



Royersford Holdings Natural Areas Prioritization Report

Upper Providence Township,
Montgomery County

APRIL 2023



Project Description

This report identifies critical natural areas on the Royersford Holdings Property on Black Rock Road, Upper Providence Township, Montgomery County. The purpose of the report is to provide a site analysis and recommendations on those portions of the property most critical to conserve, recognizing that some development may occur. The plan includes a vegetative inventory, site analyses maps and report for the Royersford Property which assesses the existing natural resources and recommends areas most suitable for conservation and development.

Regional Context

The 176.4-acre property is one of the last large undeveloped lands along the Schuylkill River Corridor in Montgomery County and is part of the Port Providence Natural Heritage Area Supporting landscape, which stretches from Phoenixville downstream through Valley Forge Historic Park.

The Property is across Black Rock Road from Upper Schuylkill Valley Park and the boat launch located at the park (see Map 2: Location). The Property is also walking distance to the Upper Providence Township Trail and across the river from the Phoenixville boat launch, Black Rock Dam, and the Black Rock Sanctuary. The Property provides access to the riparian area along the Schuylkill River, creating a strong connection for both water quality and wildlife habitat protection, and serves as a keystone in the conservation matrix of this landscape.

Natural Lands evaluated the remaining land protection opportunities in the Township by identifying parcels greater than ten acres. This parcel is by far the largest potential open space opportunity available for the Township to increase conservation lands.

Natural Features

Streams

The site contains two unnamed streams. There is a second-order stream that crosses approximately 3,865 feet of the Property from east to west and flows into the Schuylkill River, which is approximately 850 feet downstream from the Property. The second stream is a headwater stream that flows into the second-order stream. The second-order stream and the Schuylkill River are classified as warm water fisheries by the Pennsylvania Department of Environmental Protection (PA DEP). These streams support aquatic life adapted to warm water conditions.

Water quality in the region is impacted by runoff from suburban development and farms. Stormwater runoff can transport pollutants to waterways such as trash, soil, nitrogen, and phosphorous that degrade water quality. Additionally, stormwater can erode streambanks, destabilizing soil, creating turbid water conditions, and silting the stream bed. Maintaining forest cover adjacent to streams, known as a “riparian buffer,” is an effective way to protect water quality from stormwater impacts. Riparian buffers conserve water quality by lowering water temperature through shading, promoting infiltration and groundwater recharge, filtering nutrients, and providing food and habitat for aquatic organisms through detritus. A healthy forested riparian buffer along all waterways will be of increasing importance as the effects of climate change worsen. According to the Pennsylvania Department of Environmental Protection, climate change is already causing more severe and frequent storms, and the severity and frequency of storms will continue to increase over time. A riparian buffer can help mitigate flooding and manage stormwater through infiltration into groundwater reserves. The Pennsylvania Natural Diversity Inventory (PNDI) for the site contained responses from the PA Fish and Boat Commission and the United States Fish and

Wildlife Service. The PA Fish and Boat Commission comments stated: "In order to maintain or improve wetland water quality, conserve a 50-100-foot-wide buffer on each side of waterways (perennial and intermittent rivers, streams, creeks, and tributaries)." Map 3: Water Resources shows a 100-foot riparian buffer along both streams.

Seeps and Springs

Natural Lands staff visited the site on January 26th and identified seven seeps and springs. Seeps and springs are critical for water quality and quantity as they provide clean, cool water to streams. They also supply drinking water for wildlife. The southwestern-most seep supports the connecting wet meadow, thereby providing ideal conditions for wetland vegetation and increasing habitat diversity.

However, seeps and springs are easily disturbed by changes to microtopography in the area. This can include actions such as earth disturbance or covering the springs and seeps. Disturbance can reduce or eliminate water flow from these features, jeopardizing the ecosystem benefits they provide. To protect the seeps and springs, these features should be protected by a 300-foot vegetated buffer, as recommended in the PNDI report. Disturbance should be avoided within this buffer area unless it is to restore or enhance natural resources. Map 3: Water Resources shows a 300-foot buffer around the identified seeps and springs.

Other Hydric Features

During the January 2023 site visit, Natural Lands staff noted additional wet areas throughout the Property beyond the streams, seeps, and springs. Rivulets were noted throughout much of the agricultural areas, indicating areas of concentrated stormwater flow. Road runoff has created an area of standing water near the northwestern boundary that leads to an area of concentrated flow traveling south to the property boundary. This area is called out on Map 3: Water Resources. There is no wetland vegetation in the area of standing water.

As noted above, climate change will lead to increasingly severe and frequent storms with greater volume and velocity of stormwater. This will likely cause more numerous, persistent, and/or severe rivulets.

Topography

The Property contains high points along the northern property boundary that slope towards the main creek in the center of the Property and the first-order stream (see Map 4: Topography). A valley follows the main creek corridor. A smaller valley also stretches up along the first-order stream. This creates scenic, panoramic views along the high points and secluded areas in the stream valleys that are devoid of road views and noise. On the southern side of the main creek, the Property slopes upward until the water tower, where it then slopes toward the Schuylkill River.

