike-Rush <i>Eleocharis palustris</i>	Woolly-fruited Sedge <i>Carex lasiocarpa</i>
American Elm <i>Ulmus americana</i>	Duck Potato <i>Sagittaria latifolia</i>	Multiflora Rose <i>Rosa multiflora</i>	Sensitive Fern <i>Onoclea sensibilis</i>	Swamp Rose <i>Rosa palustris</i>	Woolly Bulrush or Woolgrass <i>Scirpus cyperinus</i>
Arrowhead <i>Sagittaria latifolia</i>	Eastern Red Cedar <i>Juniperus virginiana</i>	Poison Sumac <i>Toxicodendron vernix</i>	Shrubby Cinquefoil <i>Dasiphora fruticosa</i>	Sweetflag <i>Acorus calamus</i>	Yellow-Green Sedge <i>Cyperus esculentus</i>
Carpetgrass <i>Axonopus fissifolius</i>	Eastern Tamarack <i>Larix laricina</i>	Porcupine Sedge <i>Carex hystericina</i>	Skunk Cabbage <i>Symplocarpus foetidus</i>	Tearthumb Spp. <i>Polygonum</i> spp.	
Cattail <i>Typha</i> spp.	Grass-of-Parnassus <i>Parnassia glauca</i>	Purple Loosestrife <i>Lythrum salicaria</i>	Smooth Sawgrass <i>Cladium mariscoides</i>	Tussock Sedge <i>Carex stricta</i>	
Cinnamon Fern <i>Osmundastrum cinnamomeum</i>	Inland sedge <i>Carex interior</i>	Red Maple <i>Acer rubrum</i>	Soft Rush or Common Rush <i>Juncus effusus</i>	Viburnum Spp. <i>Viburnum</i> spp.	
Common Boneset <i>Eupatorium perfoliatum</i>	Japanese Stiltgrass <i>Microstegium vimineum</i>	Reed Canary Grass <i>Phalaris arundinacea</i>	Sphagnum Moss <i>Sphagnum</i> spp.	White turtlehead <i>Chelone glabra</i>	

Notes on additional plant species (e.g., sedge, rush, grass, shrub, tree species):

⁶ No grazing, mowing, or burning is given a "2" rank as this is considered more harmful to bog turtle wetlands than Rank 1 (light to moderate grazing or mowing). Light to moderate habitat management is beneficial to suppressing succession of native and non-native plant species.

Wetland ID: I

Describe surrounding landscape (e.g., wetlands, forest, subdivision, agricultural field, fallow field, etc.):

forested & field areas, commercial development

Landscape Info

How much of this wetland is located **off-site** (i.e., outside the property boundaries or right-of-way)?

- ☒ None of it – the entire wetland is within the property boundaries
☐ Some of it – _____ Acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the **off-site portion** was surveyed (on foot)?

- ☐ None of it ☐ All of it ☐ Part of it (_____ acres or _____ % of the off-site portion)

Is there potential bog turtle habitat **within 300 feet***? ☐ Yes ☐ No ☒ Unk Habitat **off-site**? ☐ Yes ☐ No ☒ Unk

If yes, how did you conclude this?

Species

Were any bog turtles observed? ☐ Yes ☒ No If yes, how many? _____
Other herps observed? ☐ Yes ☐ No If yes, which ones?

*Note that you must be permitted by the state you are conducting the survey in to handle bog turtles.

*Report bog turtle observations to your local FWS Field Office and state wildlife office within 48 hrs.

Lead Surveyor Opinion

- ☐ Yes ☒ No ☐ Unsure The **hydrology** criterion for bog turtle habitat is met.
☐ Yes ☒ No ☐ Unsure The **soils** criterion for bog turtle habitat is met.
☒ Yes ☐ No ☐ Unsure The **vegetation** criterion for bog turtle habitat is met.
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (fair to good quality).
☐ Yes ☐ No ☐ Unsure This wetland **HAS** potential bog turtle habitat (low to very low quality).
☒ This wetland does **NOT** have potential bog turtle habitat. ☐ **UNSURE** if suitable habitat is present.

Notes (How did you reach this opinion?):

Absence of appropriate soils + hydrology

Lead Surveyor – please sign below certifying to the best of your knowledge that all of the information provided herein is accurate and complete.

Print Name Teresa M. Mitro Signature Teresa M. Mitro

Date 1-11-21

Contact Information tamitro@libertyenviro.com

****Important**** Please include all Phase 1 data forms in a final Phase 1 bog turtle habitat assessment report (see Attachment 3 in *Guidelines for Bog Turtle Surveys* for checklist) and submit to your local state wildlife agency and U.S. Fish and Wildlife Service Field Office (see Attachment 1 in *Guidelines for Bog Turtle Surveys*).

Phase 1 Bog Turtle Habitat Survey Data Form for the Northern Population Range

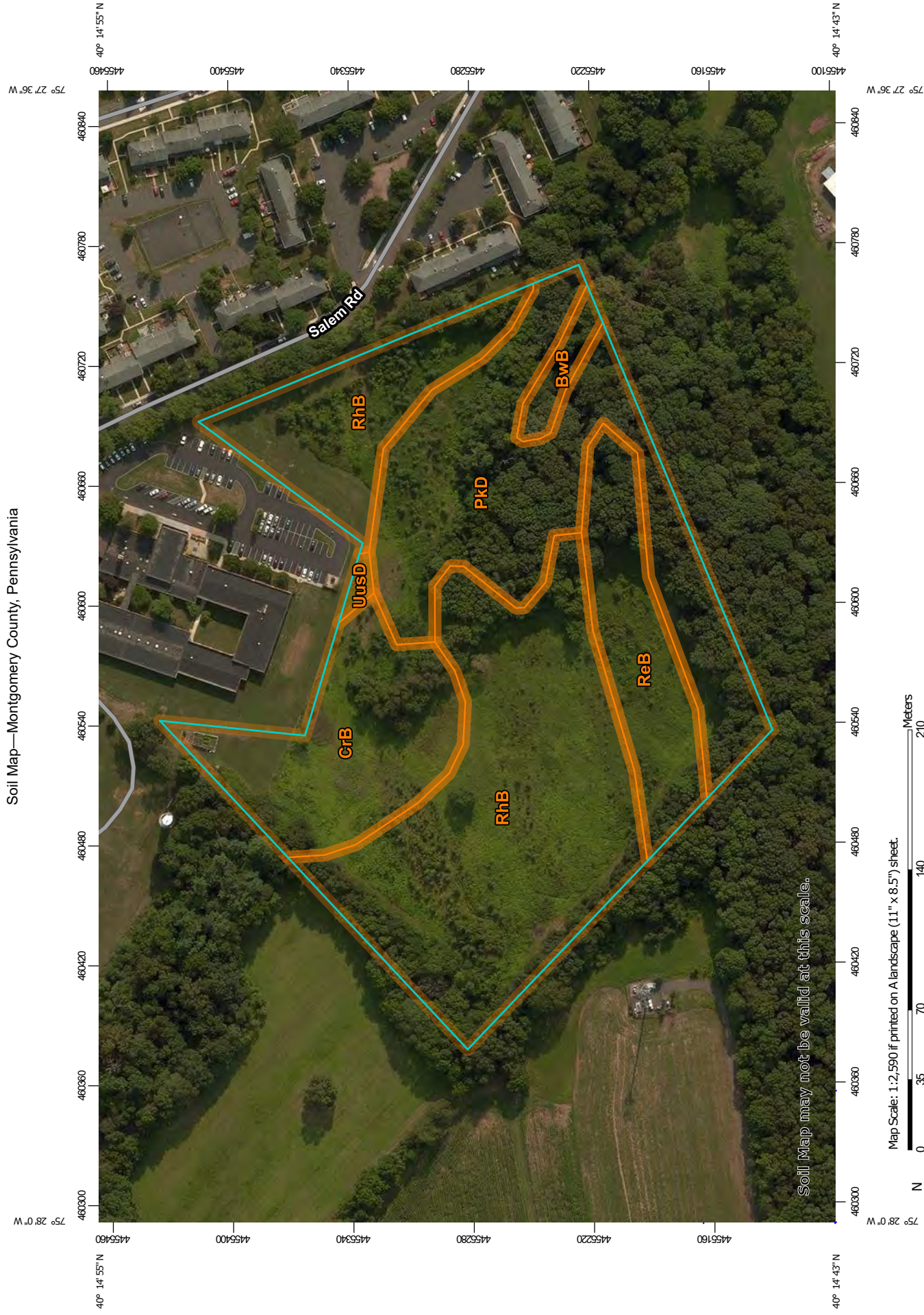
(Revised April 29, 2020)

Wetland ID: _____

Additional space for notes, color photos, or maps/sketch of wetland (or attach printed map with each wetland type carefully outlined; include all wetland types [PEM, PSS, PFO, POW/PUB], streams/ditches, north arrow, property/project borders, and areas of core bog turtle habitat. Include **color photos** for each wetland assessed and separate Phase 1 data forms for each when submitting to agencies, as well as any reptile and amphibian species you encounter, if possible.

