Appendix 11-2 Wetlands Absence/Presence Report for

Proposed STF's in the Villages of Andreas, Snyders,

South Tamaqua and Clamtown

APPENDIX 11-2

ABSENCE/PRESENCE DETERMINATION REPORT FOR JURISDICTIONAL WETLANDS FOR THE

PROPOSED MUNICPAL SEWAGE TREATMENT FACILITIES

IN THE VILLAGES OF ANDREAS, SNYDERS, SOUTH TAMAQUA AND CLAMTOWN

WEST PENN TOWNSHIP, SCHUYLKILL COUNTY

REPORT PREPARED BY:

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DECEMBER 2005

I. Introduction/ Executive Summary

On December 13, 2005, an absence/ presence determination for jurisdictional wetlands was conducted by Ludgate Engineering Corporation (LEC) personnel on four separate parcels in the Villages of Andreas, Snyders, South Tamaqua and Clamtown in West Penn Township, Schuylkill County Pennsylvania. These parcels have been identified by LEC as suitable sites for proposed facilities that will receive and treat sewage generated from the four villages. A fifth village, the Village of Reynolds located directly across the Little Schuylkill River from Clamtown, will convey its municipal sewage to the proposed treatment plant in Clamtown. This project is being completed under the auspices of the Pennsylvania Department of Environmental Protection (PADEP) as joint municipal Act 537 sewage facilities plan update.

Each of the four sites evaluated are currently vacant. It is anticipated that the footprint of each treatment facility will be approximately less than 1/4 acre. The wetland absence/ presence determinations were made by LEC in accordance with procedures set forth by the US Army Corps of Engineers (USACOE) Wetlands Delineation Manual of January 1987 (Manual).

Based on these procedures, LEC determined that due to the lack of dominant wetland vegetation, hydric soils and hydrology, jurisdictional wetlands do not exist on these sites. Data supporting this conclusion is provided in the following report and attachments.

II. Site Descriptions

Village of Andreas Site - This 4-acre tract, identified as tax parcel # 37-16.45.3 is owned by Refractory Sand Company, Inc. The proposed sewage treatment plant is located approximately 200' east of Andreas Road (T-382) and 75' north of Lizard Creek. The site is a wooded floodplain with mature trees and a sparse under story.

Village of Snyders - This 62.5-acre tract, identified as tax parcel # 37-21-7 is owned by Paul G. Breiner. The proposed sewage treatment plant is located approximately 250' south of the intersection of Synders Lane (T-986) and SR 0895 and 75' east of an unnamed tributary to Lizard Creek. The site is a wooded floodplain with mature trees and a sparse under story.

Village of South Tamaqua - This 2.9-acre tract, identified as tax parcel # 37-6-10.4 is owned by Beulah R. Stillman. The proposed sewage treatment plant is located approximately 150' west of SR 0443, 120' northeast of Saunders Run, a tributary to the Little Schuylkill River, and 350' south of a Wachovia Bank branch office. The site is near or within the floodplain and appears to have been cleared in the recent past as the vegetation consists of pioneer herbaceous plants, small shrubs and tree saplings.

Village of Clamtown - This 103.2-acre tract, identified as tax parcel # 37-11-55 is owned by Belle Terra Farms. The proposed sewage treatment plant is located approximately 100' east of the Little Schuylkill River and 350' south of the bridge that spans the river and connects Atlas and River Roads. The site is within the floodplain and appears to have recently been disturbed from clear-cut logging as evidenced by large stumps. Vegetation consists of pioneer herbaceous plants, small shrubs, tree saplings and mature trees that survived the recent logging.

Attachment "A"- Site Location Maps, contain sections of the USGS quadrangle maps depicting the approximate locations of the respective proposed sewage treatment facilities. More detailed plans of the four sewage service areas and proposed sewage treatment plant locations can be found in Book 1., Exhibits II-1 through II-4 of the Act 537 Plan Update document

III. Soils

Based on the Schuylkill County Soil Survey, the Andreas and Snyders study areas are mapped as At-Atkins Silt Loam, which is considered a hydric soil. However, the results of the onsite test pit samples did not exhibit characteristics of an Atkins soil (see Attachment "B"- USACOE Wetland Study Data Forms. Furthermore, the test pits did not reveal any evidence of hydric conditions (i.e. redoxomorphic features). At the South Tamaqua as the soils were mapped as Ba - Basher Silt Loam. However, as mentioned previously this site appears to have been disturbed. The soils on site do not met the mapped description, nor do they exhibit hydric characteristics. The soils at the Clamtown site are mapped UD – Udifluvents. This study plot description is similar to the description provided in the soil survey. No hydric soil conditions were noted at this site. For comparison purposes, the descriptions of the mapped soils from the Schuylkill County Soil Survey are found in Attachment "B" – Soil Survey Descriptions

III. Hydrology

No recorded hydrological data exists for these sites. In addition, during the site visit, there were no primary or secondary indicators of wetland hydrology present within the study area. Supporting data is found in Attachment "C"- USACOE Wetland Study Data Forms.

IV. Vegetation

Since this wetland absence/ presence determination was conducted well after the growing season, a completely accurate evaluation of the herb layer was not possible. However, a sufficient amount of plant remnants existed to allow for the determination of dominant species. Vegetation in the study areas consists of a single plant communities comprised of herbs, shrubs, sapling, vine and tree species that are listed as Facultative Wet (FACW), Facultative (FAC), Facultative Upland FACU or Upland (UPL). There were no Obligate (OBL) species present. Less than 50% of the dominant species observed at all of the study plots were OBL, FACW or FAC, therefore wetland vegetation was determined by LEC not to be present. Supporting data is found in Attachment "C"- USACOE Wetland Study Data Forms.

