

NATURAL FEATURES

The use of the land is influenced by a variety of natural features such as hydrology, steep slopes, woodlands and soils, among others. Both Bally and Bechtelsville are blessed with scenic landscapes. Both boroughs are surrounded by primarily rural agricultural townships. Bally is relatively flat with few areas of steep slopes and few woodlands. Bechtelsville has significant mature woodlands remaining on large areas of steep slopes. Both boroughs contain drainageways, but Bally has only one drainageway. Bechtelsville's Swamp Creek, wetlands and flood-plain areas create ribbons of open space within the Borough. How these and other natural features are likely to affect the area's development are described in the following section.

HYDROLOGY

Hydrology refers to the water related features such as streams, flood prone areas and drainage characteristics of the area. These features are important for the following reasons:

- Streams and creeks provide potential recreation areas, water sources, and valuable aquatic habitats.
- Knowledge of drainage basins is necessary in designing sanitary and storm sewers,
- Alluvial soils, hydric soils and wetlands indicate land where chronic or occasional wetness may weaken foundations or otherwise constrain construction,

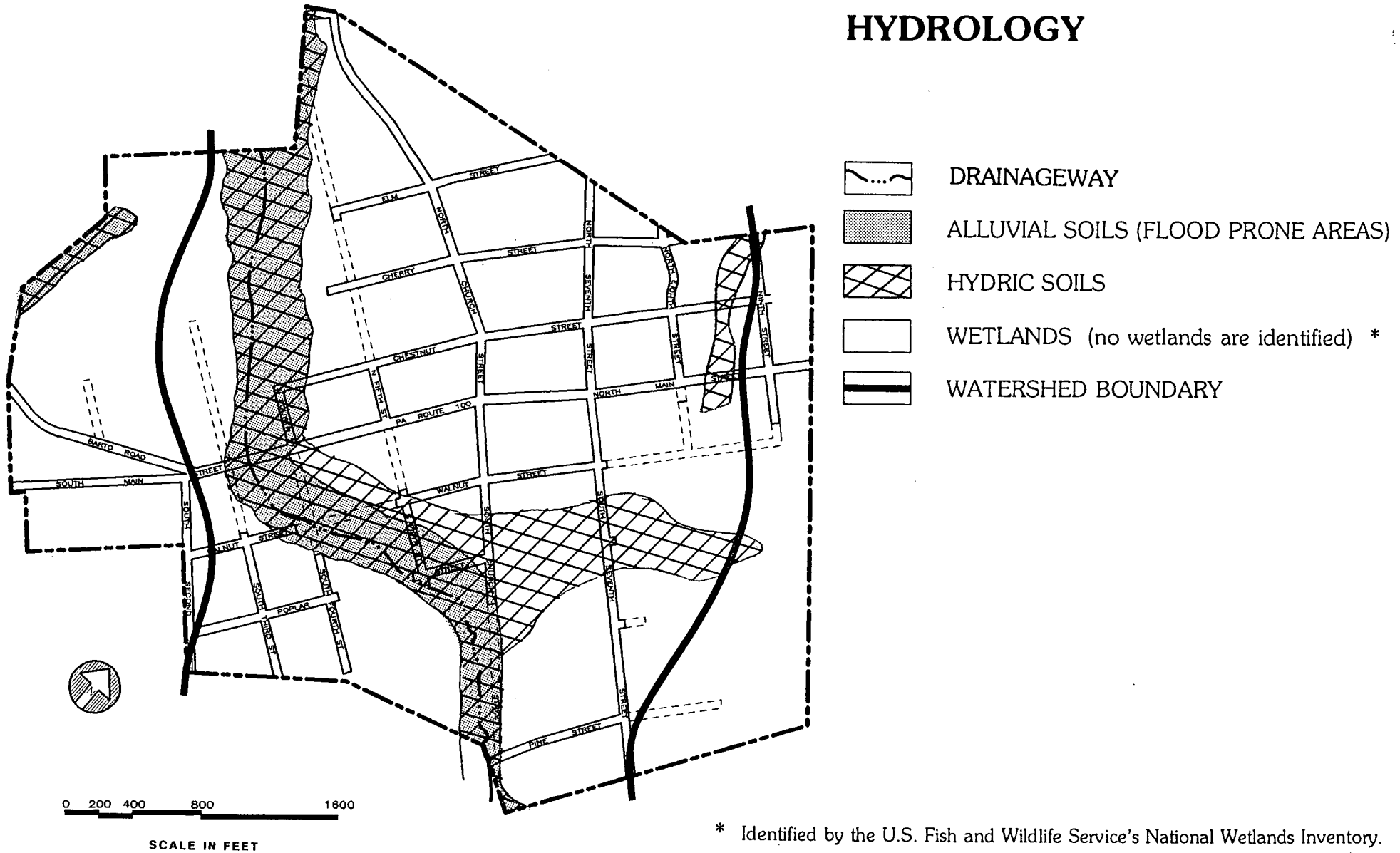
- Alluvial soils and floodplains are prone to flooding; development in these areas may result in loss of property and lives, and worsen flood conditions upstream from development,
- Wetlands are important aquifer recharge areas and support a uniquely sensitive environment.