ATTACHMENT 7
WEBSOIL SURVEY INFORMATION

Soil Map—Montgomery County, Pennsylvania



Map Scale: 1:2,590 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

1/15/2021
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 15, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 25, 2014—Aug 11, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BwB	Buckingham silt loam, 3 to 8 percent slopes	0.3	1.8%
CrB	Croton silt loam, occasionally ponded, 3 to 8 percent slopes	2.4	15.0%
PkD	Penn-Klinesville channery silt loams, 15 to 25 percent slopes	4.2	27.0%
ReB	Readington silt loam, 3 to 8 percent slopes	1.7	10.5%
RhB	Reaville silt loam, 3 to 8 percent slopes	7.1	45.3%
UusD	Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes	0.1	0.4%
Totals for Area of Interest		15.7	100.0%

Montgomery County, Pennsylvania

BwB—Buckingham silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2lc2n

Elevation: 150 to 900 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 45 to 57 degrees F

Frost-free period: 150 to 210 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Buckingham and similar soils: 88 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buckingham

Setting

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Head slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Fine-loamy colluvium and old alluvium derived from shale and siltstone

Typical profile

A - 0 to 7 inches: silt loam

Bt - 7 to 30 inches: silt loam

Btx1 - 30 to 44 inches: silty clay loam

Btx2 - 44 to 70 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 40 inches to fragipan; 80 to 99 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: No

Minor Components

Bowmansville

Percent of map unit: 8 percent

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Head slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: No

Croton

Percent of map unit: 2 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Knauers

Percent of map unit: 2 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania

Survey Area Data: Version 15, Jun 5, 2020

Montgomery County, Pennsylvania

CrB—Croton silt loam, occasionally ponded, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tmcj

Elevation: 300 to 800 feet

Mean annual precipitation: 40 to 48 inches

Mean annual air temperature: 50 to 55 degrees F

Frost-free period: 160 to 190 days

Farmland classification: Not prime farmland

Map Unit Composition

Croton, occasionally ponded, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Croton, Occasionally Ponded

Setting

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 11 inches: silt loam

Btg - 11 to 19 inches: silty clay loam

Btxg - 19 to 30 inches: channery silty clay loam

Cx - 30 to 44 inches: channery silt loam

R - 44 to 80 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 18 to 20 inches to fragipan; 40 to 60 inches to lithic bedrock

Drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.07 to 0.20 in/hr)

Depth to water table: About 10 to 12 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Abbottstown

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Readington

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Footslope, backslope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 15, Jun 5, 2020

Montgomery County, Pennsylvania

PkD—Penn-Klinesville channery silt loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2dy73

Elevation: 200 to 1,300 feet

Mean annual precipitation: 36 to 55 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 130 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Penn and similar soils: 47 percent

Klinesville and similar soils: 40 percent

Minor components: 13 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penn

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam

Bt - 8 to 21 inches: channery silt loam

C - 21 to 34 inches: very channery silt loam

R - 34 to 44 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.20 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Hydric soil rating: No

Description of Klinesville

Setting

Landform: Hills

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Red residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam

Bw - 8 to 14 inches: very channery silt loam

C - 14 to 18 inches: extremely channery silt loam

R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Croton

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Lansdale

Percent of map unit: 4 percent

Landform: Hillsides

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Reaville

Percent of map unit: 4 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Base slope, interfluve

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania

Survey Area Data: Version 15, Jun 5, 2020

Montgomery County, Pennsylvania

ReB—Readington silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w05x

Elevation: 70 to 950 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 43 to 57 degrees F

Frost-free period: 170 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Readington and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Readington

Setting

Landform: Hills

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Base slope, head slope, side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Triassic colluvium derived from shale and siltstone and/or triassic residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam

Bt1 - 10 to 17 inches: silt loam

Bt2 - 17 to 34 inches: silty clay loam

Btx - 34 to 48 inches: clay loam

C - 48 to 58 inches: channery silt loam

R - 58 to 68 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 60 inches to lithic bedrock

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Abbottstown

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: No

Penn

Percent of map unit: 5 percent

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Reaville

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania

Survey Area Data: Version 15, Jun 5, 2020

Montgomery County, Pennsylvania

RhB—Reaville silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dy7c

Elevation: 200 to 1,300 feet

Mean annual precipitation: 36 to 55 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 130 to 200 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Hills, hillslopes

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Base slope, interfluve

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Red triassic residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 8 inches: silt loam

Bt - 8 to 19 inches: channery silty clay loam

C - 19 to 32 inches: very channery silt loam

R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Klinesville

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Interfluve, nose slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Penn

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Readington

Percent of map unit: 3 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Base slope, head slope,
side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Croton

Percent of map unit: 2 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania

Survey Area Data: Version 15, Jun 5, 2020

Montgomery County, Pennsylvania

UusD—Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2dtzb

Elevation: 70 to 1,050 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 160 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Udorthents, shale and sandstone, and similar soils: 15 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Pavement, buildings and other artificially covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 10 to 99 inches to lithic bedrock

Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Description of Udorthents, Shale And Sandstone

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Graded areas of sandstone and shale

Typical profile

Ap - 0 to 6 inches: very channery loam

C - 6 to 60 inches: very channery silty clay loam

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 20 to 99 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to high (0.06 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interflue, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania

Survey Area Data: Version 15, Jun 5, 2020

ATTACHMENT 8
INVESTIGATOR RESUMES

Project Manager/Senior Environmental Scientist**Qualifications Summary**

- Twenty years of experience in environmental consulting
- Qualified Bog Turtle Surveyor
- Extensive experience with wetland delineation and endangered species surveys
- Successfully secured many PA DEP 105 Permit and US ACOE Section 404 Joint Permits
- Specializes in complex permitting for distribution/logistics center development
- Proficient in conducting migrating passerine and raptor surveys
- Strong threatened and endangered species regulatory background

Fields of Competence

Ms. Amitrone is a Senior Biologist with over 19 years of experience in the environmental field. She is highly regarded for her work in wetland identification, delineation, and mitigation. She was one of the first in the state to develop an Environmental Assessment and mitigation plan using the Pennsylvania Function-Based Aquatic Resource Compensation Protocol, which has led to the successful acquisition of numerous PA Department of Environmental Protection Chapter 105 Permits and US Army Corps of Engineers Section 404 Joint Permits. Ms. Amitrone is also recognized as a Qualified Bog Turtle Surveyor by the US Fish and Wildlife Service and the PA Fish and Boat Commission. She has served as the lead coordinator for projects involving a variety of threatened and endangered species. She is experienced in evaluating and documenting potential habitats for species of concern and in preparing Biological Assessments to evaluate potential project impacts. She conducts agency coordination with the United States Fish and Wildlife Service, the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Fish and Boat Commission, and the Pennsylvania Game Commission regarding a variety of projects with the potential to affect species of concern. She has completed over 400 Phase I Bog Turtle habitat surveys, more than 60 Phase II and Phase III Bog Turtle presence/absence surveys, and three radio-tracking Bog Turtle studies. Ms. Amitrone is skilled in implementing widely used assessment protocols, including the Pennsylvania Game Commission's *Protocols to Monitor Bird Populations at Industrial Wind Turbine Sites*. She has conducted breeding bird surveys, raptor surveys, and point count surveys. Ms. Amitrone has conducted native and species of concern plant surveys within Pennsylvania and New Jersey. Her additional strength is in wetland identification, delineations, and Jurisdictional Determinations. She is also experienced in the Pennsylvania Department of Environmental Protection General Permit and U.S. Army Corp of Engineers permit processes. Ms. Amitrone's past duties have included studies and evaluations of terrestrial and aquatic ecosystems, the development of protocols currently used for habitat assessments, and the development and implementation of habitat management plans.

Credentials

A.S. Wildlife Technology, Pennsylvania State University

Qualified Bog Turtle Surveyor

Project Manager/Senior Environmental Scientist**Training**

Maryland Department of Transportations' Green and Yellow Card
Training for Erosion and Sediment Structure Design and Monitoring

Pennsylvania Department of Transportations' Threatened and Endangered Species Instructor Training

OSHA 40-Hour Hazardous Waste Site Training (2015)

8-hour HAZWOPER Certification (2020)

Key Projects***Wetland Delineation, Mitigation and Environmental Permitting***

Delineation of wetlands and watercourses using U.S. Army Corps of Engineers methodology. Developed and monitored wetland mitigation areas established for compensatory purposes. Prepared Environmental Assessments for Joint Permit and Nationwide Permit applications.