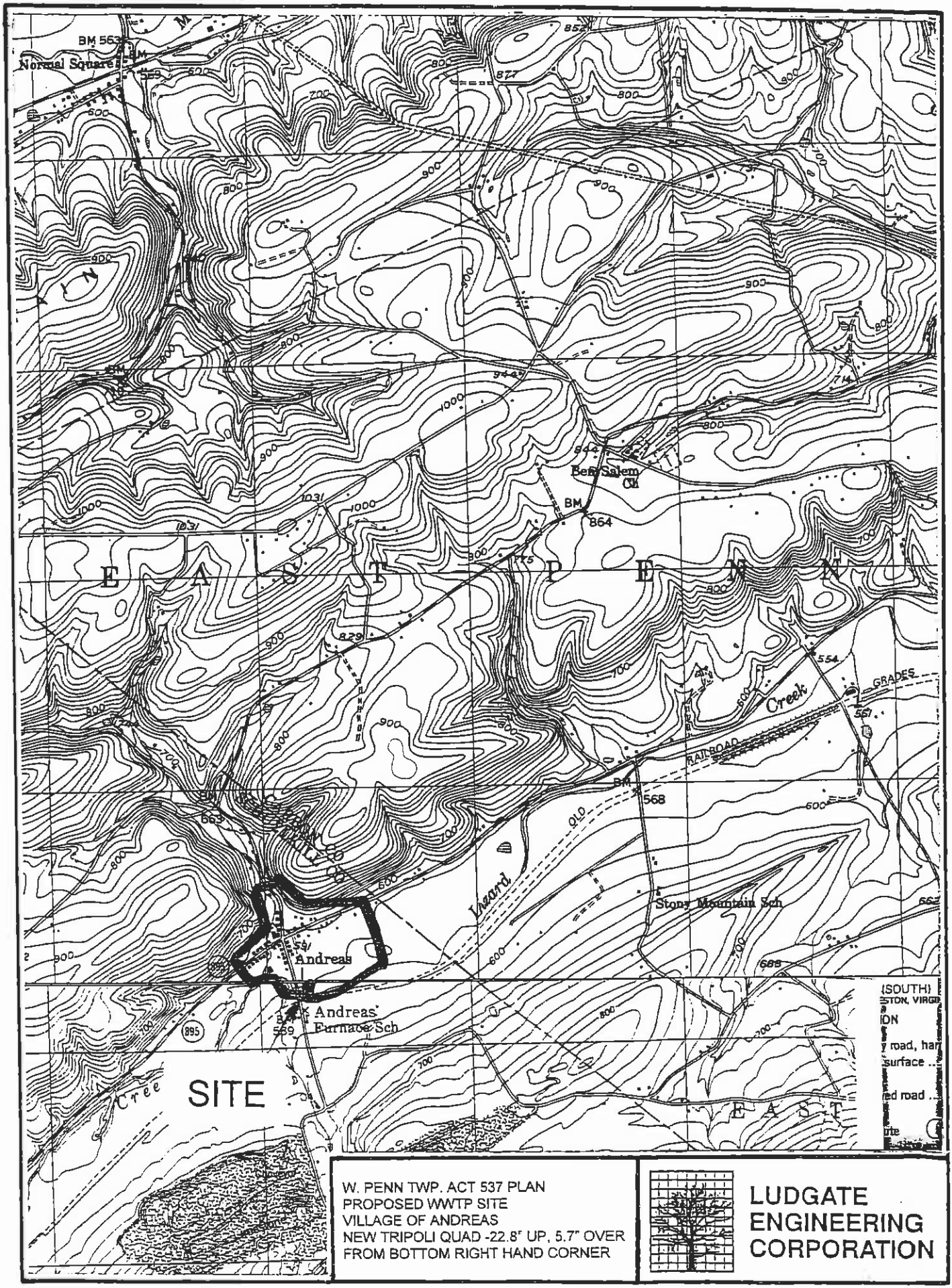
V. Procedure

As mentioned previously, this wetland absence/ presence determination was made by LEC accordance with procedures set forth by the US Army Corps of Engineers Wetlands Delineation Manual of January 1987. Since the footprints of proposed sewage treatment plants are small (less than ¼ acre), it was determined that one study plot per site was adequate, therefore no study baselines or transects were established. A pit was dug at each study plot to a minimum depth of 16". Soil color(s), texture and the absence/ presence of redoxomorphic features were noted at the required 10" depth. Absence/ presence of wetland hydrology were also noted at each plot. Percentage of vegetation based on aerial coverage was noted in each of the following strata: seedling/ herb, shrub, saplings, trees and vines. The percentages were used to calculate the dominant species in each stratum. Data obtained in the field was transferred to the USACOE wetland study data forms (see Attachment "C"). In addition, digital photographs were taken at each study plot and are found in Attachment "D" – Study Plot Photographs

VI. Conclusions

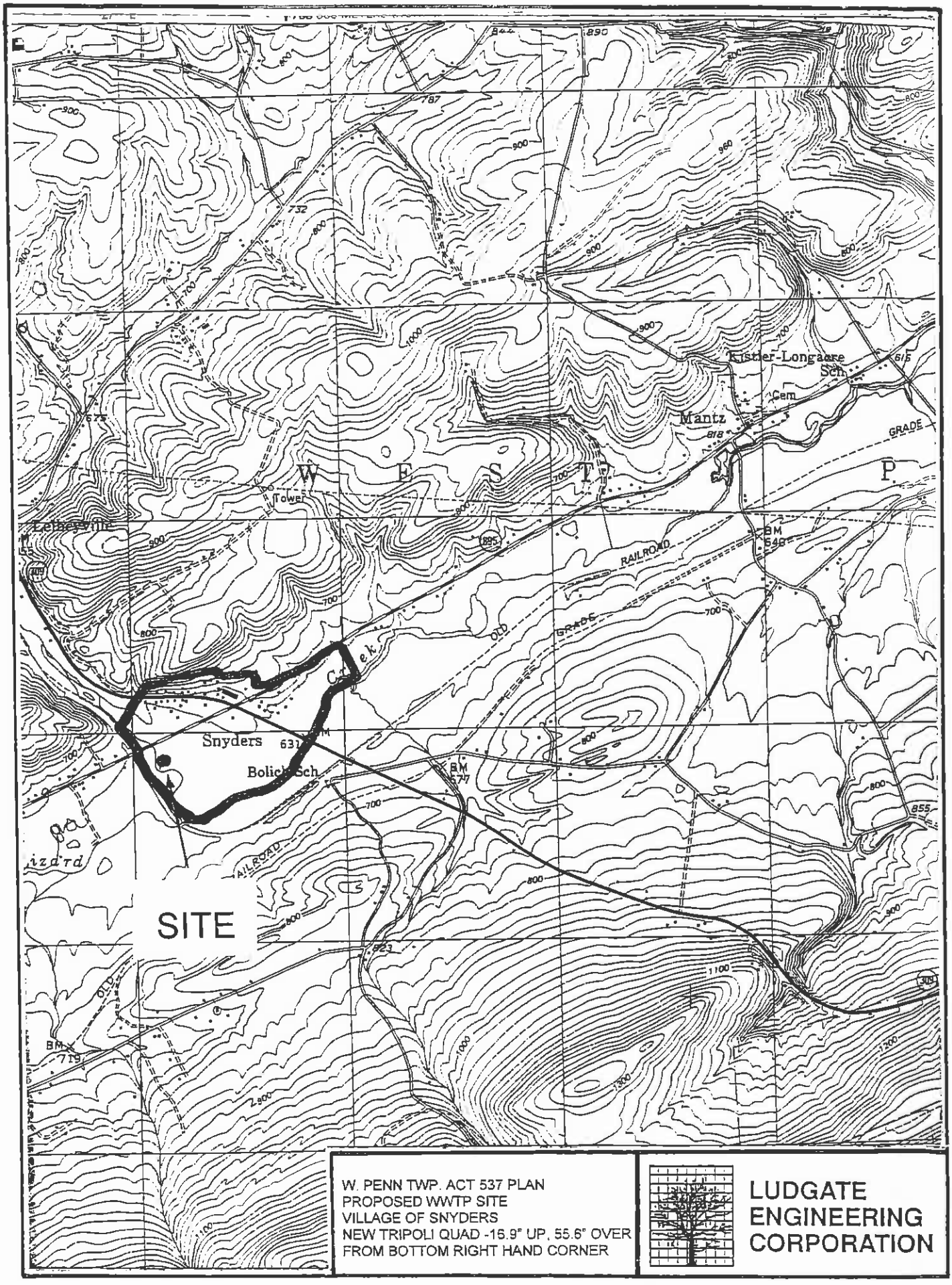
Based on the data obtained in the field by LEC and using the procedures set forth in the 1987 USACOE Wetlands Delineation Manual, the subject sites have been determined not to contain any jurisdictional wetlands.