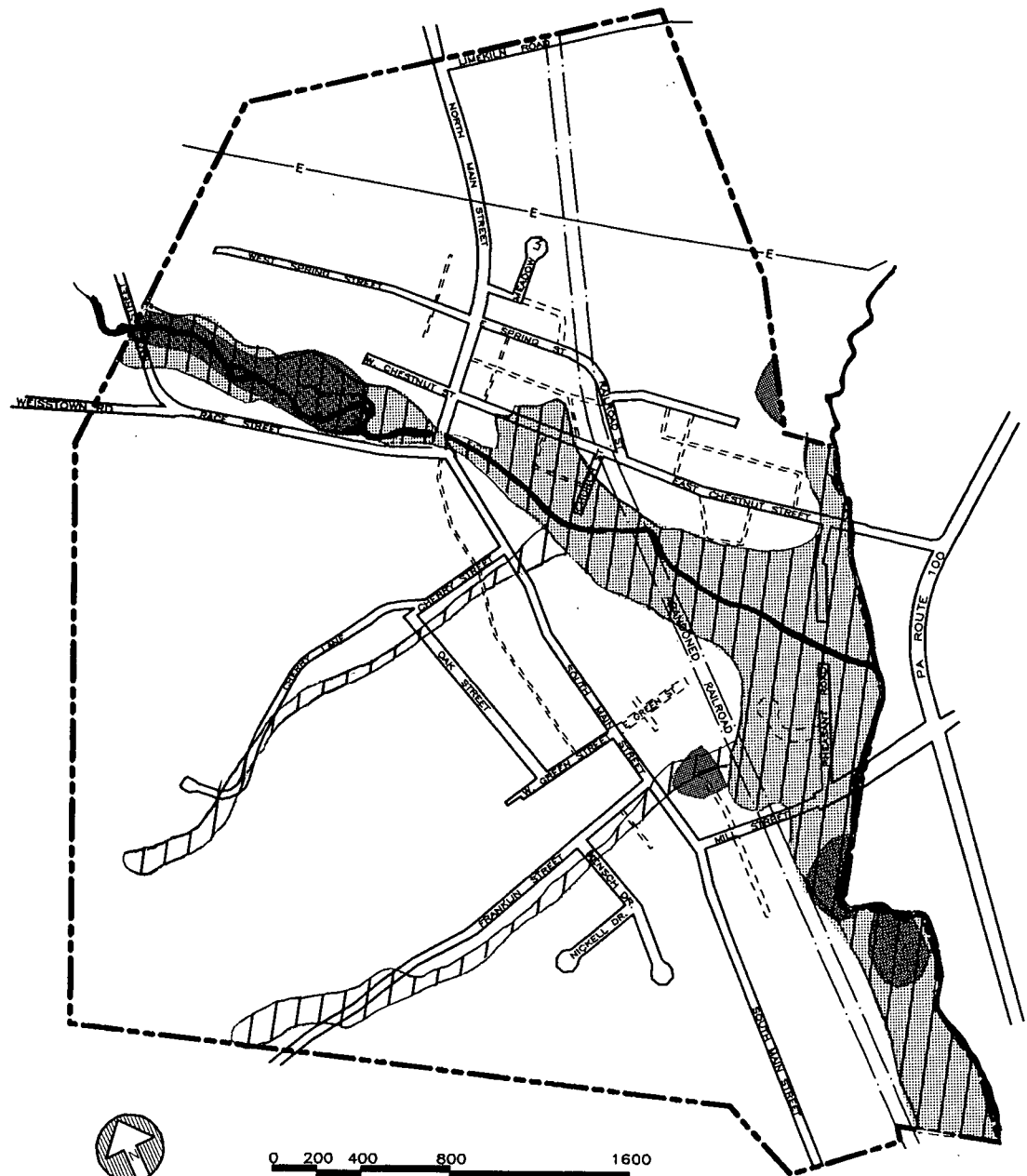
Bally

One small drainageway flows through the Borough of Bally. The drainageway, known as the unnamed tributary of the Northwest Branch of the Perkiomen Creek, begins at a spring in Washington Township northwest of the Borough. This unnamed tributary of the Northwest Branch of the Perkiomen Creek flows southeast through the Borough, crossing Route 100 near Third Street and passing the Most Blessed Sacrament Church the southeastern border of the Borough. The original course of the drainageway flowed almost directly south through the western edge of the Borough until it was redirected for use by emerging industry in the 1800's. Treated effluent is discharged into the West Branch of the Perkiomen Creek at the Bally Municipal Authority Treatment Plant located to the southeast in Washington Township.





The Pennsylvania Department of Environmental Resources (PADER) considers the northwest branch of the Perkiomen Creek to be a Cold Water Fishery. PADER defines cold water fisheries as streams which are necessary for maintenance and

HYDROLOGY





HYDROLOGY

-  STREAMS
-  100 YEAR FLOODPLAINS
-  HYDRIC SOILS
-  WETLANDS *

* Identified by the U.S. Fish and Wildlife Service's National Wetlands Inventory.



propagation of cold water fish and other flora and fauna indigenous to cold water habitats. The majority of the Borough drains directly into the fore-mentioned drainageway which is part of the drainage basin for the Northwest Branch of the Perkiomen Creek. Two small areas of the Borough drain toward other minor drainage basins of the Northwest Branch of the Perkiomen Creek. One of these lies along the southwestern edge of the Borough and the other along the northeastern edge of the Borough. The Northwest Branch of the Perkiomen Creek then drains to the Perkiomen Creek which in turn flows into the Schuylkill River.

Flooding and erosion of drainageway banks have been a concern along the unnamed tributary of the Northwest Branch of the Perkiomen Creek. This primarily occurs along the South Church Street right-of-way and further downstream.

The accompanying map shows several other hydrological features including alluvial soils and hydric soils. Since Bally's floodplains have not been studied or mapped, 100-year floodplains are not shown. Alluvial soils are soils which have been deposited by flooding and usually include 100-year floodplain areas. Hydric soils are soils with either seasonally high water tables or permanently high water tables. Hydric soils may also be indicators of wetlands. No wetlands have been located by the National Wetlands Inventory within the Borough.