Joint Permit Application Assistance for Residential Development, Upper Dublin Township, Montgomery County, PA: This 80-acre tract, featuring three wetlands, is under construction as a 74-lot residential subdivision. Prepared environmental evaluations and narrative reporting, represented the client at agency meetings, and provided other general consulting services in support of obtaining a Pennsylvania Department of Environmental Protection Chapter 105 Permit and US Army Corps of Engineers Section 404 Joint Permit. Also completed a Phase I and Phase II bog turtle survey for the project and obtained threatened and endangered species clearances.

Goodman Logistics Center, Newberry Township, York County, PA: As part of an ACOE and PA DEP Joint Permit for a nearly 160-acre site featuring twenty wetlands and sixteen watercourses, served as lead scientist performing the regulated waters delineation and preparing the Jurisdictional Determination. Assisted the client in developing and Environmental Assessment and mitigation plan using the Pennsylvania Function Based Aquatic Compensation Protocol which led to the successful acquisition of the Joint Permit. The logistics campus featuring two buildings totaling more than 1.8 million square feet is now under construction.

Hamburg Logistics Project, Perry Township, Berks County, PA: As part of an ACOE and PA DEP Joint Permit for a 1.4 million square-foot distribution center, served as the lead scientist performing the regulated waters delineation and Jurisdictional Determination. Assisted the client in developing an Environmental Assessment and mitigation plan which led to the successful acquisition of the Joint Permit.

Hamburg Commerce Park Project, Windsor and Perry Townships, Berks County, PA: As part of an ACOE and PA DEP Joint Permit for a new 170-acre multi-use business park, lead scientist performing the regulated waters delineation and Jurisdictional Determination. Assisted the client in developing an Environmental Assessment and mitigation plan using the Pennsylvania Function Based Aquatic Compensation Protocol which led to the successful acquisition of the Joint Permit. The construction of three warehouse and distribution centers totaling 2.25 million square feet is completed at this former golf course site.

Project Manager/Senior Environmental Scientist

Mitigation Monitoring – Montgomery and Monroe Counties, PA: Performed mitigation monitoring on behalf of PennDOT, Engineering District 5-0 at two mitigation sites and provided the associated reports on a bi-yearly basis as part of a multi-year monitoring effort.

Mitigation Monitoring – Berk and York Counties, PA: Performed mitigation monitoring on behalf of private sector clients as part of Joint Permits for large-scale logistics projects.

Natural Gas Well Locations – Susquehanna, Sullivan, Bradford, and Wyoming Counties, PA: Performed regulated waters delineations at numerous proposed natural gas well sites within the Marcellus Shale formation in northeast and northcentral Pennsylvania.

Bridge Replacements and Rehabilitations on Behalf of Berks County, PA: Performed regulated waters delineations and Phase I Bog Turtle Habitat Assessments at numerous proposed bridge replacement and rehabilitation projects.

Bridge Replacements and Rehabilitations on Behalf of Montgomery County, PA: Performed regulated waters delineations and Phase I Bog Turtle Habitat Assessments at numerous proposed bridge projects.

Bridge Replacements and Rehabilitations on Behalf of Delaware County, PA: Performed regulated waters delineations and Phase I Bog Turtle Habitat Assessments at numerous proposed bridge replacement and rehabilitation projects.

Bridge Replacements and Rehabilitations in Bucks County, PA: Performed regulated waters delineations and Phase I Bog Turtle Habitat Assessments at numerous proposed bridge replacement and rehabilitation projects.

Bridge Replacements and Rehabilitations in Chester County, PA: Performed regulated waters delineations and Phase I Bog Turtle Habitat Assessments at numerous proposed bridge replacement and rehabilitation projects.

Threatened and Endangered Species Surveys

*Manage all threatened and endangered species surveys for the firm, with particular expertise in turtle, avian, and botanical T&E species. Listed as a Pennsylvania Fish and Boat Commission (PFBC) and United States Fish and Wildlife Service (USFWS) qualified recognized bog turtle (*Glyptemys muhlenbergii*) surveyor since May of 2000. Conducted hundreds of Phase I bog turtle habitat assessments, Phase II surveys, and Phase III trappings. Pennsylvania Fish and Boat Commission (PFBC) Scientific Collector's Permit (Type III) holder for the bog turtle.*

Proposed Pipeline Right-of-Way, Ross Township, Monroe County, PA: Conducted Bog Turtle Phase II Surveys and Phase III Trapping within large contiguous wetland complex to determine seasonal movements of the species. The data collected will assist the pipeline company in determining the best location to cross the wetland while minimizing disturbances to the protected species.

Proposed Pipeline Right-of-Way, York and Adams Counties, PA: Conducted Phase I Bog Turtle Surveys on all wetlands located within 300-feet of the proposed alignment for an approximately 64-mile section of the alignment.

Proposed Transmission Line Tower Replacements, Bucks County, PA: Conducted Phase I and Phase II Bog Turtle Surveys on all wetlands located within an approximately nine-mile corridor.

Project Manager/Senior Environmental Scientist

PennDOT Engineering District 5-0, Lehigh, Monroe, Berks, and Lehigh Counties, PA: State Routes 073; 4036; 082; 0419; 3036 – On behalf of the PennDOT Engineering District 5-0, conducted more than 30 Phase I habitat assessments for the bog turtle and more than 50 Phase II and Phase III Bog Turtle Surveys. Responsible for all agency coordination during these projects and obtained Pennsylvania Department of Environmental Protection General Permits for various forms of maintenance procedures.

Development of Construction Monitoring Protocols: On behalf of PennDOT Engineering Districts 5-0, 6-0, and 8-0, assisted with the development of Construction Monitoring Protocols used during routine maintenance and construction procedures on several State Routes located within the 14 counties known to contain bog turtles. These protocols are used to enable the Districts to conduct maintenance and construction procedures rapidly and efficiently and have been accepted by the United States Fish and Wildlife Service and Pennsylvania Fish and Boat Commission as vehicles to avoid and minimize impacts to the species.

Programmatic Agreement for Bog Turtle Procedures, Statewide, PA: On behalf of the PennDOT Environmental Quality Assurance Department, assisted the Districts in the development of a Programmatic Agreement with the United States Fish and Wildlife Service and Pennsylvania Fish and Boat Commission to obtain clearance for certain maintenance projects within the 14 counties where known bog turtle populations exist. This agreement provides a vehicle by which regulatory compliance is fulfilled during routine maintenance procedures. The agreement has also been used by local municipalities and private individuals to allow them to proceed with projects that may have indirect or direct impacts to bog turtles.

Amtrak Atglen to Safe Harbor Rails-to-Trails, Lancaster County, PA: Conducted Phase I Bog Turtle Habitat Assessments on all wetlands located within 300-feet of the proposed alignment for an approximately eight-mile section of the alignment.

Berks County Bridge Repair/Replacement Projects, Berks County, PA: On behalf of the County of Berks, completed Regulated Waters Delineations and Phase I Bog Turtle Habitat Assessments at the Berks County Bridges 24A, 30C, 32D, 35A, 35B, 36A, 37A, 39B, 40C, 43D, 46A, 46E, 46G, 48A, 54B, 55B, 55A, 55B, 58A, and 73B as part of the PA DEP General Permits for each project.

Montgomery County Bridge Repair/Replacement Projects, Montgomery Township, PA: On behalf of the County of Montgomery, completed Regulated Waters Delineations and Phase I Bog Turtle Habitat Assessments at the Montgomery County Bridges 74, 296, and 231 as part of the PA DEP General Permits for each project.

Delaware County Bridge Repair/Replacement Projects, Delaware County, PA: On behalf of the County of Delaware, completed Regulated Waters Delineations and Phase I Bog Turtle Habitat Assessments at the Delaware County Bridges 112, 143, 174, and 243 as part of the PA DEP General Permits for each project.

Leidy Southeast Pipeline Expansion Project, Tobyhanna and Tunkhannock Townships, Monroe County, PA: Performed Phase I Bog Turtle Habitat Assessments within 33 wetlands located along a proposed pipeline alignment as part of the PA DEP General Permitting for the project.

Project Manager/Senior Environmental Scientist

Atlantic Access Pipeline, Adams and York Counties, PA: Performed Phase I Bog Turtle Habitat Assessments within 36 wetlands located along a proposed 65-mile pipeline alignment as part of the PA DEP General Permitting for the project.