Steep slopes, which are slopes greater than 15% and are regulated by the Township, are present near both stream channels and through the center of the Property from the northern boundary, along the old road, to the main stream channel.

Soils

There are three key factors related to soils – farmland status, erodibility, and hydric qualities. The entire Property is considered either prime farmland or farmland of statewide importance. The majority of the soils within the Property are potentially highly erodible. There are also small areas of highly erodible soils and not highly erodible soils (see Map 5: Soil Characteristics). The majority of the soils are not hydric. As

seen in Map 5: Soil Characteristics, there are partially hydric soils along the main creek, first order stream, and other isolated areas.

Habitat

The Pennsylvania Natural Diversity Inventory (PNDI) for the site contained responses from the PA Fish and Boat Commission and the United States Fish and Wildlife Service. The latter notes that there are two categories of species that may be present at this site – special concern species and sensitive species.¹ The entire Property is part of the supporting area for the Port Providence Natural Heritage Area, a Pennsylvania Natural Heritage area identified for its important natural resources. The Natural Heritage Area includes species of concern which could be present on or near the Property or are supported by the natural resources within the Property:

Species or Natural Community Name	PNHP Rank ¹		PA Legal Status ¹	Last Seen	Quality ²
	Global	State			
Northern Myotis (<i>Myotis septentrionalis</i>)		G4	S1	N (CR)	8/4/2005
Spreading Rockcress (<i>Arabis patens</i>)		G3	S2	N (PT)	5/11/1993
Wild Kidney Bean (<i>Phaseolus polystachios</i>)		G5	S1S2	N (PE)	10/6/1994
Tooth-cup (<i>Rotala ramosior</i>)		G5	S3	PR (PR)	10/11/2006
Sensitive species of concern A ³		---	---	---	2013
Sensitive species of concern B ³		---	---	---	6/15/2011
Sensitive species of concern C ³		---	---	---	3/31/2010
Sensitive species of concern D ³		---	---	---	7/23/1993
					BC

¹See the PNHP website (<http://www.naturalheritage.state.pa.us/RankStatusDef.aspx>) for an explanation of PNHP ranks and legal status. A legal status in parentheses is a status change recommended by the Pennsylvania Biological Survey.

²See NatureServe website (<http://www.natureserve.org/explorer/eorankguide.htm>) for an explanation of quality ranks.

³This species is not named by request of the jurisdictional agency responsible for its protection.

The Port Providence Natural Heritage Area description includes recommendations to ensure the persistence of sensitive species in the core and supporting areas. These recommendations confirm the importance of many of the natural features discussed above and should be adhered to if any development, even for recreation, occurs in the area.

Recommendations:

- Avoid disrupting the hydrology of the site by draining or filling the wetlands as well as disturbing the surface or groundwater hydrology.
- Maintain open, wet meadow habitats by periodic removal of woody species of plants. This action will temporarily help set back succession to a closed canopy habitat and preserve the open, wet meadow habitat conditions preferred by species of concern.
- Protect the riparian zone and repair others that have been degraded by encouraging the growth of native vegetation. Careful determination is needed to avoid planting trees in floodplains that should remain as open canopied herbaceous wetland habitats. These habitats should be maintained in their current open condition, with tree plantings to occur uphill of areas containing hydric soils.
- Avoid fragmenting the existing forests and wetlands with additional buildings or infrastructure. The primary conservation concern for this habitat should be to focus on safeguarding the quality and expanse of the natural landscape. While providing the primary habitat for the populations of species of concern, the natural landscape also helps to protect water quality of the streams that drain through this NHA.

¹ * 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.

- *Control invasive species of plants to prevent native species from being crowded out by introduced species. Invasive species removal efforts should focus on reducing the prevalence of woody species such as Norway maple, Japanese barberry, common privet, bush honeysuckles, Japanese honeysuckle, multiflora rose, autumn olive and winged euonymus. Target pioneer populations of invasive plants for immediate and continued removal. It is much easier and more effective to keep a place invasive-free than to try and repair a heavily infested habitat. Invasive species management should be coordinated by individuals familiar with the native species as well as the invasive species present. Continual invasive species monitoring and control will be necessary.*
- *Reduce the deer density in the area. Uncommon species of native plants are particularly susceptible to deer herbivory.*

Conservation Prioritization

The Property can be divided into areas of highest to lowest conservation priorities based on the natural resources and connections to the larger landscape of recreational and conservation land. Map 7: Priority Areas shows the locations of the different priority areas.

While we have divided the Property into different priority areas, it is critical to remember that the entire Property as a whole works to provide ecological benefits, protect public health, and provide recreational access. Conservation of the entire property should be considered. The lack of impervious surfaces on this Property means that all areas function, to varying extents, to slow and infiltrate stormwater. The vegetation sequesters and stores carbon, pulling it out of the atmosphere. Trees also filter air pollution and cool the environment, particularly waterways. These ecosystem benefits will become increasingly important as climate change continues to increase temperatures, particularly in developed areas due to heat island effect, and to cause more severe and frequent storms. Any development that occurs on the Property will reduce stormwater infiltration and carbon sequestration and increase the heat island effect.