Attachment "A"
Site Location Maps



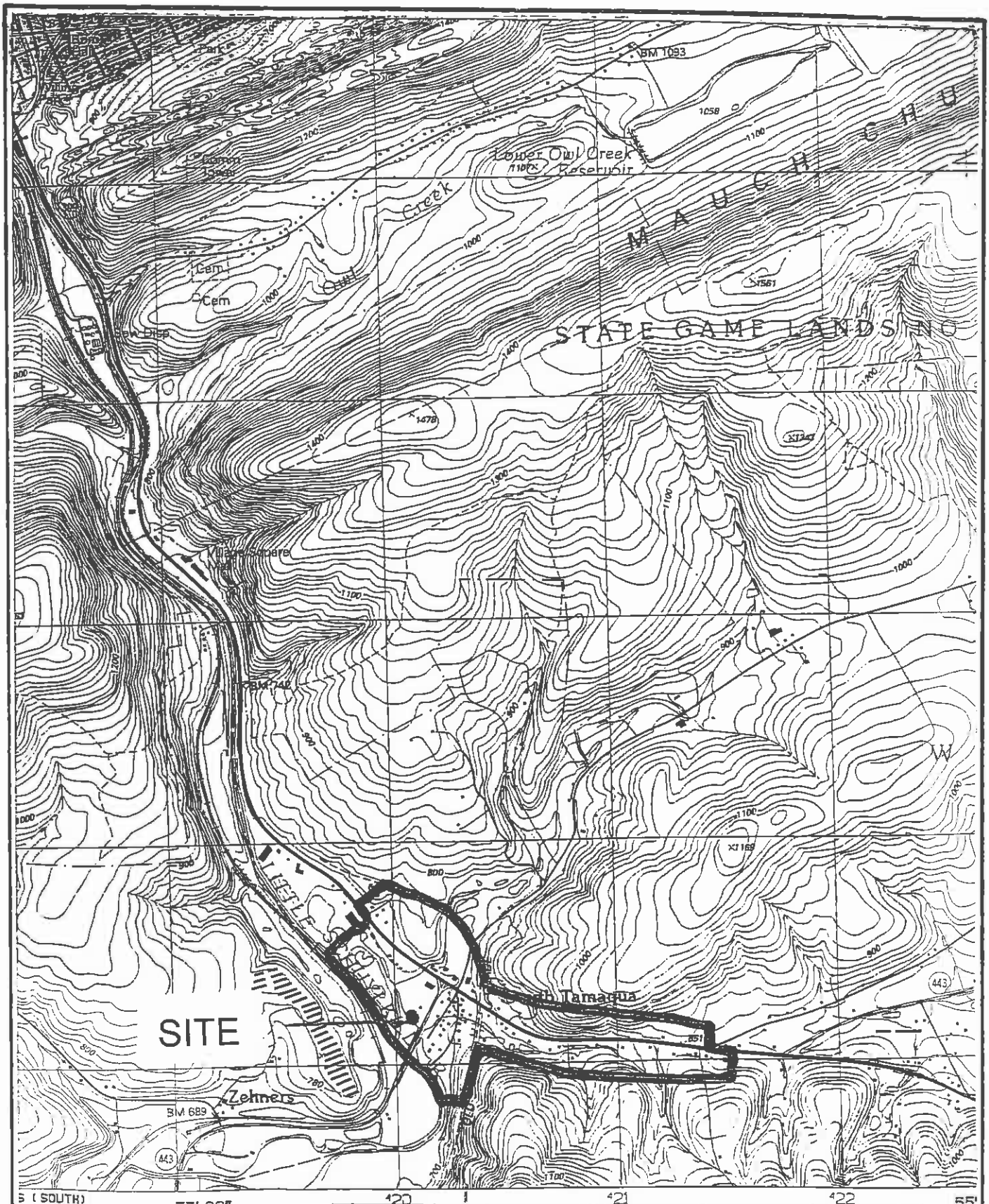
W. PENN TWP. ACT 537 PLAN
PROPOSED WWTP SITE
VILLAGE OF ANDREAS
NEW TRIPOLI QUAD -22.8" UP, 5.7" OVER
FROM BOTTOM RIGHT HAND CORNER

LUDGATE
ENGINEERING
CORPORATION



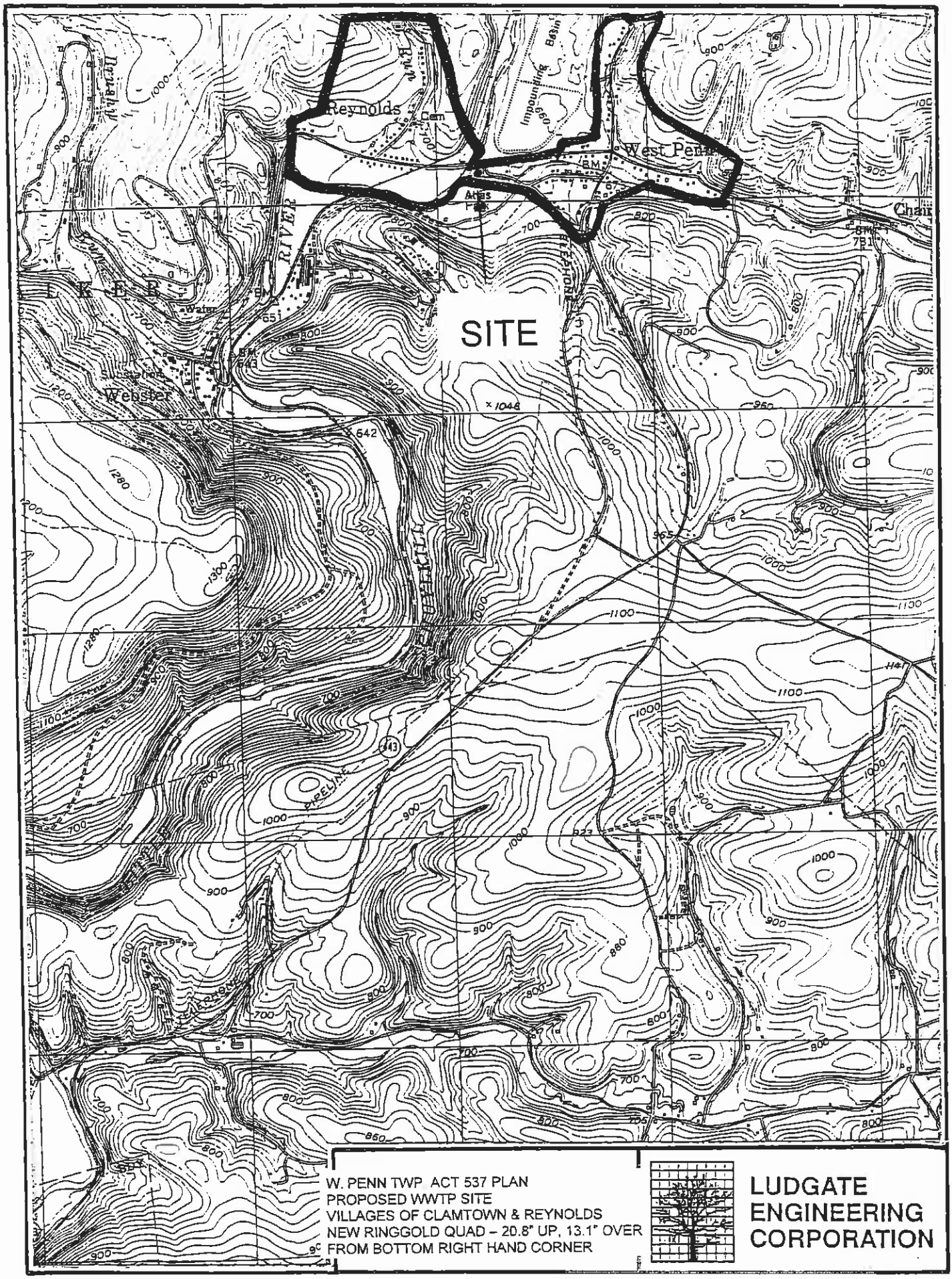
W. PENN TWP. ACT 537 PLAN
PROPOSED WWTP SITE
VILLAGE OF SNYDERS
NEW TRIPOLI QUAD -16.9° UP, 55.6° OVER
FROM BOTTOM RIGHT HAND CORNER