Transco Northeast Supply Link – Palmerton Loop, Ross Township, Monroe County, PA: Performed Bog Turtle Phase II Surveys, Phase III Trapping, and construction monitoring for an approximately 0.25-mile directional drill as part of the placement of a new petroleum pipeline.

Lancaster County Solid Waste Management Authority, Lancaster County, PA: Conducted agency coordination and migrating raptor surveys for two consecutive survey seasons in preparation for a wind turbine project which was successfully completed.

Bear Creek Wind Farm, Luzerne County, PA: Conducted bald eagle nest and migrating passerine surveys for a 12-turbine, 24-Megawatt project.

State Route 0222 Bypass Extension and Expansion, Berks County, PA: Assisted in the development of a Biological Opinion and Biological Assessment for a large-scale roadway construction project. Coordinated and conducted Phase II surveys for the federally threatened, Pennsylvania state endangered bog turtle for the U.S. Route 0222 Warren Street Expansion/ Extension Project. Additionally, conducted a radio telemetry study to determine what impacts, if any, the roadway expansion might have on a known population of bog turtles. Responsible for the design of a specialized containment fence to prevent the species from moving into the construction site. Developed and executed an Invasive Management Plan and Construction Monitoring Plan for the action areas of the project.

Publications & Presentations

Breeding Birds in a Mitigated Wetland in Northcentral Pennsylvania, USA, Millennium Wetland Event, Quebec, 2000 and the Pennsylvania Academy of Science, 2000.

The Preservation of Bog Turtle (*Glyptemys muhlenbergii*) Metapopulation Dynamics during a Roadway Improvement Project, International Conference on Transportation and the Environment (ICOET), 2003.

Affiliations

Past President, Vice President, and Secretary of the Pennsylvania Chapter of the Wildlife Society; and 2004 Meeting Chair, Pennsylvania Chapter of the Wildlife Society Conference

Pennsylvania Association of Environmental Professionals

Penn State Wildlife Technology Advisory Council Member (2008-present)

Muhlenberg Botanical Society

Ned Smith Center for Nature and Art, Member and Volunteer

Project Scientist



Qualifications Summary:

- *Experienced field scientist performing endangered and threatened species surveys*
- *Specialization in the performance of regulated waters delineations in support of land development projects*

Fields of Competence

As a project scientist, Mr. Atzert has experience in wetland delineation, geolocation techniques, data processing, and endangered and threatened species survey techniques.

Credentials

B.S., Geology, Stockton University (2010)

Training and Associations

OSHA 40-Hour Worker Training

Rutgers University Methodology of Delineating Wetlands (2018)

Rutgers University Wetland Vegetation Identification (2018)

New Jersey Chapter of The Wildlife Society

Volunteer with United States Fish and Wildlife Service

Key Projects

Regulated Waters Delineation, Lancaster Town Center Site, Lancaster County, PA: Performed a regulated waters delineation at in support of land development on this site. Utilized GPS (Trimble GeoXH) technologies to collect georeferenced data to assist with wetland and waterway mapping. Developed the associated report to document findings from the regulated waters delineation.

Groundwater Sampling, Former Crone's Gas and Goodies Site, Dover Township, PA: Performed groundwater sampling at former retail gasoline station site. Utilized bladder pumps, groundwater interface probes, and turbidity meters to collect accurate data on groundwater flow and to collect groundwater samples from several monitoring wells on the property in support of ongoing cleanup initiatives at the site.

Hydrologic Evaluation, Lower Swatara Township, PA: Performed a hydrologic evaluation to determine groundwater and surface water sources and flow directions around previously delineated wetlands nearby for a large tract slated for warehouse development.

Project Scientist

United States Fish & Wildlife Service (USFWS) At-Risk Species Survey's, Cambridge, MD: Worked in conjunction with federal, state, and private entities to perform presence/absence and habitat assessments for a variety of threatened species. Successfully collected accurate data for a baseline population density map for an ongoing multiyear project monitoring threatened Frosted Elfin and Bethany Beach Firefly.

USFWS Saltmarsh Restoration Plan, Cambridge, MD: Using knowledge of vegetation, historical aerial imagery and topographical maps, identified and mapped alterations made to saltwater wetlands. These tasks were the beginning steps in a region wide restoration plan for heavily degraded saltmarshes along the Atlantic Coast in order to restore healthy marsh habitat for the declining salt marsh sparrow.

New Jersey DEP Endangered and Non-game Species Program Shorebird Project, Millville, NJ: Worked as part of a multiyear ongoing study of shorebird population health and migration activity throughout the Delaware Bay area in South Jersey. Performed avian surveys as well as monitored horseshoe crab breeding activity on the Delaware Bay. Successfully collected accurate data that was used for a scientific paper that was published detailing endangered Red Knot population health.



Qualifications Summary

- *Experienced field scientist performing wetland identification and delineation and threatened and endangered species survey assistance*
- *Developed complex mapping figures for site assessment and site remediation reporting and client/agency communications using ArcGIS*
- *Assisted in multi-phase environmental investigations, remedial programs, and monitoring programs for various industrial and commercial clients throughout the Mid-Atlantic*

Fields of Competence

Ms. Ryan is a valuable member of Liberty's natural resources and geosciences project teams. As a field scientist she is experienced in regulated waters delineation, threatened and endangered species habitat assessments, industrial stormwater sampling, groundwater sampling, and well abandonment. In her role as a GIS technician, Ms. Ryan maintains the master geodatabase for Liberty Environmental projects and manages the ArcGIS workflow. In addition, she prepares a majority of the mapping figures for site assessment and site remediation projects throughout the Mid-Atlantic.

Credentials

Bachelor of Art, Geography, Environmental Track, Kutztown University (2016)

Professional Training

Rutgers University Wetland Construction: Principles, Planning, & Design (2019)

Rutgers University Methodology for Delineating Wetlands (2018)

Rutgers University Wetland Vegetation Identification (2018)

OSHA HAZWOPER 40-hour Certification (2017)

Chapter 105 Aquatic Resource Condition Assessment Training (2017)

Advance Microsoft Word (2016)

Key Projects

Natural Resources

Regulated Waters Delineation, Proposed Warehouse Project, Central PA: Assisted in the performance of a regulated waters delineation (RWD) of a 250-acre site planned for development as a warehouse and logistics center. The project is currently in the design phase and seeking local municipal approval.

Regulated Waters Delineation and Phase I Bog Turtle Habitat Assessment, Proposed Logistics Center, Southeastern, PA: Assisted in the performance of a regulated waters delineation and Phase I bog turtle habitat assessment at an investigation area of more than 275 acres, consisting of 11 wetlands and 12 watercourses. The project is currently in planning.

Regulated Waters Delineation and Bog Turtle Habitat Assessment, SEPTA Bridge Removal, Bucks County, PA: Assisted in the performance of a regulated waters delineation (RWD) and Phase I bog turtle habitat assessment at a 41-acre site surrounding the SEPTA Bridge Newtown Branch project site in preparation for removal of the end spans of a railroad bridge. Four watercourses and six wetlands were delineated within the investigation area. The bog turtle assessments in the wetland areas did not present any bog turtle habitats due to the lack of appropriate soils and hydrology.

Chapter 105 Permitting, Logistics Park Development, Windsor and Perry Townships, Berks County, PA: As part of an USACE and PA Department of Environmental Protection Joint Permit for a multi-use business park, served as a project scientist and performed mitigation monitoring for wetland and riparian restoration activities including compliance review of design plans and constructed wetlands and waterways; success criteria determination for riparian and wetland plantings; and biodiversity analysis to ensure that permit conditions were met.

Chapter 105 Permitting, Logistics Center Development, Newberry, York County, PA: As part of an USACE and PA Department of Environmental Protection Joint Permit for a multi-use business park, served as a project scientist performed mitigation monitoring for wetland and riparian restoration activities including compliance review of design plans and constructed wetlands and waterways; success criteria determination for riparian and wetland plantings; biodiversity analysis to ensure that permit conditions were met; and other natural resource conservation activities as needed.

Urban Golf Course Redevelopment Project, Sinking Spring Borough, Berks County, Pennsylvania: With a senior project scientist, performed a regulated waters delineation and assisted with a Phase I Bog Turtle Habitat Assessment at this redevelopment project. Utilized GPS (Trimble GeoXH) technologies to collect georeferenced data to assist with wetland and waterway mapping. Developed the associated report to document the findings from the regulated waters delineation and Phase I Bog Turtle Habitat Assessment.