Bechtelsville

The Swamp Creek, which runs through Bechtelsville, has its origins in the Weller Cemetery Seeps and Swamp Creek Seeps.

From these springs, near where the Washington Township, Pike Township and District Township borders meet, the Swamp Creek flows south-southeast through the Borough of Bechtelsville. Near the eastern edge of the Borough an unnamed tributary joins the Swamp Creek. From Bechtelsville the Swamp Creek flows southeast to the Perkiomen Creek and then into the Schuylkill River. The entire Borough drains into the Swamp Creek watershed which is part of the Perkiomen Creek drainage basin.

Unlike Bally, development has historically occurred and continues to be permitted within the 100-year floodplain in Bechtelsville. Early industry lined the raceway near Main Street and Race Street. A dam was built just northwest of Main Street which still exists today. Residential development exists within the 100-year floodplain along East Chestnut Street, Sunnyside Drive and Pheasant Road.

Other important hydrological features include hydric soils and wetlands. The largest wetland area is found above the dam along Race Street where the original pond created by the dam has silted in, creating a large marshy area. Other wetlands are found along the Swamp Creek and its tributaries. Hydric Soil or High Water Table Soils are found along the Swamp Creek floodplain and drainage swales which parallel Cherry Street and Franklin Street.

STEEP SLOPES

Steep slopes and rolling farmland are prevalent features throughout the region. The accompanying map shows two categories of steep slopes within both boroughs: land between 15 percent and 25 percent grade, and land over 25 percent grade. Knowledge of steeply sloping areas is important when planning for future development because:

- construction is more costly to build on steep slopes;
- steep slopes are susceptible to erosion when soil and vegetation are disturbed.

Construction is typically restricted on slopes between 15 percent and 25 percent and prohibited on slopes over 25 percent.

Bally

The Borough of Bally is nestled at the base of a large hill and its topography reflects this. Minor steep slope areas with grades of 15 percent to 25 percent can be found along its northwest boundary where it cuddles the mountain. A small knoll exists at the end of South Fourth Street and the Borough border. The remainder of the Borough is gently sloping.

Bechtelsville

Bechtelsville rests in a scenic stream valley between two hills and this is reflected in its topography. The eastern half of the Borough lies in the stream valley and is relatively level. To the west of Main Street is a hill which has large areas of steep

slopes between 15 percent and 25 percent grade. Very steep slopes of greater than 25 percent grade are found south of Franklin Street. Additional areas with slopes greater than 25 percent grade are found along Race Street and Jamestown Road.

WOODLANDS

Woodlands are areas which primarily have second and third generation forests. These wooded areas are important for the following reasons:

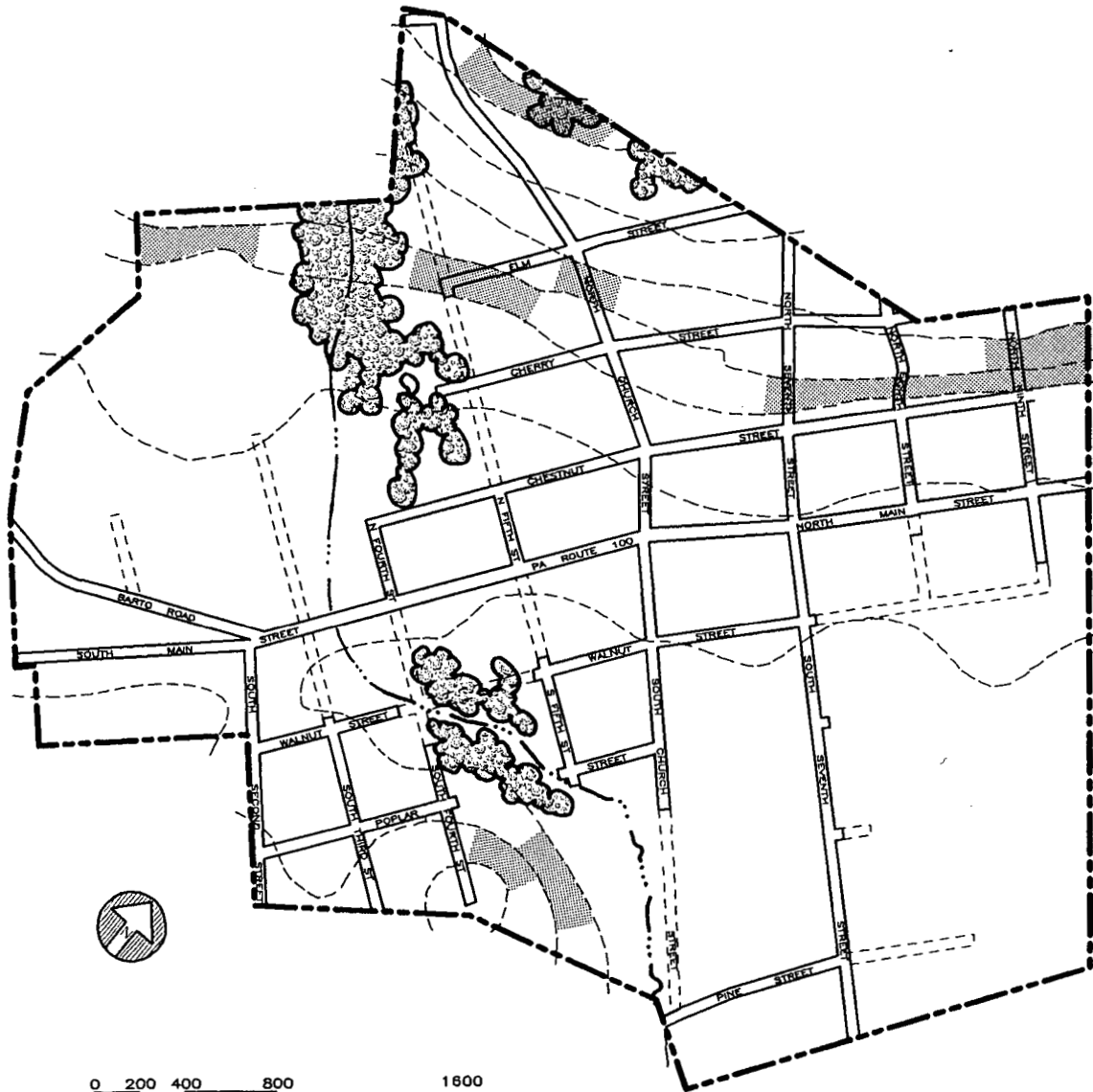
- Woodlands are scenic resources which provide visual relief, softening views of the landscape.
- Woodlands provide unique wildlife habitats which once destroyed take hundreds of years to recover.
- Vegetative cover and root systems of the forest ecosystem protects against erosion and stabilizes the soil.