From a recreation standpoint, the Property offers panoramic views, secluded walks along streams and under trees, and connections to other recreation opportunities at the Upper Schuylkill Valley Park and along the Schuylkill River, including a boat launch and the Schuylkill River Trail. Outdoor recreation in natural areas supports public health, including protection against psychiatric disorders, reduction of stress, improved immune responses, decreased levels of obesity, stronger cardiovascular health – the list goes on. A study published in October 2022 in *Scientific Reports* found that seeing or hearing birds improved people's mental wellbeing for up to eight hours. The National Heart, Lung, and Blood Institute stated in a December 2003 report that physical activity such as hiking lowers blood pressure 4-10 points and regaining a normal body weight, which hiking supports, can lower blood pressure 5-20 points.

Highest Conservation Priority Areas

Highest priority conservation areas have the highest ecological quality, making them critical for protection and stewardship. We recommend the Township conserve these areas and avoid locating infrastructure and/or active recreation facilities in these areas. Minimal trails for passive recreation are generally acceptable. Stewardship efforts should focus on maintaining and improving the existing natural resources.

For this Property, water resources are especially critical resources to protect. The highest priority area includes streams due to their importance for habitat, recreation, and drinking water downstream. In order to best protect the streams, 100-foot riparian buffers, as recommended by the PNDI, are also included in the highest priority areas. Similarly, the seeps/springs and surrounding 300-foot buffers are also included in the highest priority area due to their importance for habitat and water quality. 100-year floodplains are

included in this area due to both their importance for mitigating flooding and protecting water quality and because municipal zoning prohibits structures and many other uses in the floodplains.

Slopes above 15% grade are easily eroded, making it important to conserve vegetation on these slopes. Furthermore, the municipal zoning code restricts use of areas with slopes of 15% or more, prohibiting freestanding structures, swimming pools, and the removal of topsoil. Therefore, steep slopes are included in the highest priority area.

The vegetation in these areas includes the woodlands and wet meadows, communities that provide important habitat for wildlife, including many bird species observed during the site visit. The wet meadows may also be important habitat for a species of concern flagged by the PA Fish and Boat Commission through the PNDI report. Furthermore, these communities are important for pulling carbon dioxide from the atmosphere, which mitigates climate change.

In total, the highest priority areas cover approximately 65.2 acres, or about 37% of the 176.4-acre site. The highest priority lands follow the stream corridors but also stretch into the northern part of the property due to the second-order stream, steep slopes, and seeps/springs.

Medium Conservation Priority Areas

For this Property, the medium priority areas buffer and connect the critical features of the highest priority areas and therefore we also recommend their protection. Buffer areas provide a protective zone that can help mitigate impacts of stormwater runoff, development, vegetation conversion, or other disturbances to the resources within the high priority areas. Trails and other passive recreation uses/infrastructure (benches, signage) would be appropriate for these areas. The areas currently used for agriculture can remain, however continued agriculture will still have some impacts on the high priority areas, such as stormwater runoff that may contain pesticides or herbicides and soil erosion. Alternatively, these areas can be converted to native vegetation such as meadows or woodlands to increase habitat area and ecosystem benefits such as carbon storage and stormwater filtration. Keeping the terrestrial meadow areas as meadows will help protect the high protection areas from stormwater flow and potential negative impacts from agriculture or development. These areas can be kept as meadows with the possibility of adding additional native species to increase plant diversity, or they can be converted to forest.

The medium priority areas, shown on Map 7: Priority Areas, cover approximately 50.6 acres, or 29% of the site. They include the fields in the northeastern part of the Property and the land in the southern portion of the Property that slopes north towards the stream. The northern fields are essentially cutouts amongst the high priority areas. Maintaining them as open spaces helps to protect the highest priority areas. The southern portion of the medium priority areas slopes directly into a wet meadow and then the stream thereby protecting the wet meadow, and any sensitive species that may rely on it, and water quality.

Lowest Conservation Priority Areas

The lowest conservation priority areas still have ecological value but are of lesser importance than the high and medium priority areas as they do not contain important vegetation communities, water resources, or steep slopes. These areas are least important to protect from disturbance such as development or more intensive recreation. However, continuance of these areas as open space will maintain the existing ecological benefits of the Property as a whole, as discussed previously. If the area is ever taken out of agriculture, converting the crop fields to meadow or forest would serve to increase ecological benefits, including protection of water quality and habitat for wildlife and pollinators.

There are three lowest conservation priority areas: the southwestern area, the eastern area and the northwestern-most parcel above Old State Road. It should be noted that there is an area of standing water and concentrated flow in the southwestern area, which could restrict usage. Combined, these areas cover approximately 60.6 acres, or 34% of the site.

Natural Lands recognizes that some of the site may be developed. Because the potential development areas still contain environmentally beneficial features, they are listed in order from least to most appropriate for development.