Regulated Waters Delineation and Bog Turtle Habitat Assessment, Commercial Development Site, Berks County, PA: Assisted in the wetlands presence/absence evaluation, regulated waters delineation, and Phase I bog turtle habitat assessment of a commercial center development greater than 20 acres in Perry Township. Three watercourses and eight wetlands were delineated within the investigation area. Upon further investigation of the wetlands for bog turtle habitat, only one presented the vegetation, soils, and hydrology associated with bog turtle habitat.

Regulated Waters Delineation and Bog Turtle Habitat Assessment, Berks County Bridges, Berks County, PA: Provided project field support in several projects for environmental services necessary for bridge repair and reconstruction site work. Services included regulated waters delineations and phase I bog turtle habitat assessments in 5 acre to 10 acre investigation areas.

Phase II Bog Turtle Habitat Surveys, Mitigation Bank Project, York County, PA: Provided field support for Phase I bog turtle surveys at 15 wetland sites on an 80-acre proposed subdivision. Phase II surveys were necessary to avoid potential indirect impacts to bog turtles and their habitat. No bog turtles were observed during the survey.

Environmental Scoping, Pedestrian Bridge and Trail Extension, Lancaster County, PA: Assisted in the development of the Environmental Scope for an urban pedestrian bridge and trail extension project in the PennDOT ECMS system. Prepared responses for a series of environmental questions regarding the project through compilation of data available from multiple federal, state and municipal sources. The project is currently in the design phase.

Lake Assessment, Municipal Park, Berks County, PA: Assisted in the sediment sampling to evaluate the biological, chemical and physical characteristics of Crystal Lake. Also prepared all figures and visuals associated with the report and presentation materials for stakeholders. Recommendations were made to improve the health of the lake which is the center of a park redevelopment planning initiative.

Eastern Redbelly Turtle Nesting Surveys, State Route 0422 Bypass Improvement Project, Berks County, PA: Provided field support for eastern redbelly turtle nesting surveys at eight habitat sites on a 5.5-mile stretch of State Route 0422. Nesting surveys were necessary to avoid potential indirect impacts to eastern redbelly turtles, their nests, and their habitat.

Industrial Stormwater

Environmental Regulatory Compliance, Poultry Processing Facility, Berks County, PA: Conducted semi-annual industrial stormwater sampling in support of comprehensive environmental regulatory compliance services and permit compliance.

Industrial Stormwater Sampling, Plastics Manufacturer, Berks County, PA: Conducted semi-annual industrial stormwater sampling for a plastics manufacturer with three outfalls, mobilizing within the first hour of a qualifying rainfall.

Industrial Stormwater Sampling, Food Production Facility, Berks County, PA: Conducted semi-annual industrial stormwater sampling at four outfall locations, including one discharging to a municipal separate storm sewer system (MS4).

Site Assessment and Remediation, Storage Tank Management

Figure Preparation, Site Assessment and Remediation Projects, Various Locations: Preparation of Phase I ESA mapping figures, quarterly remedial action plan report (RAPR) figures, remedial investigation report (RIR) figures, desktop geology and stormwater infiltration mapping figures. Serves as the lead GIS technician for the firm.

Groundwater Sampling, Former Retail Gas Site, York County, PA: Assisted in the quarterly groundwater sampling in support of ongoing activities to comply with Chapter 245 Storage Tank Management program. The site has a confirmed unleaded gasoline release that was discovered during the removal of five regulated underground storage tanks (USTs).

Groundwater Sampling, Former Service Station, Lackawanna County, PA: Assisted in the quarterly groundwater sampling of 47 monitoring wells and 2 water supply wells in support of ongoing

SHANNON J. RYAN
Project Scientist II

PROFESSIONAL PROFILE

remedial actions and site characterization activities at this former service station where a confirmed unleaded gasoline release was discovered during the underground storage tank closures.

Groundwater Sampling, Retail Fuel Station and Carwash, Philadelphia, PA: Assisted in the quarterly groundwater sampling of a 12 monitoring well network. This required determination of depth to water of each well and purging of the wells using low-flow field techniques until the parameters were stabilized then sampled. Remedial activities are ongoing at the site.



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Montgomery County, Pennsylvania



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Montgomery County, Pennsylvania.....	14
AbB—Abbottstown silt loam, 3 to 8 percent slopes.....	14
BwB—Buckingham silt loam, 3 to 8 percent slopes.....	15
CrB—Croton silt loam, occasionally ponded, 3 to 8 percent slopes.....	17
PkD—Penn-Klinesville channery silt loams, 15 to 25 percent slopes.....	18
ReB—Readington silt loam, 3 to 8 percent slopes.....	20
RhB—Reaville silt loam, 3 to 8 percent slopes.....	22
RhC—Reaville silt loam, 8 to 15 percent slopes.....	23
UryB—Urban land-Readington complex, 0 to 8 percent slopes.....	25
UusB—Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes.....	27
UusD—Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes.....	28
References	31

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 16, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 28, 2020—Sep 19, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AbB	Abbottstown silt loam, 3 to 8 percent slopes	0.7	1.8%
BwB	Buckingham silt loam, 3 to 8 percent slopes	3.4	8.1%
CrB	Croton silt loam, occasionally ponded, 3 to 8 percent slopes	2.5	6.0%
PkD	Penn-Klinesville channery silt loams, 15 to 25 percent slopes	14.3	33.9%
ReB	Readington silt loam, 3 to 8 percent slopes	6.4	15.1%
RhB	Reaville silt loam, 3 to 8 percent slopes	9.4	22.3%
RhC	Reaville silt loam, 8 to 15 percent slopes	5.2	12.3%
UryB	Urban land-Readington complex, 0 to 8 percent slopes	0.0	0.1%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	0.1	0.3%
UusD	Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes	0.1	0.2%
Totals for Area of Interest		42.2	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

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of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Montgomery County, Pennsylvania

AbB—Abbottstown silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2v7gd

Elevation: 130 to 660 feet

Mean annual precipitation: 40 to 48 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 190 to 210 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Abbottstown and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Abbottstown

Setting

Landform: Hillslopes

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Acid reddish brown residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam

Bt - 10 to 20 inches: silt loam

Bx - 20 to 39 inches: channery silt loam

BCg - 39 to 48 inches: channery silt loam

R - 48 to 58 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 18 to 22 inches to fragipan; 40 to 60 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Klinesville

Percent of map unit: 5 percent

Custom Soil Resource Report

Landform: Hills

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Hydric soil rating: No

Croton

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Penn

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Hydric soil rating: No

BwB—Buckingham silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2lc2n

Elevation: 150 to 900 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 45 to 57 degrees F

Frost-free period: 150 to 210 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Buckingham and similar soils: 88 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buckingham

Setting

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Head slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Fine-loamy colluvium and old alluvium derived from shale and siltstone

Custom Soil Resource Report

Typical profile

A - 0 to 7 inches: silt loam
Bt - 7 to 30 inches: silt loam
Btx1 - 30 to 44 inches: silty clay loam
Btx2 - 44 to 70 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to fragipan; 80 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Bowmansville

Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Knauers

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Croton

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

CrB—Croton silt loam, occasionally ponded, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tmcj
Elevation: 300 to 800 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Croton, occasionally ponded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Croton, Occasionally Ponded

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 11 inches: silt loam
Btg - 11 to 19 inches: silty clay loam
Btxg - 19 to 30 inches: channery silty clay loam
Cx - 30 to 44 inches: channery silt loam
R - 44 to 80 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 20 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.07 to 0.20 in/hr)
Depth to water table: About 10 to 12 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Abbottstown

Percent of map unit: 10 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: No

Readington

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Backslope, footslope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

PkD—Penn-Klinesville channery silt loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2dy73

Elevation: 200 to 1,300 feet

Mean annual precipitation: 36 to 55 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 130 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Penn and similar soils: 47 percent

Klinesville and similar soils: 40 percent

Minor components: 13 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penn

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam

Bt - 8 to 21 inches: channery silt loam

C - 21 to 34 inches: very channery silt loam

R - 34 to 44 inches: bedrock

Custom Soil Resource Report

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Klinesville

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Red residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bw - 8 to 14 inches: very channery silt loam
C - 14 to 18 inches: extremely channery silt loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Croton

Percent of map unit: 5 percent
Landform: Depressions

Custom Soil Resource Report

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Lansdale

Percent of map unit: 4 percent
Landform: Hillsides
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Reaville

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluvium, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

ReB—Readington silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w05x
Elevation: 70 to 950 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 57 degrees F
Frost-free period: 170 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Readington and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Readington

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Head slope, side slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Triassic colluvium derived from shale and siltstone and/or triassic residuum weathered from shale and siltstone