Efforts to conserve woodlands may focus on steering growth away from heavily forested areas, limiting density where development occurs and minimizing the number of trees cut during construction.

Bally

Bally has few remaining wooded areas accounting for less than 5 percent of the borough's land area. These remaining woodlands lie in small patches along the moderately sloping hillside of the Borough and along the unnamed tributary of the

NATURAL FEATURES



-  WOODLANDS
-  MODERATELY STEEP SLOPES (15% - 25%)
-  VERY STEEP SLOPES (>25%)
-  DRAINAGEWAY



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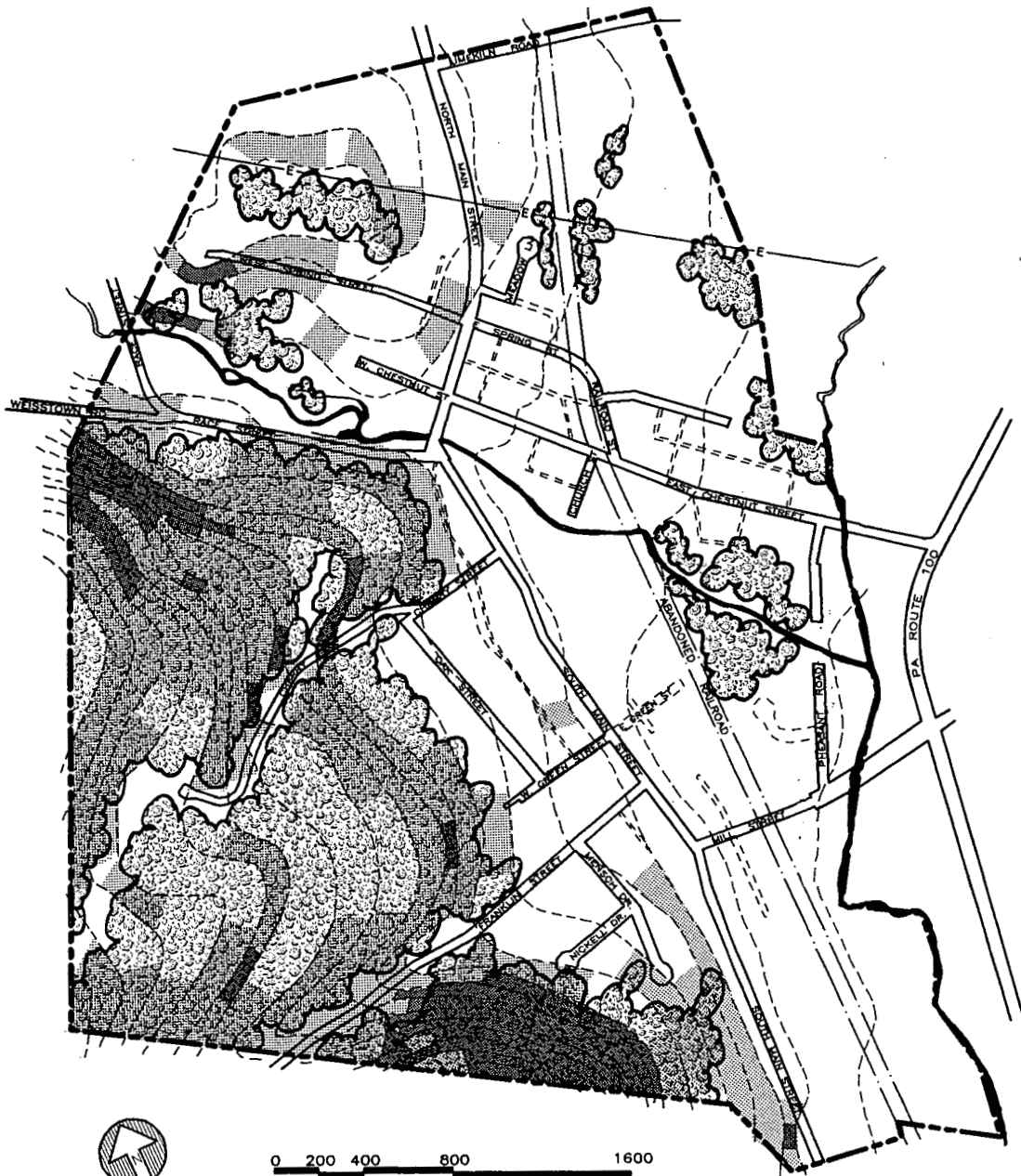
SCALE IN FEET