- Area A: The southwestern area. This area has the most direct connection to the high priority areas. There is also a significant amount of area impacted by the standing water and a rivulet. Area A may be critical for habitat contiguity.
- Area B: The eastern area. The one caveat to this ranking is if the species of special concern flagged in the PNDI has a buffer zone that expands into this area, it will have to be conserved.
- Area C: The northwestern-most parcel above Old State Road. Natural Lands staff did not find any seeps or springs in this area. It is also adjacent to already developed land and would likely have the least impact to natural resources in the interior of the property.

Areas considered for development should be assessed for potential trail connections to both interior areas of the Property and to adjacent park lands or other nearby trails. This is especially important for the two low conservation areas that abut Black Road, Areas A and B, as they are near the Upper Schuylkill Valley Park.

Summary

Based on a site visit and existing data, we identified priority areas of the site to help the Township in its efforts to preserve significant parts of the Property. Combined, the highest and medium priority areas total 114.4 of the 174.6 acres and form a contiguous tract that could be protected by the Township or by a private owner under conservation easement. Natural Lands concludes that due to the property's large size, water resources, potential habitat value for species of special concern and position within the Schuylkill River Corridor, the Property warrants conservation, as feasible by the Township.

Plant Communities

Terrestrial Meadow

Woody Plants

oriental bittersweet	<i>Celastrus orbiculatus</i>
bradford pear	<i>Pyrus calleryana</i>
multiflora rose	<i>Rosa multiflora</i>
brambles	<i>Rubus sp.</i>

Herbaceous Plants

broom sedge	<i>Andropogon virginicus</i>
common milkweed	<i>Asclepias syriaca</i>
thistle	<i>Cirsium</i>
Japanese stiltgrass	<i>Microstegium vimineum</i>
mile-a-minute	<i>Persicaria perfoliata</i>
pokeweed	<i>Phytolacca decandra</i>
grasses	<i>Poaceae spp.</i>
horsenettle	<i>Solanum carolinense</i>

Wet Meadow

Woody Plants

bradford pear	<i>Pyrus calleryana</i>
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Herbaceous Plants

thistle	<i>Cirsium sp.</i>
rushes	<i>Juncus sp.</i>
sensitive fern	<i>Onoclea sensibilis</i>
grasses	<i>Poaceae spp.</i>
horsenettle	<i>Solanum carolinense</i>
goldenrod	<i>Solidago sp.</i>

Riparian Woodlands

Trees

box elder	<i>Acer negundo</i>
red maple	<i>Acer rubrum</i>
sugar maple	<i>Acer saccharum</i>
tree-of-heaven	<i>Ailanthus altissima</i>
black birch	<i>Betula lenta</i>
hickory	<i>Carya sp.</i>
hackberry	<i>Celtis occidentalis</i>
American beech	<i>Fagus grandifolia</i>
ash	<i>Fraxinus sp.</i>
honey locust	<i>Gleditsia triacanthos</i>
black walnut	<i>Juglans nigra</i>
Norway spruce	<i>Picea abies</i>
black cherry	<i>Prunus serotina</i>
white oak	<i>Quercus alba</i>

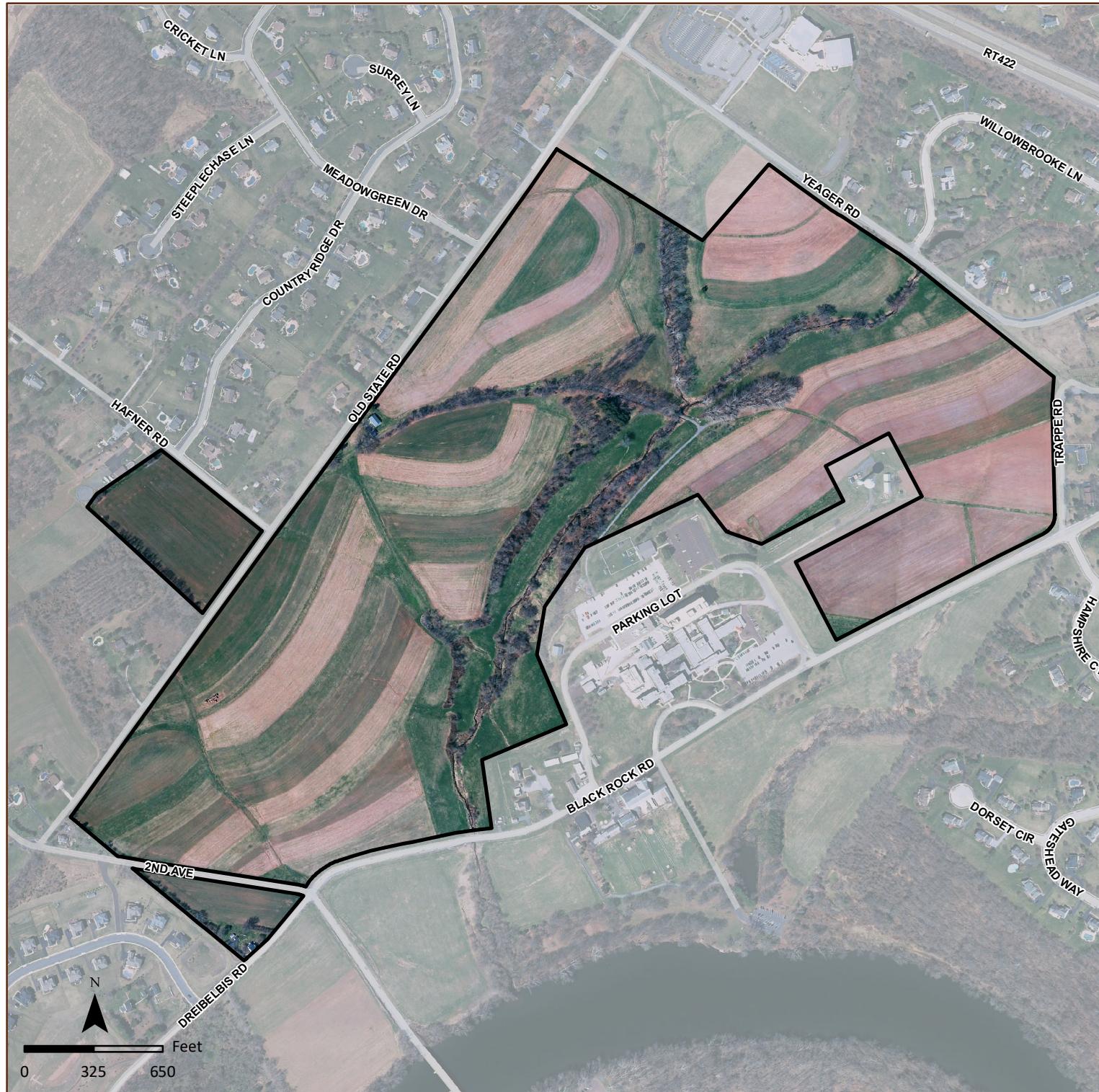
pin oak	<i>Quercus palustris</i>
red oak	<i>Quercus rubra</i>