Custom Soil Resource Report

Typical profile

Ap - 0 to 10 inches: silt loam
Bt1 - 10 to 17 inches: silt loam
Bt2 - 17 to 34 inches: silty clay loam
Btx - 34 to 48 inches: clay loam
C - 48 to 58 inches: channery silt loam
R - 58 to 68 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluvium, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Reaville

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Abbottstown

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

RhB—Reaville silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dy7c
Elevation: 200 to 1,300 feet
Mean annual precipitation: 36 to 55 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 130 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Hillslopes, hills
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Red triassic residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 19 inches: channery silty clay loam
C - 19 to 32 inches: very channery silt loam
R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Klinesville

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Penn

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Readington

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Head slope, side slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Croton

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

RhC—Reaville silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2dy7h
Elevation: 250 to 1,300 feet
Mean annual precipitation: 36 to 55 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 130 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 85 percent

Custom Soil Resource Report

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Hillslopes, hills

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Interfluve, base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Red triassic residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 8 inches: silt loam

Bt - 8 to 20 inches: channery silty clay loam

C - 20 to 33 inches: very channery silt loam

R - 33 to 42 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Readington

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Head slope, side slope, base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Penn

Percent of map unit: 4 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Hydric soil rating: No

Klinesville

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Croton

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

UryB—Urban land-Readington complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dtzd
Elevation: 200 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 160 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Readington and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artificially covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 100 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Description of Readington

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Head slope, side slope, base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam

Bt - 8 to 29 inches: silt loam

Btx - 29 to 58 inches: channery silt loam

R - 58 to 68 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 70 inches to lithic bedrock

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Croton

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

UusB—Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dtz9

Elevation: 50 to 950 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 48 to 57 degrees F

Frost-free period: 161 to 215 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Udorthents, shale and sandstone, and similar soils: 15 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills

Parent material: Pavement, buildings and other artificially covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 10 to 99 inches to lithic bedrock

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Description of Udorthents, Shale And Sandstone

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluvium, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Parent material: Graded areas of sandstone and shale

Typical profile

A - 0 to 6 inches: very channery loam

C - 6 to 60 inches: very channery silt loam

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 20 to 99 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Hydric soil rating: No

UusD—Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2dtzb

Elevation: 70 to 1,050 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 160 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Udorthents, shale and sandstone, and similar soils: 15 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluvium, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Pavement, buildings and other artificially covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 10 to 99 inches to lithic bedrock

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Description of Udorthents, Shale And Sandstone

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluvium, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Graded areas of sandstone and shale

Typical profile

Ap - 0 to 6 inches: very channery loam

C - 6 to 60 inches: very channery silty clay loam

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 20 to 99 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Hydric soil rating: No

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

1. PROJECT INFORMATION

Project Name: **Highlands/Huber Park**
Date of Review: **6/8/2022 09:43:10 AM**
Project Category: **Recreation, Trails & Trailheads (parking, etc.)**
Project Area: **27.41 acres**
County(s): **Montgomery**
Township/Municipality(s): **PERKIOMEN TOWNSHIP**
ZIP Code:
Quadrangle Name(s): **COLLEGEVILLE**
Watersheds HUC 8: **Schuylkill**
Watersheds HUC 12: **Lower Perkiomen Creek**
Decimal Degrees: **40.245301, -75.468039**
Degrees Minutes Seconds: **40° 14' 43.823" N, 75° 28' 4.9387" W**

This is a draft receipt for information only. It has not been submitted to jurisdictional agencies for review.



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	Avoidance Measure	See Agency Response

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Highlands/Huber Park

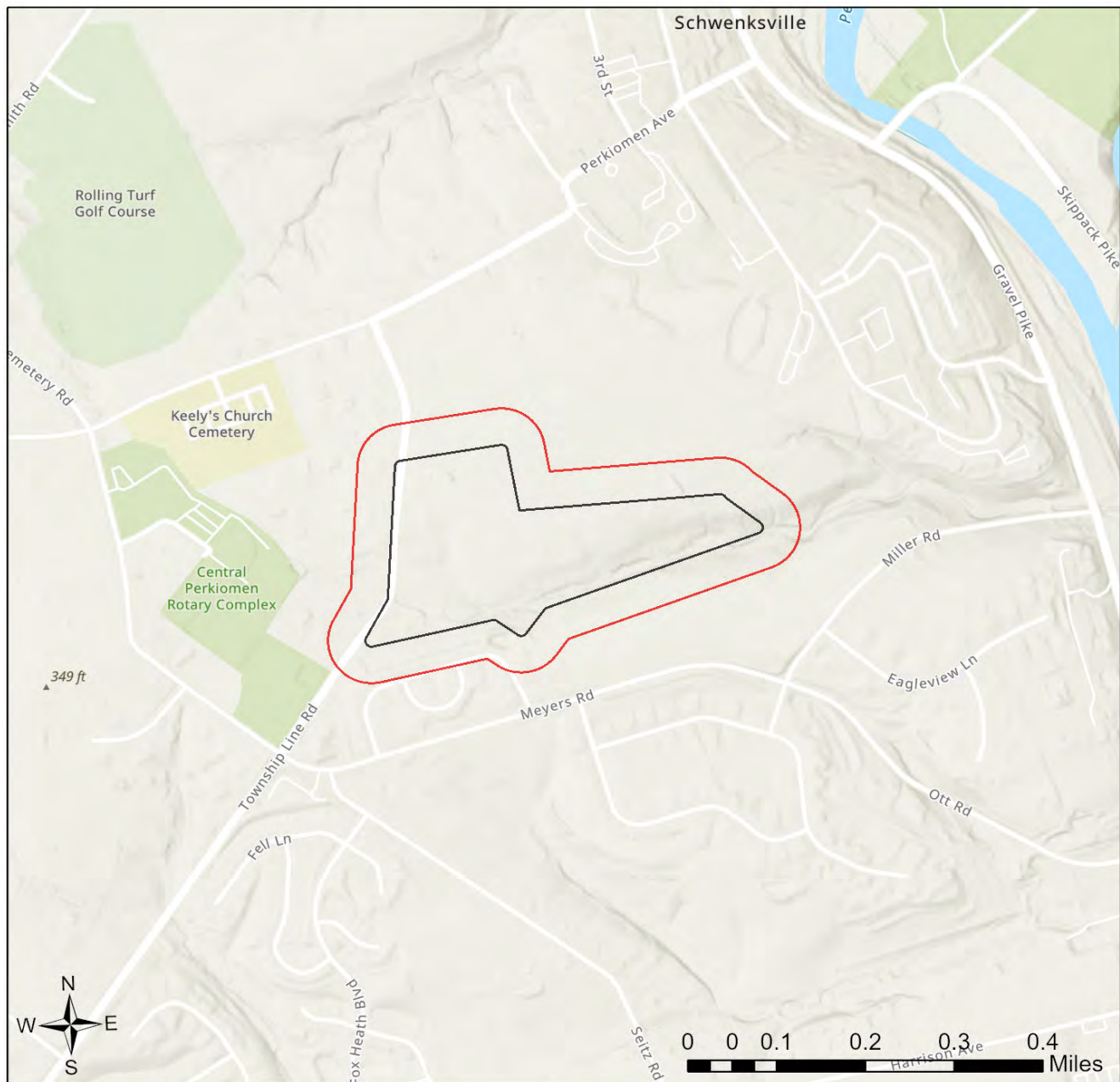




-  Buffered Project Boundary
-  Project Boundary



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Highlands/Huber Park



-  Buffered Project Boundary
-  Project Boundary



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

Avoidance Measure: Do not conduct this project/activity within 300 feet of any wetlands or vernal pools.

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:

_____(Signature)

Avoidance Measure: Do not conduct this project/activity within 50 feet of any streams, rivers, creeks, or tributaries. This includes both perennial and intermittent waterways.

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:

_____(Signature)

SPECIAL NOTE: If you agree to implement the above Avoidance Measure and if applicable, any Information Requests, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required. If you are not able to comply with the Avoidance Measures, you are required to coordinate with this agency - please send project information to this agency for review (see "What to Send" section).

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).