LUDGATE ENGINEERING CORPORATION



W. PENN TWP. ACT 537 PLAN
PROPOSED WWTP SITE
VILLAGE OF S. TAMAQUA
TAMAQUA QUAD – 1.3"UP, 9.9" OVER
FROM BOTTOM RIGHT HAND CORNER

LUDGATE ENGINEERING CORPORATION



W. PENN TWP ACT 537 PLAN
PROPOSED WWTP SITE
VILLAGES OF CLAMTOWN & REYNOLDS
NEW RINGGOLD QUAD – 20.8" UP, 13.1" OVER
FROM BOTTOM RIGHT HAND CORNER

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ENGINEERING
CORPORATION

Attachment "B"
Soil Survey Descriptions

Also included are small areas of Andover gravelly loam. The included soils make up as much as 15 percent of the map unit.

Permeability is slow, and available water capacity is moderate. Runoff is slow to medium. The lower part of the subsoil has a very firm and brittle fragipan. Numerous large stones are on the surface. A high water table is within a depth of 0 to 6 inches during wet periods. The rooting depth is restricted by the high water table and the fragipan. Unless limed, this soil is strongly acid and very strongly acid.

This Andover soil is mainly used for woodland. It has poor potential for cultivated crops and pasture, good potential for water-tolerant trees, and poor potential for most nonfarm uses.

This soil is poorly suited to cultivated crops and pasture because of the high water table and many large stones on the surface. Cultivation and harvesting are difficult because of stones.

This soil is suited to water-tolerant trees. Productivity is moderately high. Use of equipment is restricted because of many large stones on the surface and a high water table. Tall trees can be windthrown because of shallow rooting depth.

This Andover soil has limitations for most nonfarm uses because of a high water table, slow permeability, and numerous large stones on the surface.

This soil is in capability subclass VIIs and woodland group 3x.

At—Atkins silt loam. This nearly level, deep, poorly drained soil is on flood plains. Slopes are concave and about 200 to 500 feet long. Areas are long and narrow and are mainly 4 to 20 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsoil extends to a depth of 38 inches. It is mottled, olive gray silt loam in the upper 12 inches and mottled, olive gray loam in the lower 22 inches. The substratum is mottled, light olive gray gravelly sandy loam to a depth of 62 inches.

Included with this soil in mapping are areas of soils similar to this Atkins soil that are very poorly drained. Also included are small areas of Basher silt loam and Philo silt loam. The included soils make up as much as 5 to 15 percent of the map unit.

Permeability is moderate to slow, and available water capacity is high. A high water table is within a depth of 6 inches during wet periods. Runoff is very slow. Rooting depth is restricted by the high water table. Unless limed, this soil is strongly acid and very strongly acid. The hazard of erosion is slight.

This Atkins soil is mainly used for woodland and pasture. If drained, it has fair potential for cultivated crops and pasture. This soil has very good potential for water-tolerant trees. It has poor potential for most nonfarm uses because of flooding and a high water table.

If this soil is drained, it is suited to cultivated crops. Excess water causes the soil to warm slowly in spring. Surface and subsurface drains help remove excess water. Crops can be damaged by flooding.

This soil is fairly suited to pasture. Grazing and overgrazing of pasture when this soil is wet are main concerns of management. If the pasture is grazed when the soil is wet, the surface layer becomes compacted. Proper stocking rates to maintain key plant species, rotation of pasture, deferment of grazing, and restricted grazing during wet periods are chief management needs.

This soil is well suited to water-tolerant trees. Because of the high water table, the use of equipment is restricted during part of the year. Seedling mortality and the hazard of windthrow are management concerns.

This Atkins soil has limitations for most nonfarm uses. A high water table and flooding are serious limitations for onsite waste disposal.

This soil is in capability subclass IIIw and woodland group 1w.

Ba—Basher silt loam. This nearly level, deep, moderately well drained and somewhat poorly drained soil is on flood plains. Slopes are concave and about 300 to 600 feet long. Areas are long and narrow and are mainly 4 to 20 acres.

Typically, the surface layer is dark reddish brown silt loam about 10 inches thick. The subsoil is about 29 inches thick. It is reddish brown silt loam in the upper 11 inches and mottled, reddish brown fine sandy loam in the lower 18 inches. The substratum is mottled, reddish brown gravelly fine sandy loam and mottled, brown gravelly sandy loam to a depth of 60 inches.

Included with this soil in mapping are a few areas of Atkins silt loam and Linden silt loam. Also included are areas of Basher soils that are not subject to flooding. The included soils make up as much as 5 to 15 percent of the map unit.

Permeability is moderate, and available water capacity is high. Runoff is slow. A water table is within a depth of 18 to 24 inches during wet periods. This soil is subject to occasional flooding of brief duration. Unless limed, this soil is extremely acid to medium acid in the solum and very strongly acid to slightly acid in the substratum. The hazard of erosion is slight.

This Basher soil is used mainly for cultivated crops, pasture, and trees. It has good potential for these uses. Potential is limited for many nonfarm uses.

This soil is well suited to cultivated crops but is subject to flooding. Crops can be damaged by floods. Use of cover crops, crop residue, and grasses and legumes in the cropping system help maintain content of organic matter and good tilth. Where outlets are available, surface and subsurface drains help remove excess water and permit timely tillage.