BALLY/BECHTELSVILLE JOINT COMPREHENSIVE PLAN
 Borough of Bally – Berks County, Pennsylvania







Landscape Architects . Engineers . Planning Consultants
 Urban Research & Development Corporation

28 Bethlehem Plaza . Bethlehem, Pennsylvania 18018



NATURAL FEATURES

-  WOODLANDS
-  MODERATELY STEEP SLOPES (15% - 25%)
-  VERY STEEP SLOPES (> 25%)
-  STREAMS



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SCALE IN FEET

BALLY/BECHTELSVILLE JOINT COMPREHENSIVE PLAN

Borough of Bechtelsville— Berks County, Pennsylvania

III-7



Landscape Architects . Engineers . Planning Consultants
Urban Research & Development Corporation

28 Bethlehem Plaza . Bethlehem, Pennsylvania 18018

Northwest Branch of the Perkiomen Creek. The remaining areas of the Borough have long since been cleared for development and farming.

Bechtelsville

Bechtelsville still has significant stands of remaining woodlands. Almost 50 percent of the Borough is still wooded. Most of these woodlands are found in the western half of the Borough. Here steep slopes limited early development and farming, allowing the original woodlands to remain. Small patches of woodlands are also still found along the Swamp Creek.

SOILS

Many different soil types with a variety of soil features exist within the boroughs. Typically, soils are analyzed for the following two important qualities:

- the ability to support septic systems and accompanying development and
- the ability to support agriculture.

Soils are classified according to their ability to support on-site septic systems. Soils which are considered unsuitable for on-lot systems are located on steep slopes, shallow, stony, or poorly drained. Soil suitability for on-site septic systems is not an important issue in either Bally or Bechtelsville since both boroughs are served by public sewers.

Soils are also classified by their ability to support agriculture. Class I and Class II agricultural soils are considered prime agricultural soils and indicate where the best farmland is located. Class III soils have limitations in their ability to support certain crops and require additional conservation practices. Class IV - VII are considered the least favorable for agricultural use because of very severe limitations to farming.

Bally

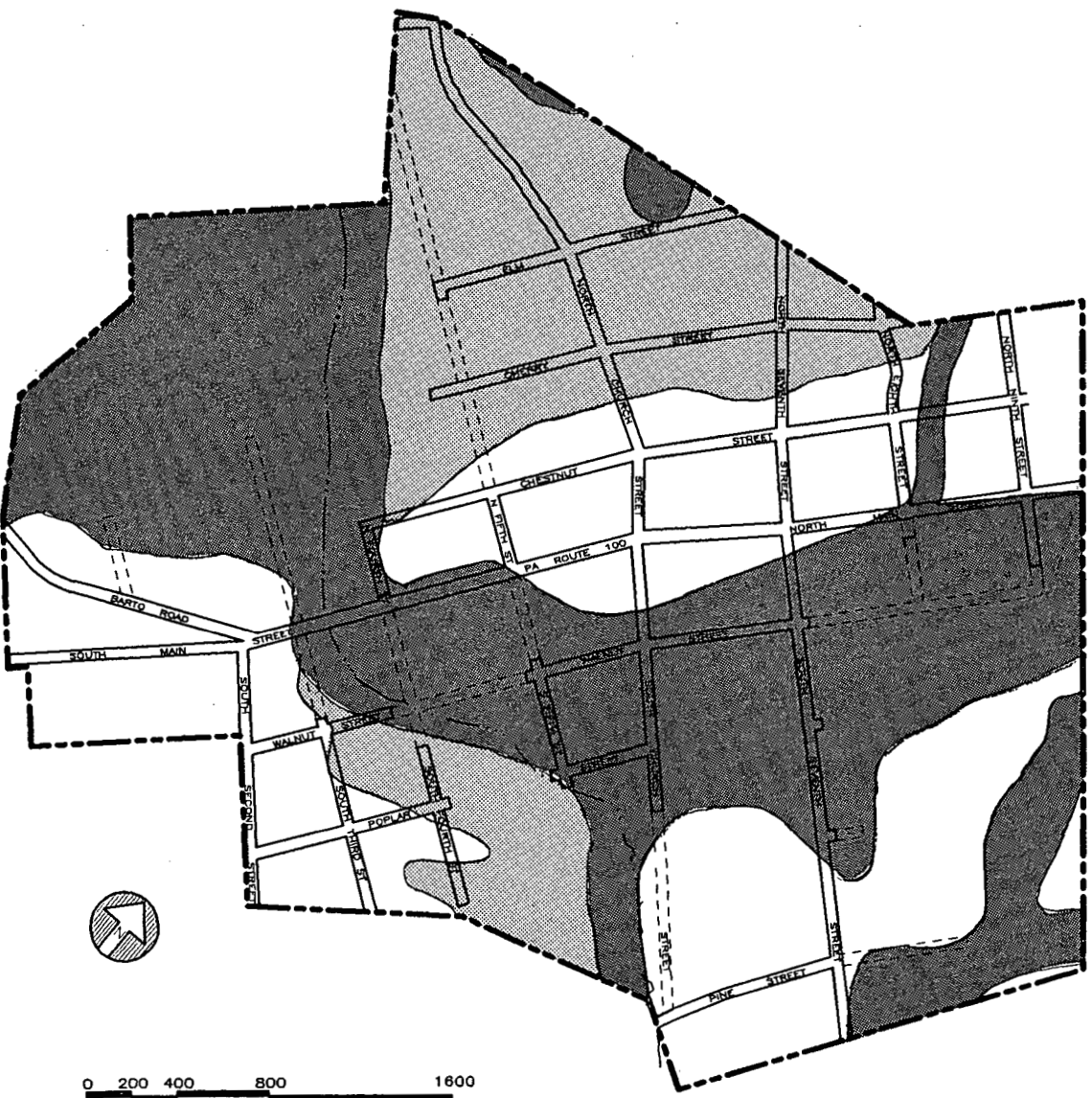
Less than a third of Bally's remaining undeveloped land is suitable for on-site septic systems. All the undeveloped areas in the Borough, however, are accessible to the Bally Municipal Authority's public sewer system.