*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:

____ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

____ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

____ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

____ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.



Highland/Huber Park Master Plan Draft Cost Summary		
1. East-Side Development \$ 2,300,900		
Total Proposed Site Improvements	\$	1,769,900
Mobilization, E&S, Stormwater Allowances	\$	141,500
Construction Contingency (10%)	\$	177,100
Design & Engineering (12%)	\$	212,400
2. West-Side Development \$ 517,900		
Total Proposed Site Improvements	\$	398,200
Mobilization, E&S, Stormwater Allowances	\$	32,000
Construction Contingency (10%)	\$	39,900
Design & Engineering (12%)	\$	47,800
Total Estimated Project Costs		\$2,818,800

Highland/Huber Park Master Plan Draft Phasing Summary		
Phase 1: Salem Road Parking, Stormwater Management + Primary Path		
	\$	977,500
Total Proposed Site Improvements	\$	607,800
Mobilization, E&S, Stormwater Allowances	\$	49,000
Construction Contingency (10%)	\$	60,700
Design & Engineering (12%)	\$	260,200
Phase 2: Main Parking + Playground		
	\$	852,000
Total Proposed Site Improvements	\$	721,900
Mobilization, E&S, Stormwater Allowances	\$	57,800
Construction Contingency (10%)	\$	72,200
Design & Engineering (12%)		-
Phase 3: Dog Park, Community Garden, Outdoor Classroom + Hiking Trails		
	\$	605,200
Total Proposed Site Improvements	\$	512,800
Mobilization, E&S, Stormwater Allowances	\$	41,000
Construction Contingency (10%)	\$	51,300
Design & Engineering (12%)		-
Phase 4: Township Line Road Parking + Maintenance Building		
	\$	384,100
Total Proposed Site Improvements	\$	325,600
Mobilization, E&S, Stormwater Allowances	\$	25,900
Construction Contingency (10%)	\$	32,600
Design & Engineering (12%)		-
Total Estimated Project Costs	\$	2,818,800

West Side				Phase 1	Phase 2	Phase 3	Phase 4
Total Proposed Site Improvements		\$	398,200	\$ 144,800	\$ 22,700	\$ 36,900	\$ 193,800
Mobilization (3%)		\$	12,000	\$ 4,400	\$ 700	\$ 1,100	\$ 5,800
Erosion and Sedimentation Control (2%)		\$	8,000	\$ 2,900	\$ 500	\$ 800	\$ 3,800
Stormwater Design (3%)		\$	12,000	\$ 4,400	\$ 700	\$ 1,100	\$ 5,800
Construction Contingency (10%)		\$	39,900	\$ 14,500	\$ 2,300	\$ 3,700	\$ 19,400
Design & Engineering (12%)		\$	47,800	\$ 47,800	-	-	-
Total Estimated Project Costs		\$	517,900	\$ 218,800	\$ 26,900	\$ 43,600	\$ 228,600
Item Description	Estimated Quantity	Unit Price	Total Item Amount	Phase 1	Phase 2	Phase 3	Phase 4
Site Preparation			\$ 8,600		\$ 4,200		\$ 4,400
Tree Removal	1 EA	\$ 750.00	\$ 750				\$ 750
Demolish Existing Driveway - Lawn Restoration	1,897 SF	\$ 1.90	\$ 3,605				\$ 3,605
Herbicide Spray	10 AC	\$ 415.00	\$ 4,190		\$ 4,190		
Township Line Road Parking Lot			\$ 42,200		\$ -		\$ 42,200
Asphalt Parking Lot	541 SY	\$ 55.80	\$ 30,169				\$ 30,169
Asphalt Walkway 5-Feet-Wide	65 LF	\$ 25.90	\$ 1,671				\$ 1,671
Post and Rail Fence	97 LF	\$ 38.00	\$ 3,674				\$ 3,674
Standard Parking Stall Improvements	8 EA	\$ 110.00	\$ 880				\$ 880
ADA Parking Stall Improvements	1 EA	\$ 790.00	\$ 790				\$ 790
Park Signage	1 EA	\$ 5,000.00	\$ 5,000				\$ 5,000
Walkways			\$ 108,200	\$ 89,400	\$ -	\$ 8,400	\$ 10,400
Asphalt Walkway 8-Feet-Wide	2,409 LF	\$ 41.40	\$ 99,733	\$ 89,341			\$ 10,391
Hiking Trail 5-Feet-Wide	1,424 LF	\$ 5.90	\$ 8,402			\$ 8,402	
Bridges			\$ 36,000	\$ 36,000	\$ -		
Pedestrian Bridge #1	30 LF	\$ 600.00	\$ 18,000	\$ 18,000			
Pedestrian Bridge #2	30 LF	\$ 600.00	\$ 18,000	\$ 18,000			
Educational Nodes			\$ 40,600				\$ 40,600
Mulch Surface	175 SY	\$ 17.40	\$ 3,037				\$ 3,037
Benches	10 EA	\$ 1,500.00	\$ 15,000				\$ 15,000
Interpretive Signage	5 EA	\$ 4,500.00	\$ 22,500				\$ 22,500
Lookout Platform			\$ 10,100			\$ 10,100	
Hardwood Decking	101 SF	\$ 70.00	\$ 7,075			\$ 7,075	
Benches	2 EA	\$ 1,500.00	\$ 3,000			\$ 3,000	
Boundaries			\$ 900	\$ 900			
Park Boundary Sign	9 EA	\$ 100.00	\$ 900	\$ 900			
Food Forest			\$ 23,200				\$ 23,200
Split Rail Fencing	584 LF	\$ 25.00	\$ 14,603				\$ 14,603
Asphalt Walkway 5-Feet-Wide	88 LF	\$ 25.90	\$ 2,271				\$ 2,271
Mulch Surface	35 SY	\$ 17.40	\$ 607				\$ 607
Picnic Table	4 EA	\$ 1,100.00	\$ 4,400				\$ 4,400
Trash Receptacle	1 EA	\$ 1,230.00	\$ 1,230				\$ 1,230
Plantings			\$ 128,400	\$ 18,500	\$ 18,500	\$ 18,400	\$ 73,000
Tree Plantings	10 EA	\$ 670.00	\$ 6,700				\$ 6,700
Food Forest Plantings	0.6 AC	\$ 78,400.00	\$ 47,476				\$ 47,476
Woodland Restoration Plantings	7.4 AC	\$ 10,000.00	\$ 73,674	\$ 18,419	\$ 18,419	\$ 18,419	\$ 18,419
Lawn Establishment	0.1 AC	\$ 8,712.00	\$ 483				\$ 483