This soil is suited to pasture. Overgrazing and grazing of pasture when the soil is wet are main concerns of management. If the pasture is grazed when the soil is wet, the surface layer becomes compacted. Proper stocking rates to maintain key plant species, rotation of

pasture, deferment of grazing, and restricted grazing during wet periods are chief management needs.

This soil is suited to trees. Removal of undesirable trees helps increase production. Use of equipment can be restricted briefly during wet periods because of the seasonal high water table. Machine planting is practical on large areas.

This soil has limitations for nonfarm uses, including recreation sites. Flooding and a seasonal high water table are serious limitations for onsite waste disposal and for buildings.

This soil is in capability subclass IIw and woodland group 2o.

BeB—Berks shaly silt loam, 3 to 8 percent slopes. This gently sloping, moderately deep, well drained soil is on hilltops. Slopes are slightly concave and about 300 to 600 feet long. Areas are rectangular and are mainly 10 to 40 acres.

Typically, the surface layer is dark brown, shaly silt loam about 8 inches thick. The subsoil is 23 inches thick. It is strong brown, shaly silt loam in the upper 6 inches; strong brown, very shaly silt loam in the next 8 inches; and yellowish red, very shaly silt loam in the lower 9 inches. The substratum is brown very shaly loam to a depth of 39 inches. Rippable shale bedrock is at a depth of 39 inches (fig. 3).

Included with this soil in mapping are small areas of Lehigh channery silt loam and areas of soils similar to the Berks soil that are deep to bedrock. The included soils make up as much as 5 to 15 percent of the map unit.

Permeability is moderate to moderately rapid, and available water capacity is low. Runoff is medium. Bedrock is at a depth of 20 to 40 inches. The rooting depth is restricted by moderate depth to bedrock. Unless limed, this soil is extremely acid to strongly acid in the solum. The hazard of erosion is moderate.

Most areas of this Berks soil are used for cultivated crops. A few areas are used for woodland. The soil has fair potential for cultivated crops, pasture, and trees. It has some limitations for nonfarm uses.

This soil is fairly suited to cultivated crops. Contour stripcropping, minimum tillage, sod waterways, diversions, and cover crops help reduce runoff and control erosion. Use of cover crops, crop residue, and grasses and legumes in the cropping system help maintain content of organic matter and tilth. The shaly surface layer interferes with the seeding and harvesting of some crops.

This soil is suited to pasture. Proper stocking rates to maintain key plant species, deferment of grazing, rotation of pasture, and application of plant nutrients are suitable methods of management.

This soil is suited to trees. About 25 percent of the acreage is used for woodland. Productivity is moderately high. Seedling mortality is a management concern. Removal of undesirable trees and construction of roads on the contour to reduce erosion are suitable methods of management. Machine planting is practical on large areas.

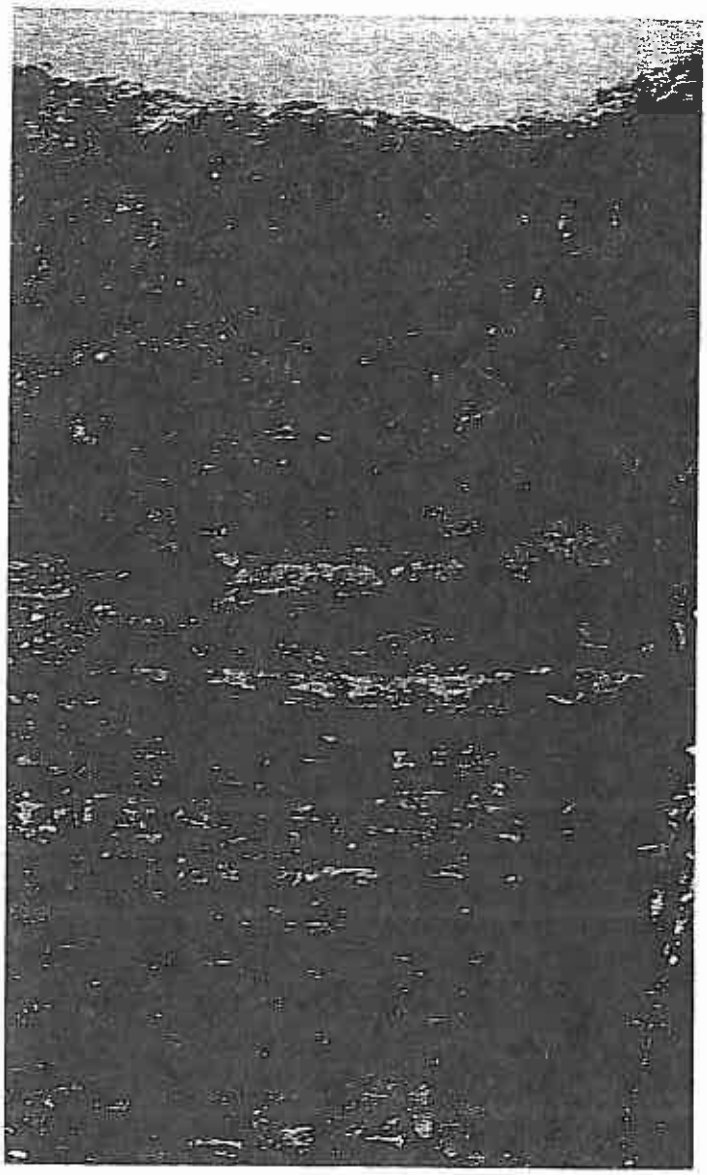


Figure 3.—Profile of moderately deep Berks shaly silt loam, 3 to 8 percent slopes. Bedrock is at a depth of about 39 inches.

This soil has limitations for many nonfarm uses because of moderate depth to bedrock and coarse fragments. Moderate depth to bedrock is a serious limitation for onsite waste disposal.

This soil is in capability subclass IIe and woodland group 3f.

BeC—Berks shaly silt loam, 8 to 15 percent slopes. This sloping, moderately deep, well drained soil is on the

UF—Udifluvents, gravelly. These nearly level and gently sloping, deep, well drained and moderately well drained soils are on flood plains and in colluvial fans. Slopes are smooth and range from 0 to 8 percent. Areas are long and narrow and are mainly 8 to 20 acres.

Udifluvents, gravelly, soils consist mainly of sediment of gravel, sand, and silt. The surface layer is about 2 to 7 inches thick. Bedrock is at a depth of 60 inches or more. Coarse fragments range from 0 to 85 percent.

Included with these soils in mapping are areas of Udifluvents, gravelly, soils that have numerous large and small stones on the surface. The included areas make up as much as 15 percent of the map unit.

Permeability is rapid, and available water capacity is very low. Runoff is slow. A seasonal high water table is within a depth of 18 to 36 inches during wet periods. Unless limed, these soils are extremely acid to strongly acid.

These Udifluvents soils are used mainly for woodland. They have poor potential for cultivated crops and pasture, good potential for trees, and poor potential for most nonfarm uses.

These soils are poorly suited to cultivated crops and pasture because they are gravelly and rapidly permeable, and have low fertility. In addition, there is a hazard of flooding.