The Borough of Bally has primarily Class II agricultural soils. No Class I soils exist and only small areas of Class III soils are found within the Borough. The majority of Bally's farmable land has been developed over the years. The only remaining land farmed lies near Seventh and Pine Streets. While some see the need to preserve this remaining farmland, others have noted the need to accommodate expanding industries and residential development, to provide a greater tax base and encourage more development within the Borough.

Bechtelsville

Most of the undeveloped land within the Borough is unsuitable for on-lot septic systems. Bechtelsville, like Bally, is also served by public sewer and has little need to consider soil suitability for

SOIL SUITABILITY FOR ON-SITE SEPTIC SYSTEM

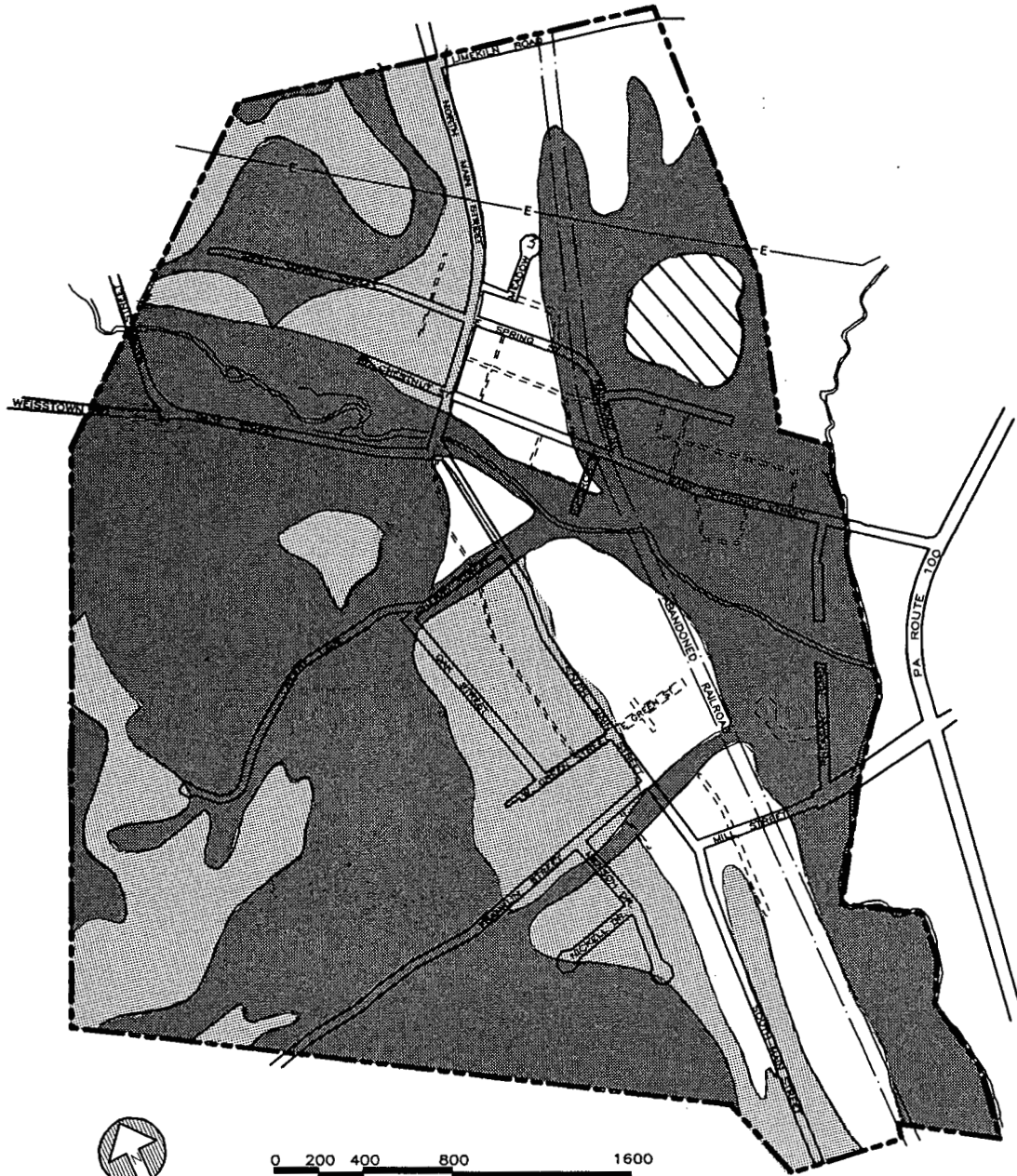






-  SLIGHT LIMITATIONS
-  MODERATE LIMITATIONS
-  SEVERE LIMITATIONS

0 200 400 800 1600
SCALE IN FEET

* Source - Soil Survey of Berks County U.S. Dept. of Agriculture.