Shrubs and Vines

silky dogwood	<i>Cornus amomum</i>
English ivy	<i>Hedera helix</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
shrub honeysuckle	<i>Lonicera sp.</i>
multiflora rose	<i>Rosa multiflora</i>
wineberry	<i>Rubus phoenicolasius</i>
brambles	<i>Rubus sp.</i>
poison ivy	<i>Toxicodendron radicans</i>

Herbaceous Plants

thistle	<i>Cirsium sp.</i>
teasel	<i>Dipsacus fullonum</i>
pokeweed	<i>Phytolacca decandra</i>
goldenrod	<i>Solidago sp.</i>

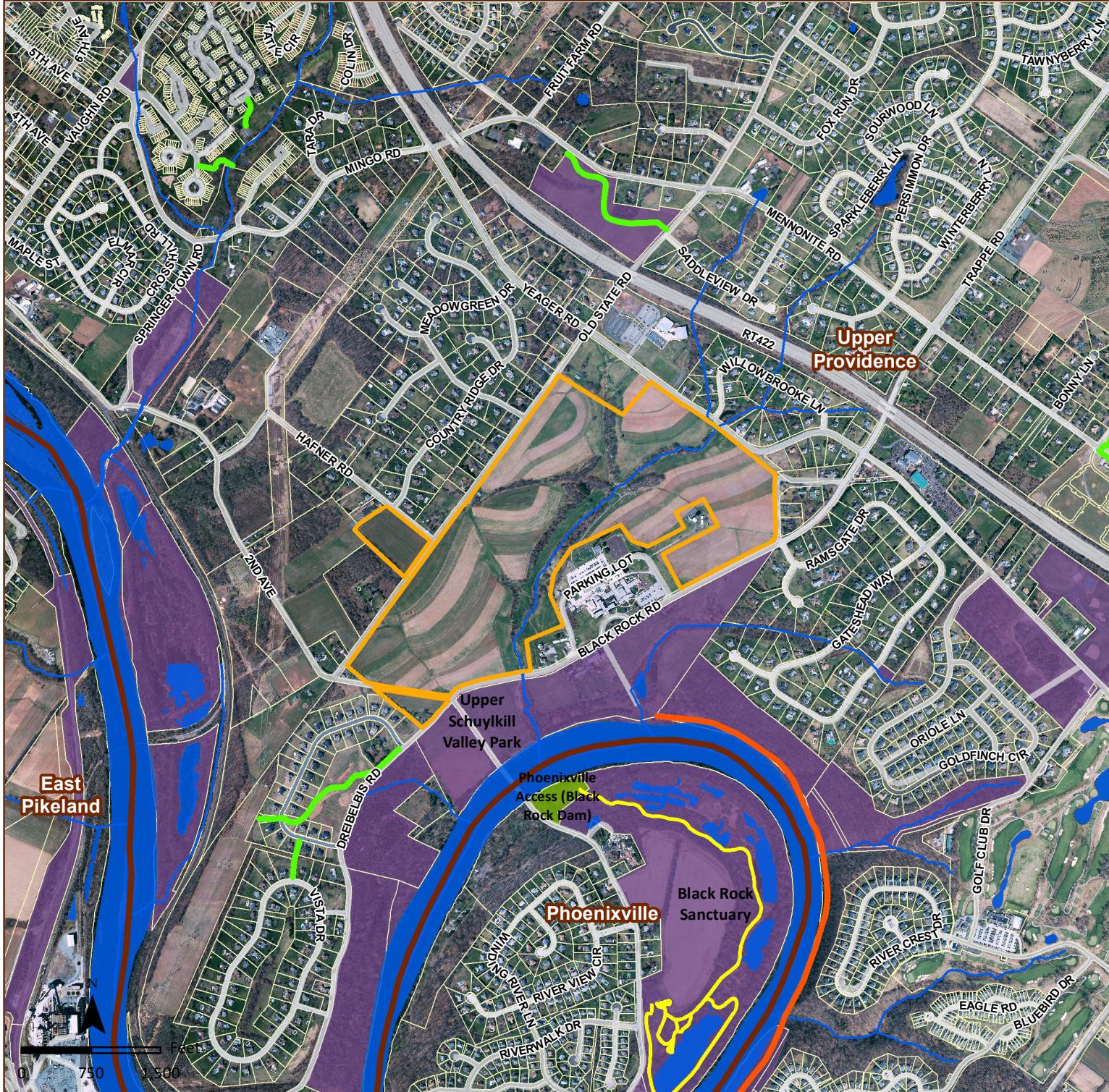


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1. Parcels, waterways, and roadways from Montgomery County.

Compiled By: KEB 04/06/2023

Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc., describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included: surveys, tax maps, field mapping using G.P.S., and/or orthophotos. Natural Lands Trust, Inc., makes no representation as to the accuracy of said property lines (or any other lines), and no liability is assumed by reason of reliance hereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.



Map 2: Location

ROYERSFORD HOLDINGS

Tax ID: 610001252127 (+/- 176.4 acres)
Upper Providence Township, Montgomery
County, PA

-  Property Boundary
 -  Municipal Boundaries
 -  Parcel Boundaries
 -  Waterways

Regional Trails

- Schuylkill River East Trail
 - Upper Providence Township Trail
 - Black Rock Sanctuary Trail Network