These soils are suited to trees and are used mainly for woodland. Productivity is moderate to very high. Removal of undesirable trees helps increase production. Machine planting is limited because of the gravelly surface layer. Flooding restricts the use of equipment briefly during wet periods.

Udifluvents, gravelly, soils have limitations for most nonfarm uses because of rapid permeability, a high content of gravel, flooding, and a seasonal high water table.

These soils are not assigned to a capability class or woodland group.

UM—Udorthents, strip mine. These gently sloping to very steep, deep, well drained soils are on mountains and in valleys. Slopes vary in shape and length. Areas are rectangular and are 100 to several hundred acres.

Udorthents, strip mine, soils consist mainly of materials derived from residual and colluvial soils and underlying quartzite, conglomerate, slate, and shale. Bedrock is below a depth of 60 inches. Coarse fragments range from 25 to 90 percent.

Included with these soils in mapping are a few small areas of Dumps, mine, and Dumps, coal waste. Also included are areas of undisturbed soils. These soils are so intricately mixed that it was not practical to separate them from Udorthents, strip mine soils. The included soils make up as much as 20 percent of the map unit.

Figure 14.—Typical area of Udorthents, strip mine. The gray birch and quaking aspen are of natural regeneration.

medium subangular blocky; very firm and brittle, slightly sticky, slightly plastic; thick continuous clay films on prism faces and thin on peds; 30 percent coarse fragments; strongly acid; clear wavy boundary.

Bx2g—30 to 46 inches; brown (10YR 5/3) gravelly sandy clay loam; faces of prisms are gray (10YR 6/1); many coarse distinct brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) mottles; weak very coarse prismatic structure parting to weak medium subangular blocky; very firm and brittle, slightly sticky, slightly plastic; thin continuous clay films on prisms and peds; 30 percent coarse fragments; strongly acid; clear wavy boundary.

C—46 to 62 inches; brown (10YR 5/3) gravelly sandy loam; many coarse distinct gray (10YR 6/1) and brown (10YR 5/4) mottles; massive; firm, nonsticky, slightly plastic; 40 percent coarse fragments; strongly acid.

The solum ranges from 40 to 55 inches in thickness. Depth to bedrock is 60 inches or more. Depth to the fragipan is 16 to 28 inches. Coarse fragments range from 10 to 40 percent in the solum and from 10 to 50 percent in the C horizon. Reaction is strongly acid and very strongly acid.

The A1 horizon has hue of 10YR and 2.5Y, value of 2 and 3, and chroma of 1 and 2. The A2 horizon, if present, has hue of 10YR and 2.5Y, value of 4 and 5, and chroma of 2. The Ap horizon has hue of 10YR and 2.5Y, value of 4 and 5, and chroma of 2 and 3.

The B1 and B2t horizons have hue of 10YR and 2.5Y, value of 4 through 6, and chroma of 1 and 2. The fine earth texture is loam, clay loam, or sandy clay loam. The Bx horizon is neutral or has hue of 10YR and 2.5Y, value of 4 through 6, and chroma of 0 through 4. The fine earth texture is loam, clay loam, or sandy clay loam.

The C horizon is neutral or has hue of 5YR through 5Y, value of 4 through 6, and chroma of 0 through 3. The fine earth texture is sandy clay loam, loam, or sandy loam.

Atkins series

Soils of the Atkins series are fine-loamy, mixed, acid, mesic Typic Fluvaquents. These soils are deep and poorly drained, and have moderate to slow permeability. They formed in alluvial soil material and are along streams and rivers. Slopes range from 0 to 3 percent.

Atkins soils are near the deep, moderately well drained Philo soils and the deep, well drained Pope soils.

Typical profile of Atkins silt loam, in woodland, Blythe Township, 200 yards southeast of New Philadelphia, 250 feet south of the Schuylkill River, and 1,000 feet southeast of Route 53098:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; nonsticky, nonplastic; many roots; 5 percent coarse fragments; very strongly acid; abrupt smooth boundary.

B1g—4 to 16 inches; olive gray (5Y 4/2) silt loam; few fine prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable, nonsticky, nonplastic; few roots; 5 percent coarse fragments; strongly acid; clear smooth boundary.

B2g—16 to 38 inches; olive gray (5Y 5/2) loam; many medium prominent yellowish red (5YR 5/8) mottles; weak coarse and medium subangular blocky structure; friable, nonsticky, nonplastic; few roots; 10 percent coarse fragments; strongly acid; gradual smooth boundary.

Cg—38 to 62 inches; light olive gray (5Y 6/2) gravelly sandy loam; common coarse prominent yellowish red (5YR 5/8) mottles; massive; friable, nonsticky, nonplastic; 20 percent coarse fragments; strongly acid.

The solum ranges from 30 to 50 inches in thickness. Depth to bedrock is 60 inches or more. Coarse fragments range from 0 to 20 percent in the solum and from 0 to 30 percent or more in the C horizon. Reaction is very strongly acid and strongly acid.

The A horizon has hue of 10YR, value of 4 through 7, and chroma of 1 and 2.

The B horizon is neutral or has hue of 10YR through 5Y, value of 4 through 7, and chroma of 0 through 2. The fine earth texture is silty clay loam, loam, clay loam, or silt loam.

The C horizon is neutral or has hue of 10YR through 5Y, value of 5 and 6, and chroma of 0 through 8. The fine earth texture is silty clay loam, loam, silt loam, or sandy loam. Some pedons have a IIC horizon of sand and gravel.

Basher series

Soils of the Basher series are coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts. These soils are deep, moderately well drained and somewhat poorly drained and have moderate permeability. They formed in alluvial soil material and are along streams and rivers. Slopes range from 0 to 3 percent.

Basher soils are near the deep, well drained Linden soils and the deep, poorly drained Atkins soils.

Typical pedon of Basher silt loam, in cropland, South Manheim Township, 1/2 mile east of the intersection of Routes T657 and 53007, along the south side of Route T657, 50 feet south of Red Creek:

Ap—0 to 10 inches; dark reddish brown (5YR 3/3) silt loam; weak fine and medium granular structure; friable, nonsticky, nonplastic; many small and medium roots; 5 percent coarse fragments; very strongly acid; clear smooth boundary.

B21—10 to 21 inches; reddish brown (5YR 4/3) silt loam; weak coarse subangular blocky structure; fri-

able, nonsticky, slightly plastic; few medium roots; 5 percent coarse fragments; strongly acid; clear smooth boundary.

B22—21 to 39 inches; reddish brown (5YR 4/3) fine sandy loam; many coarse distinct light gray (10YR 6/1) mottles; weak coarse subangular blocky structure; friable, nonsticky, nonplastic; few small roots; 5 percent coarse fragments; strongly acid; clear wavy boundary.

C1—39 to 43 inches; reddish brown (5YR 4/3) gravelly fine sandy loam; common coarse distinct gray (5YR 5/1) and reddish yellow (5YR 6/8) mottles; massive; friable; 15 percent coarse fragments; strongly acid; clear wavy boundary.