SOIL SUITABILITY FOR ON-SITE SEPTIC SYSTEM

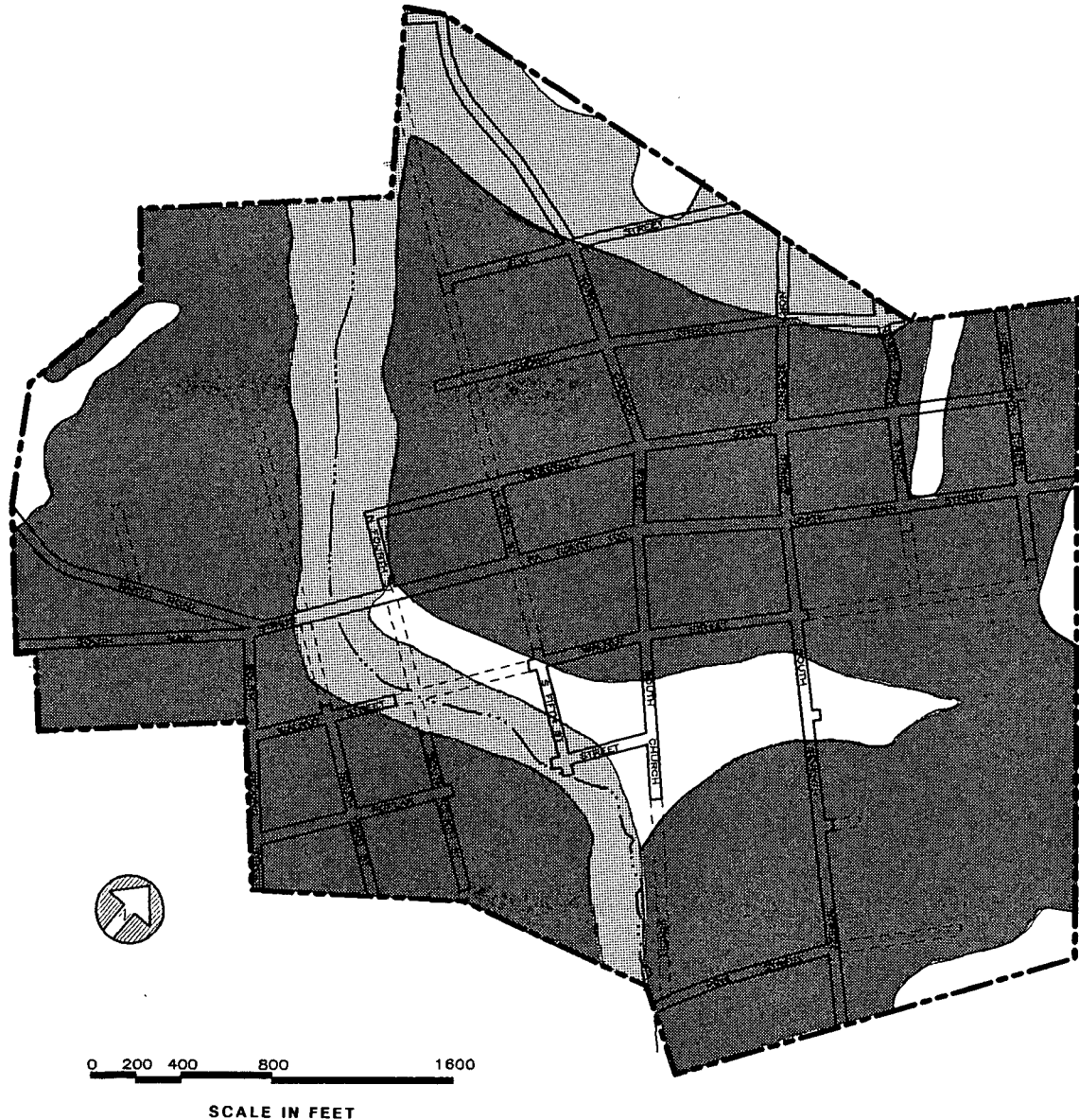






-  SLIGHT LIMITATIONS
-  MODERATE LIMITATIONS
-  SEVERE LIMITATIONS
-  MAN-MADE SOILS THAT FALL OUTSIDE EXISTING CATEGORIES

* Source - Soil Survey of Berks County U.S. Dept. of Agriculture.