Public and Protected Lands

- Local Park
 - State Owned Land

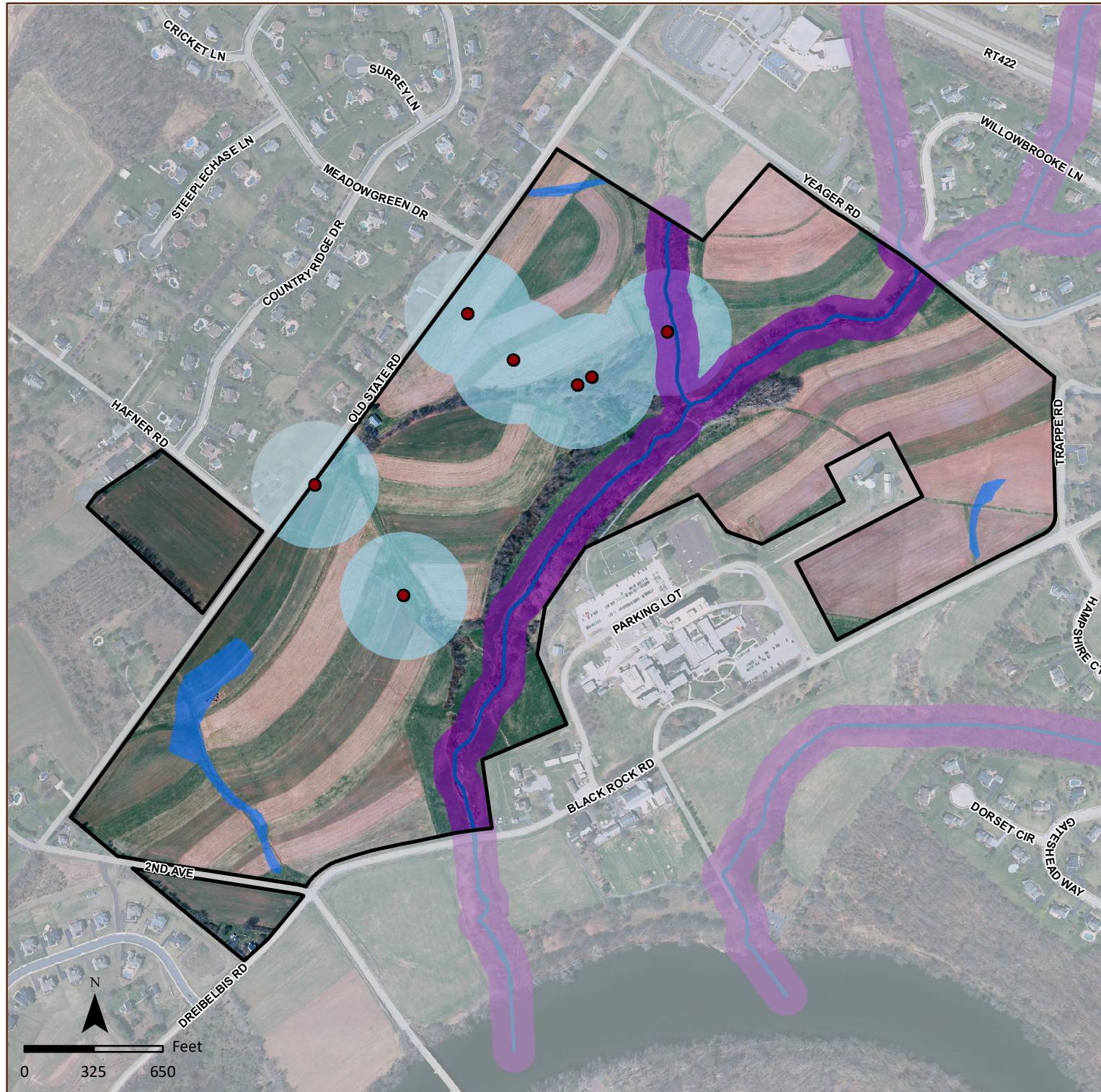


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1. Montgomery County parcels, waterways, and roadways from Montgomery County.
 2. Chester County parcels from Chester County.
 3. Public/Protected lands from WeConservePA

Compiled By: KFB 04/10/2023

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1. Parcels, waterways, and roadways from Montgomery County.