C2—43 to 60 inches; brown (7.5YR 5/2) gravelly sandy loam; many coarse distinct gray (5YR 5/1) mottles; massive; friable; 25 percent coarse fragments; strongly acid.

The solum ranges from 16 to 40 inches in thickness. Depth to bedrock or strongly contrasting material is more than 40 inches. Coarse fragments range from 0 to 20 percent in the solum and from 0 to 50 percent in the C horizon. Reaction is extremely acid to medium acid in the solum and very strongly acid to slightly acid in the C horizon.

The Ap horizon has hue of 2.5YR through 10YR, value 3 and 4, and chroma of 2 through 4. The fine earth texture is mainly silt loam but is loam or fine sandy loam in some areas.

The B horizon has hue of 2.5YR through 7.5YR, value of 3 through 5, and chroma of 3 through 6. It has mottles with chroma of 2 or less within a depth of 24 inches. The fine earth texture is loam, silt loam, or fine sandy loam.

The C horizon has hue of 5YR through 2.5Y, value of 3 through 5, and chroma of 1 through 4. The fine earth texture is loam or silt loam to fine sandy loam in the upper part of the horizon and sand in the lower part.

Berks series

Soils of the Berks series are loamy-skeletal, mixed, mesic Typic Dystrochrepts. These soils are moderately deep and well drained and have moderate and moderately rapid permeability. They formed in residual soil material and are on the tops and sides of hills. Slopes range from 3 to 25 percent.

Berks soils are near the deep, well drained Hartleton and Allenwood soils and the shallow, well drained Weikert soils.

Typical profile of Berks shaly silt loam, 8 to 15 percent slopes, in a hayfield, West Brunswick Township, 1-1/4 miles south of Orwigsburg, 2,000 feet south of Route PA 61, and 5,000 feet southwest of Zion Church:

Ap—0 to 8 inches; dark brown (10YR 4/3) shaly silt loam; weak fine granular structure; friable, nonsticky, nonplastic; many fine and medium roots; 35 percent coarse fragments; medium acid; abrupt smooth boundary.

B21—8 to 14 inches; strong brown (7.5YR 5/6) shaly silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; 35 percent coarse fragments; strongly acid; clear wavy boundary.

B22—14 to 22 inches; strong brown (7.5YR 5/6) very shaly silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; few roots; 50 percent coarse fragments; strongly acid; clear wavy boundary.

B3—22 to 31 inches; yellowish red (5YR 4/6) very shaly silt loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few roots; 70 percent coarse fragments; very strongly acid; gradual wavy boundary.

C—31 to 39 inches; brown (7.5YR 4/4) very shaly loam; massive; friable, nonsticky, nonplastic; 80 percent coarse fragments; very strongly acid.

R—39 inches; grayish brown (10YR 5/2) and weak red (5YR 5/2) shale; rippable.

The solum ranges from 18 to 36 inches in thickness. Depth to bedrock ranges from 20 to 40 inches. Coarse fragments range from 15 to 50 percent in the A horizon, from 15 to 75 percent in the individual B horizons, and from 40 to 80 percent in the C horizon. The weighted average content of coarse fragments in the control section ranges from 35 to 75 percent. Reaction is extremely acid to strongly acid in the solum and extremely acid to medium acid in the C horizon.

The Ap horizon has hue of 10YR, value of 3 through 5, and chroma of 3. The fine earth texture is mainly silt loam, but it is loam in some areas.

The B horizon has hue of 10YR and 7.5YR and ranges through 5YR in the lower part. It has value of 4 through 6 and chroma of 3 through 6. The fine earth texture is silt loam or loam.

The C horizon has hue of 10YR and 7.5YR, value of 4 through 6, and chroma of 3 through 6. The fine earth texture is mainly loam.

Buchanan series

Soils of the Buchanan series are fine-loamy, mixed, mesic Aquic Fragiudults. These soils are deep and moderately well drained and somewhat poorly drained and have slow permeability. They formed in colluvium and are on foot slopes, along drainageways, and in depressional areas. Slopes range from 3 to 25 percent.

Buchanan soils are near the deep, well drained Laidig soils and the deep, poorly drained Andover soils.

Typical pedon of Buchanan gravelly loam in an area of Buchanan extremely stony loam, 3 to 8 percent slopes, in woodland, New Castle Township, 1-1/3 miles northwest of New Castle, 1-1/2 miles northeast of Coal Castle:

The Ap horizon has hue of 10YR and 2.5Y, value of 3 through 5, and chroma of 1 and 2. In some pedons, the A1 horizon is neutral or has hue of 10YR and 2.5Y, value of 2, and chroma of 0 and 1. In some pedons, the A2 horizon is neutral or has hue of 10YR and 2.5Y, value of 5 and 6, and chroma of 0 and 1.

The Bt horizon has hue of 10YR and 2.5Y, value of 5 and 6, and chroma 1 through 4. Faces of prisms and peds are neutral or have hue of 10YR and 2.5Y, value of 5 through 7, and chroma of 0 through 2. The fine earth texture is silt loam or silty clay loam. The Bx horizon has hue of 7.5YR through 2.5Y, value of 4 through 6, and chroma of 2 through 4. Faces of prisms and plates are neutral or have hue of 10YR and 2.5Y, value of 5 through 7, and chroma of 0 through 2. The fine earth texture is silt loam, loam, clay loam, or silty clay loam.

The C horizon is neutral or has hue of 7.5YR through 2.5Y, value of 5, and chroma of 0 through 3. The fine earth texture is silt loam or loam.

Udifluvents

Udifluvents are deep, well drained and moderately well drained soils that have rapid permeability. They formed in stratified fine coal sediment of fluvial origin and stratified gravel, sand, and silt sediment of fluvial and fluvial-colluvial origin along the banks of streams and rivers. Slopes range from 0 to 8 percent.

Udifluvents are near the Pope, Linden, Philo, Basher, and Atkins soils.

Udifluvents do not have distinct horizons. Depth to bedrock is 60 inches or more. Coarse fragments range from 0 to 85 percent. Reaction is extremely acid to strongly acid.

The A horizon, where present, has hue of 10YR through 7.5YR, value of 2 through 5, and chroma of 0 through 3. The fine earth texture is silt loam, sandy loam, or loam. The A horizon is 2 to 7 inches thick.

The C horizon has hue of 10YR through 5YR, value of 2 through 6, and chorma of 3 through 8. The fine earth texture is silt, loam, sandy loam, or loamy sand. In some places, Udifluvents have chroma of 2 or less below a depth of 16 inches.

Udorthents

Udorthents are deep, well drained soils that have slow to rapid permeability. These soils are on the tops and sides of mountains and in valleys. Slopes range from 3 to 80 percent.

Udorthents are near the Dekalb, Hazleton, Edgemont, Laidig, and Buchanan soils.

Udorthents do not have distinct horizons. Bedrock is below a depth of 60 inches. Coarse fragments range from 25 to 90 percent. These soils are strongly acid to extremely acid.