AGRICULTURAL SOILS

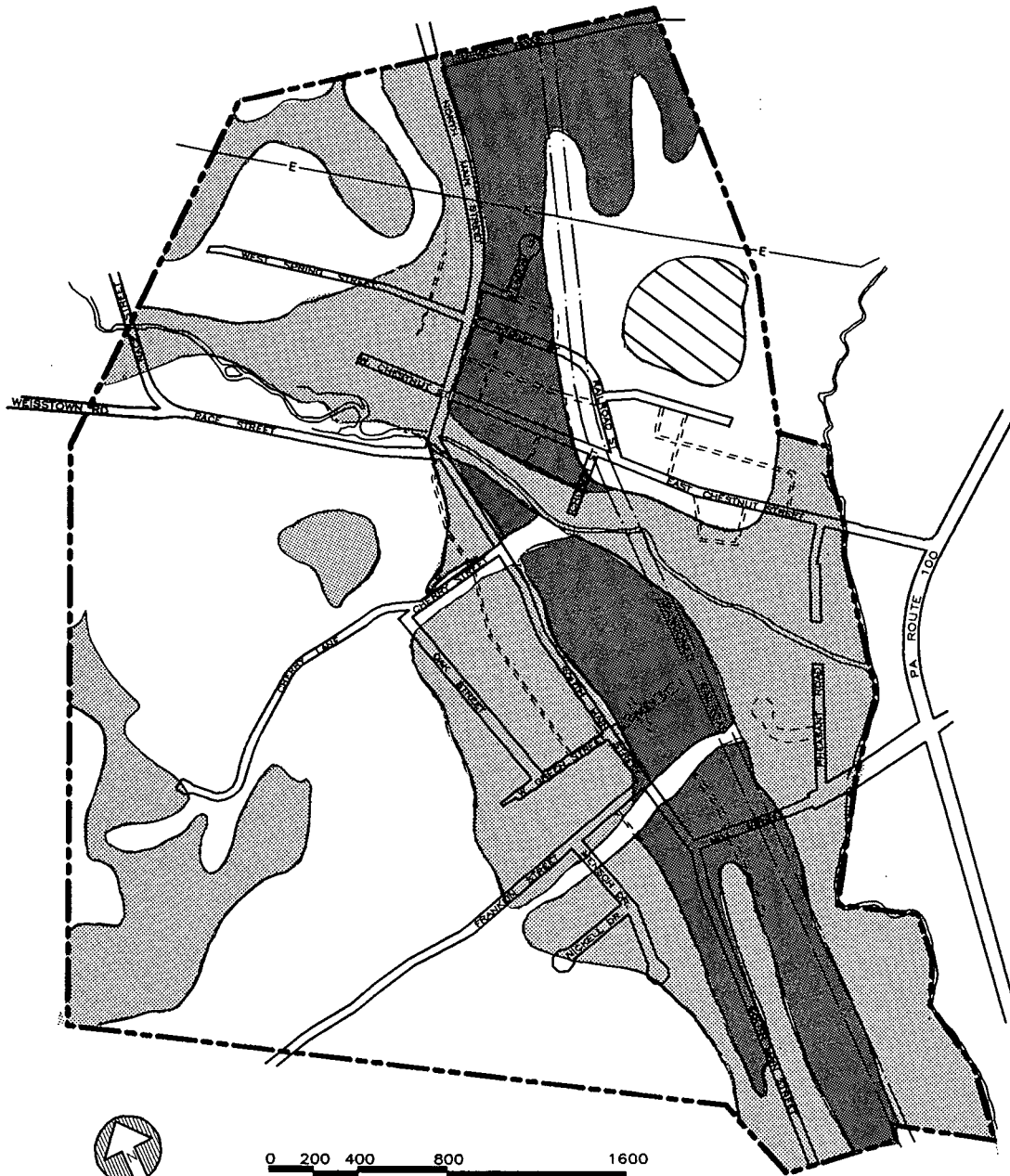







-  CLASS I (none identified)
-  CLASS II
-  CLASS III
-  CLASS IV - VIII

* Source - Soil Survey of Berks County U.S. Dept. of Agriculture.



AGRICULTURAL SOILS



-  CLASS I (none identified)
-  CLASS II
-  CLASS III
-  CLASS IV - VIII
-  MAN-MADE SOILS THAT FALL OUTSIDE EXISTING CATEGORIES

* Source - Soil Survey of Berks County U.S. Dept. of Agriculture.



on-lot septic systems except where sewer service has not been extended.

Large areas of Bechtelsville still remain undeveloped, however most of these are unsuitable for agriculture. The majority of these undeveloped areas are located in areas which are not considered prime agricultural areas.

GEOLOGY AND GROUNDWATER

Geology and the availability of groundwater also need to be considered when planning for future development. The Boroughs of Bally and Bechtelsville are located in the Piedmont Province directly east of a ridge of mountain chains in the Reading Prong. The geology of this region was formed during the Triassic, Cambrian and Precambrian periods.

Bally

The geology of Bally is primarily derived from shale and limestone formations of the Triassic Period. The Triassic Brunswick Formations which consist of reddish-brown shale, siltstone, and mudstone, are in the central and eastern portions of the Borough. The limestone areas are found near the southern portion of the Borough. A third formation known as Hardyston exists in the moderately sloping areas along the Borough's northwestern edge; quartzite and sandstone comprise this formation.

Shale and limestone areas are characterized by pockets of shallow soil that do not allow adequate water filtration which

may cause ground water contamination. Limestone areas are also associated with sinkholes which can cause buildings, roads or other structures to collapse or otherwise be damaged. Sinkholes occur naturally but can be induced by grading or other construction activities which alter an areas drainage patterns.

The geological formations found in Bally typically provide low to moderate yields of groundwater. Wells in Bally, however, yield more than would be expected by the geology. A typical well would have a depth 250 to 325 feet and yield between 8-30 gpm although yields as high as 70 gpm have been reported. Water quality in Bally is good, however, some treatment may be necessary. The Borough's water supply is provided by the Bally Municipal Authority from a well located in the Borough's community park.

Bechtelsville

Geological formations in Bechtelsville are derived from the Cambrian Period Dolomite and Precambrian Granitic Gneiss. Bechtelsville's Dolomite is of the Leithsville Formation and is composed of medium to dark gray, crystalline dolomite. Leithsville Formation is found in the gently sloping areas of the Borough, primarily east of Main Street. The western portion of the Borough is composed of Granitic Gneiss, a light to medium grained quartz and feldspar mixture of igneous origin.

Groundwater yields within these geological formations is typically low to moderate. A typical well in Bechtelsville yields 8-20 gallons per minute and has a depth of 250 to 325 feet.

Bechtelsville's groundwater is of good quality and Borough relies on private wells for its water.

ANIMALS AND PLANTS OF SPECIAL CONCERN

Various state agencies and conservation groups maintain the Pennsylvania Natural Diversity Index (PNDI) which provides information on unique plants, animals and geological features in the State. Currently the PNDI list has no endangered species within either borough.