Compiled By: KEB 04/06/2023

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Map 4: Topography

ROYERSFORD HOLDINGS

Tax ID: 610001252127 (+/- 176.4 acres)
Upper Providence Township, Montgomery County, PA

- Property Boundary
- Contours (5 ft)
- < 15%
- 15% - 25%
- > 25%

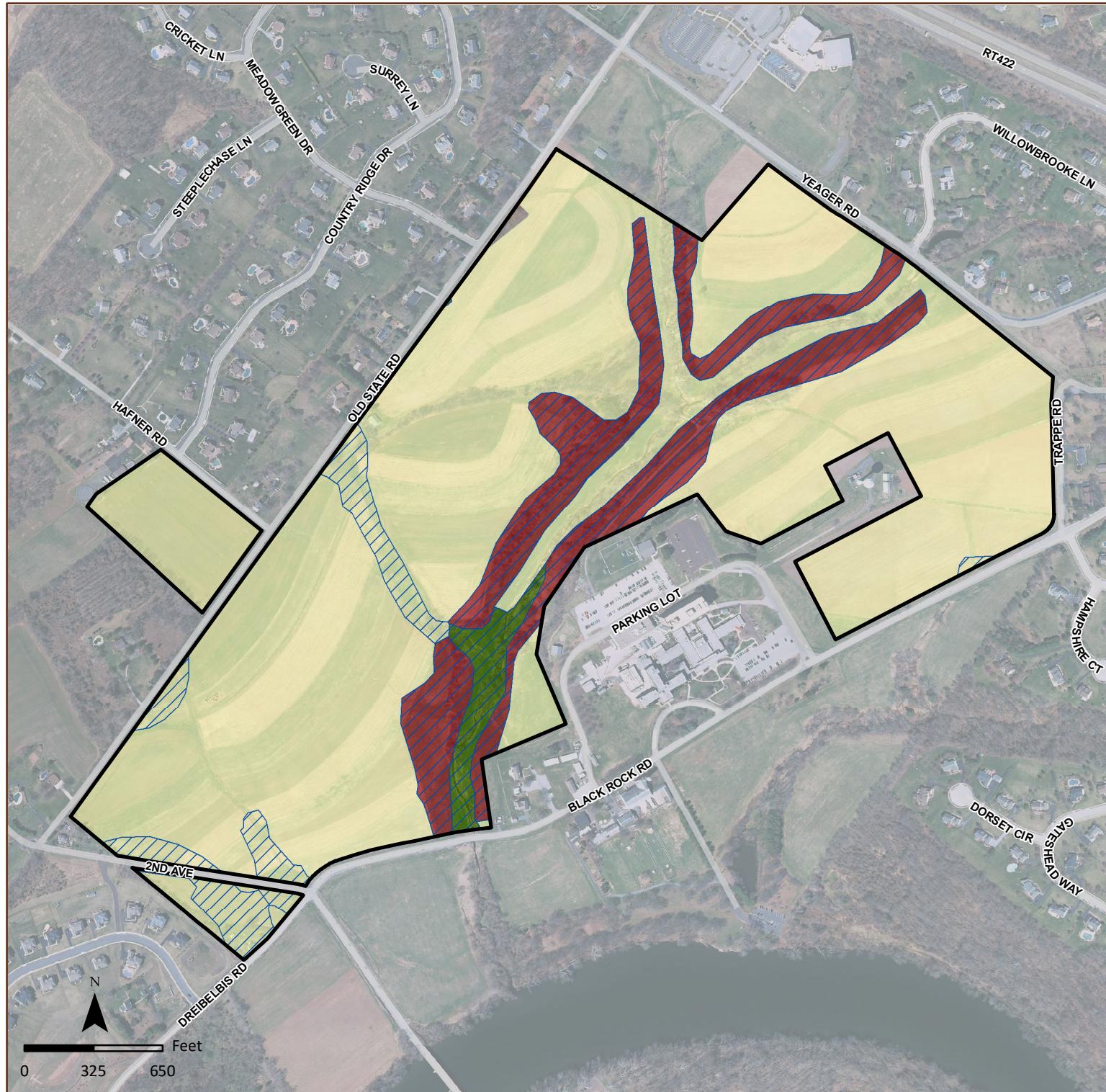


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1. Parcels, waterways, and roadways from Montgomery County.
 2. Contours and slopes from LiDAR data, PA MAP Program, DCNR.