East Side				Phase 1	Phase 2	Phase 3	Phase 4	
Total Proposed Site Improvements				\$ 1,769,900	\$ 463,000	\$ 699,200	\$ 475,900	\$ 131,800
Mobilization (3%)				\$ 53,100	\$ 13,900	\$ 21,000	\$ 14,300	\$ 3,900
Erosion and Sedimentation Control (2%)				\$ 35,400	\$ 9,200	\$ 13,900	\$ 9,600	\$ 2,700
Stormwater Design (3%)				\$ 53,000	\$ 13,900	\$ 21,000	\$ 14,200	\$ 3,900
Construction Contingency (10%)				\$ 177,100	\$ 46,300	\$ 70,000	\$ 47,600	\$ 13,200
Design & Engineering (12%)				\$ 212,400	\$ 212,400	-	-	-
Total Estimated Project Costs				\$ 2,300,900	\$758,700	\$825,100	\$561,600	\$155,500
Item Description	Estimated Quantity	Unit Price	Total Item Amount	Phase 1	Phase 2	Phase 3	Phase 4	
Site Preparation			\$ 80,600	\$ 22,500	\$ 58,100			
Tree Removal	8 EA	\$ 750.00	\$ 6,000	\$ 1,500	\$ 4,500			
Clearing and Grubbing	14,273 SY	\$ 5.00	\$ 71,367	\$ 17,842	\$ 53,525			
Herbicide Spray	6 AC	\$ 415.00	\$ 2,318	\$ 2,318				
Curb Cut	34 LF	\$ 25.00	\$ 850	\$ 850				
Salem Road Parking Lot			\$ 66,500	\$ 66,500				
Asphalt Parking Lot	837 SY	\$ 55.80	\$ 46,711	\$ 46,711				
Post and Rail Fence	333 LF	\$ 38.00	\$ 12,654	\$ 12,654				
Standard Parking Stall Improvements	9 EA	\$ 110.00	\$ 990	\$ 990				
ADA Parking Stall Improvements	1 EA	\$ 790.00	\$ 790	\$ 790				
Crosswalk Line Paint	1 EA	\$ 720.00	\$ 720	\$ 720				
RCP Culvert Pipe	24 LF	\$ 54.00	\$ 1,296	\$ 1,296				
Headwall	1 EA	\$ 3,250.00	\$ 3,250	\$ 3,250				
Main Parking Lot			\$ 154,300	\$ -	\$ 154,300	\$ -		
Asphalt Parking Lot	2,608 SY	\$ 55.80	\$ 145,533		\$ 145,533			
Asphalt Walkway 5-Feet-Wide	204 LF	\$ 25.90	\$ 5,284		\$ 5,284			
Standard Parking Stall Improvements	11 EA	\$ 110.00	\$ 1,210		\$ 1,210			
ADA Parking Stall Improvements	1 EA	\$ 790.00	\$ 790		\$ 790			
Crosswalk Line Paint	2 EA	\$ 720.00	\$ 1,440		\$ 1,440			
Walkways			\$ 296,000	\$ 106,000	\$ 9,500	\$ 180,500		
Asphalt Walkway 8-Feet-Wide	2,868 LF	\$ 41.40	\$ 118,735	\$ 103,003		\$ 15,732		
Asphalt Walkway 5-Feet-Wide	573 LF	\$ 25.90	\$ 14,844	\$ 2,910	\$ 9,505	\$ 2,428		
Hiking Trail 5-Feet-Wide	2,306 LF	\$ 5.90	\$ 13,604			\$ 13,604		
Boardwalk Trail 5-Feet-Wide	2,125 SF	\$ 70.00	\$ 148,750			\$ 148,750		
Large Pavilion			\$ 406,100	\$ -	\$ 406,100	\$ -		
Pavilion with Restroom and Storage Area (30'x20')	1 LS	\$ 175,000.00	\$ 175,000		\$ 175,000			
Sewer Piping	835 LF	\$ 100.00	\$ 83,500		\$ 83,500			
Sewer Connection	1 LS	\$ 7,200.00	\$ 7,200		\$ 7,200			
Water Piping	835 LF	\$ 20.00	\$ 16,700		\$ 16,700			
Water Service and Connection	1 LS	\$ 27,200.00	\$ 27,200		\$ 27,200			
Electric Line	835 LF	\$ 20.00	\$ 16,700		\$ 16,700			
Electrical Service and Connection	1 LS	\$ 15,000.00	\$ 15,000		\$ 15,000			
Concrete Pad (surrounding pavilion)	3,462 SF	\$ 13.50	\$ 46,737		\$ 46,737			
Asphalt Walkway 5-Feet-Wide	388 LF	\$ 25.90	\$ 10,043		\$ 10,043			
Drinking Fountain	1 EA	\$ 2,359.00	\$ 2,359		\$ 2,359			
Picnic Table	4 EA	\$ 1,100.00	\$ 4,400		\$ 4,400			
Trash Receptacle	1 EA	\$ 1,230.00	\$ 1,230		\$ 1,230			
Small Pavilion			\$ 84,100	\$ 84,100				
Small Pavilion (20'x20')	1 LS	\$ 78,000.00	\$ 78,000	\$ 78,000				
Asphalt Walkway 5-Feet-Wide	17 LF	\$ 25.90	\$ 440	\$ 440				
Picnic Table	4 EA	\$ 1,100.00	\$ 4,400	\$ 4,400				
Trash Receptacle	1 EA	\$ 1,230.00	\$ 1,230	\$ 1,230				
Maintenance Building			\$ 110,100				\$ 110,100	
Shed with Garage (30'x20')	1 LS	\$ 100,000.00	\$ 100,000				\$ 100,000	
Asphalt Driveway	168 SY	\$ 55.80	\$ 9,356				\$ 9,356	
Crosswalk Line Paint	1 EA	\$ 720.00	\$ 720				\$ 720	
Dog Park			\$ 199,700			\$ 199,700	\$ -	
Water Pipe, Trench & Backfill	405 LF	\$ 20.00	\$ 8,100			\$ 8,100		
5-Feet-High Chainlink Fence	1,475 LF	\$ 35.00	\$ 51,625			\$ 51,625		
5-Feet-High Chainlink Gate	6 EA	\$ 300.00	\$ 1,800			\$ 1,800		
Asphalt - Vestibule	67 SY	\$ 55.80	\$ 3,720			\$ 3,720		
Mulch Surface with 4" Stone Subbase	6,550 SY	\$ 17.40	\$ 113,970			\$ 113,970		

Item Description	Estimated Quantity	Unit Price	Total Item Amount	Phase 1	Phase 2	Phase 3	Phase 4
Dog Water Fountain	2 EA	\$ 3,000.00	\$ 6,000			\$ 6,000	
Bench	8 EA	\$ 1,500.00	\$ 12,000			\$ 12,000	
Trash Receptacle	2 EA	\$ 1,230.00	\$ 2,460			\$ 2,460	
Playground			\$ 33,400		\$ 33,400	\$ -	
Asphalt Walkway 5-Feet-Wide	21 LF	\$ 25.90	\$ 538		\$ 538		
Engineered Fibar Mulch	282 SY	\$ 36.00	\$ 10,148		\$ 10,148		
Robina Swings	1 EA	\$ 6,000.00	\$ 6,000		\$ 6,000		
Mounds - Earthwork	47 CY	\$ 45.00	\$ 2,114		\$ 2,114		
Tunnel in Mound	1 EA	\$ 2,500.00	\$ 2,500		\$ 2,500		
Tree Stumps + Logs	10 EA	\$ 200.00	\$ 2,000		\$ 2,000		
Boulders	8 EA	\$ 500.00	\$ 4,000		\$ 4,000		
Bench	4 EA	\$ 1,500.00	\$ 6,000		\$ 6,000		
Community Garden			\$ 36,600		\$ -	\$ 36,600	
Stone Dust Pavement	367 SY	\$ 27.90	\$ 10,230			\$ 10,230	
Decorative Iron Fence + Gate	280 LF	\$ 50.00	\$ 14,000			\$ 14,000	
Raised Beds	22 EA	\$ 500.00	\$ 11,000			\$ 11,000	
Soil	29 CY	\$ 45.00	\$ 1,320			\$ 1,320	
Outdoor Classroom			\$ 4,000		\$ -	\$ 4,000	
Asphalt Walkway 5-Feet-Wide	17 LF	\$ 25.90	\$ 440			\$ 440	
Mulch Surface with 4" Stone Subbase	43 SY	\$ 17.40	\$ 746			\$ 746	
Tree Stumps	15 EA	\$ 100.00	\$ 1,500			\$ 1,500	
Trash Receptacle	1 EA	\$ 1,230.00	\$ 1,230			\$ 1,230	
Educational Nodes			\$ 16,100		\$ 16,100		
Engineered Fibar Mulch	29 SY	\$ 36.00	\$ 1,032		\$ 1,032		
Bench	4 EA	\$ 1,500.00	\$ 6,000		\$ 6,000		
Interpretive Signage	2 EA	\$ 4,500.00	\$ 9,000		\$ 9,000		
Lookout Platforms			\$ 36,200	\$ 19,200	\$ -	\$ 17,000	
Hardwood Decking	345 SF	\$ 70.00	\$ 24,156	\$ 13,160		\$ 10,996	
Bench	8 EA	\$ 1,500.00	\$ 12,000	\$ 6,000		\$ 6,000	
Boundaries			\$ 900	\$ 900			
Park Boundary Sign	9 EA	\$ 100.00	\$ 900	\$ 900			
Rain Garden + Bioswale			\$ 55,800	\$ 55,800			
Grading	1,022 CY	\$ 45.00	\$ 46,012	\$ 46,012			
Rip Rap	14 CY	\$ 55.00	\$ 744	\$ 744			
Outlet Structure	1 LS	\$ 3,000.00	\$ 3,000	\$ 3,000			
Outlet Connection	1 LS	\$ 6,000.00	\$ 6,000	\$ 6,000			
Stream Restoration			\$ 49,500	\$ 49,500	\$ -		
Grading	257 CY	\$ 45.00	\$ 11,563	\$ 11,563			
Check Dams	12 EA	\$ 3,000.00	\$ 36,000	\$ 36,000			
Rip Rap	35 CY	\$ 55.00	\$ 1,924	\$ 1,924			
Plantings			\$ 140,000	\$ 58,500	\$ 21,700	\$ 38,100	\$ 21,700
Tree Plantings	60 EA	\$ 670.00	\$ 40,200	\$ 10,050	\$ 10,050	\$ 10,050	\$ 10,050
Rain Garden Plantings	0.1 AC	\$ 37,400.00	\$ 5,140	\$ 5,140			
Stream Restoration Plantings	0.2 AC	\$ 121,600.00	\$ 27,112	\$ 27,112			
Woodland Restoration Plantings	4.6 AC	\$ 10,000.00	\$ 46,486	\$ 11,621	\$ 11,621	\$ 11,621	\$ 11,621
Wetland Restoration Plantings	1.0 AC	\$ 16,902.00	\$ 16,427			\$ 16,427	
Lawn Establishment	0.5 AC	\$ 8,712.00	\$ 4,554	\$ 4,554			