Compiled By: KEB 04/10/2023

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Map 5: Soil Characteristics

ROYERSFORD HOLDINGS

**Tax ID: 610001252127 (+/- 176.4 acres)
Upper Providence Township, Montgomery
County, PA**

- | | |
|---|-----------------------------|
|  | Property Boundary |
|  | Not highly erodible land |
|  | Potentially highly erodible |
|  | Highly erodible land |
|  | Partially hydric soil |

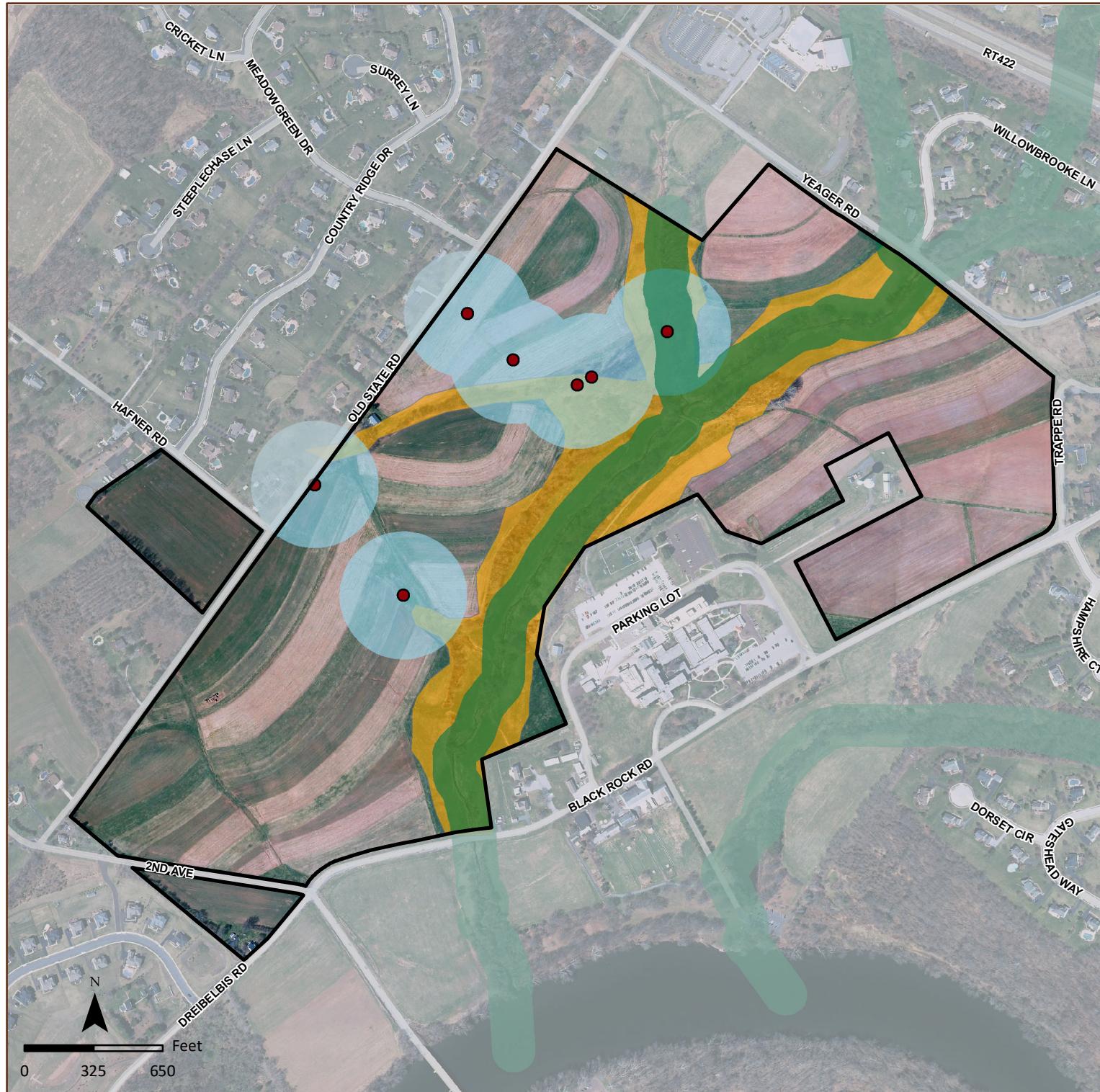


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1. Parcels, waterways, and roadways from Montgomery County.
 2. Soils from USDA-NRCS.

Compiled By: KEB 04/07/2023

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1. Parcels, waterways, and roadways from Montgomery County.
2. Contours and slopes from LiDAR data, PA MAP Program, DCNR.
3. Floodplains from FEMA.

Compiled By: KEB 04/10/2023

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