Udorthents have hue of 10YR through 5YR, value of 3 through 6, and chroma of 1 through 3. The fine earth texture is mostly sandy loam, loamy sand, sandy clay loam, or loam.

Udults

Udults are deep, somewhat poorly drained to well drained soils that have slow to moderately rapid permeability. They formed in residual and colluvial soil material. These soils are on foot slopes and on the tops and sides of hills and mountains. Slopes range from 3 to 25 percent.

Udults are small areas of Allenwood, Leck Kill, Hartleton, Clymer, Laidig, Buchanan, Meckesville, Watson, and Kedron soils. They are adjacent to Urban land.

Some Udults soils have a fragipan. Depth to bedrock ranges from 42 to 60 inches or more. Coarse fragments range from 5 to 50 percent. Reaction is extremely acid to medium acid.

The A horizon has hue of 10YR through 7.5YR, value of 3 through 5, and chroma of 2 through 4. The fine earth texture ranges from silt loam to loam.

The B horizon has hue of 10YR through 2.5YR, value of 4 through 6, and chroma of 3 through 6. The fine earth texture ranges from silt loam to clay loam.

The C horizon has hue of 10YR through 2.5YR, value of 4 through 6, and chroma of 3 through 6. The fine earth texture ranges from silt loam to clay loam.

Watson series

Soils of the Watson series are fine-loamy, mixed, mesic Typic Fragiudults. These soils are deep and moderately well drained and have slow permeability. They formed in colluvial soil material and are on foot slopes, along drainageways, and in depressional areas. Slopes range from 3 to 15 percent.

Watson soils are near the deep, somewhat poorly drained Alvira soils and the deep, poorly drained Shelmadine soils.

Typical pedon of Watson silt loam, 3 to 8 percent slopes, in cropland, East Brunswick Township, 300 yards east of Orwigsburg Borough limits, 150 feet north of Route PA 443:

Ap—0 to 8 inches; dark brown (7.5YR 4/2) silt loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many roots; 10 percent coarse fragments; medium acid; abrupt smooth boundary.

B21t—8 to 17 inches; strong brown (7.5YR 5/6) gravelly silt loam; weak medium angular blocky structure; firm, slightly sticky, slightly plastic; few roots; thin continuous clay films on peds; 15 percent coarse fragments; strongly acid; clear wavy boundary.

B22t—17 to 28 inches; reddish yellow (7.5YR 6/6) gravelly silty clay loam; moderate medium blocky structure; firm, slightly sticky, plastic; few roots; thin continuous clay films on peds; 20 percent coarse fragments; strongly acid; clear wavy boundary.

Attachment "C"
USCOE Wetland Study Data Forms

Andreas

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities | TRANSECT: N/A | PLOT: Footprint of Proposed STP Sec#1 Andreas

DELINEATOR(S): Wayne Bowen | DATE: 12-13-05

VEGETATION

Stratum and Species		Dominance Ratio	Percent Dominance	DOM X	NWI Status
SEEDLINGS + HERBS					
Amaranthus retroflexus	20%	20/85	23	X	FACU
Solidago rugosa	20%	20/85	23	X	FAC
Eupatorium rugosum	20%	20/85	23	X	FACU-
Rhus radicans	15%	15/85	18		
Rye Grass (sp)	10%	10/85	12		
SHRUBS					
Berberis thunbergii	30%	30/55	55	X	FACU
Lindera benzoin	25%	25/55	45	X	FACW-
TREES					
Acer rubrum	40%	40/120	33	X	FAC
Quercus borealis	30%	30/120	28	X	UPL
Fraxinus americana	25%	25/120	21	X	FACU
Liriodendron tulipifera	25%	25/120	21	X	FACU

HYDROPHYTES

OBL	FACW	FAC	*OTHER
	1	2	

Hydrophytes Subtotal (A): 3

NON-HYDROPHYTES

FAC-	FACU	UPL
	5	1

Non-hydrophytes Subtotal (B): 6

PERCENT HYDROPHYTES (100A/A+B): 3/9 = 33%

HYDROLOGY

☐ RECORDED DATA
- Stream, lake, or tidal gage — Identification: _____
- Aerial photography — Identification: _____
- Other — Identification: _____

☒ NO RECORDED DATA

☐ OBSERVATIONS:
- Depth to Free Water: None
- Depth to Saturation (including capillary fringe): None
- Altered Hydrology (explain): None

☐ Inundated ☐ Saturated in upper 12" ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns within Wetland

☐ OTHER (explain):

Andreas

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-16	A	10YR 3/4		Loam, med. granular, friable

HYDRIC SOIL INDICATOR(S): None REFERENCE(S):

Sample did not match soil survey description

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	☐	☒	
Hydric soils criterion met?	☐	☒	
Wetland hydrology criterion met?	☐	☒	
IS THIS DATAPOINT IN A WETLAND?	☐	☒	

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities TRANSECT: N/A PLOT: Footprint of Proposed STP 1

Snyders

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities
TRANSECT: N/A
PLOT: Footprint of Proposed STP Site #2 Snyders
DELINEATOR(S): Wayne Bowen
DATE: 12-13-05

VEGETATION

Stratum and Species		Dominance Ratio	Percent Dominance	DOM	NWI Status
HERBS					
Solidago canadensis	30%	30/55	55	X	FACU
Rhus radicans	25%	25/55	45	X	FAC
SHRUBS					
Lindera benzoin	30%	30/60	50	X	FACW-
Rosa multiflora	30%	30/60	50	X	FAC
TREES					
Acer rubrum	40%	40/120	33	X	FAC
Quercus alba	20%	20/120	17	X	FACU
Quercus borealis	20%	20/120	17	X	UPL
Prunus serotina	20%	20/120	17	X	FACU
Fraxinus americana	20%	20/120	17	X	FACU

HYDROPHYTES

OBL	FACW	FAC	*OTHER
	1	3	

Hydrophytes Subtotal (A): 4

NON-HYDROPHYTES

FAC-	FACU	UPL
	4	1

Non-hydrophytes Subtotal (B): 5

PERCENT HYDROPHYTES (100A/A+B): 4/9 = 44%

HYDROLOGY

☐ RECORDED DATA
- Stream, lake, or tidal gage — Identification: _____
- Aerial photography — Identification: _____
- Other — Identification: _____

☒ NO RECORDED DATA

☐ OBSERVATIONS:
- Depth to Free Water: None
- Depth to Saturation (including capillary fringe): _____
- Altered Hydrology (explain): _____

☐ Inundated ☐ Saturated in upper 12" ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns within Wetland

☐ OTHER (explain):

Snyders

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-5	A	10YR 3/6		Silt loam, med. granular friable
5-16	B	5YR 4/4	5YR 5/8 few, faint mottles	Silt loam, MSAB, friable

HYDRIC SOIL INDICATOR(S): REFERENCE(S):

B horizon below 10" is mottled, however matrix chroma is > than 2, therefor soil is not hydric

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	☐	☒	
Hydric soils criterion met?	☐	☒	
Wetland hydrology criterion met?	☐	☒	
IS THIS DATAPOINT IN A WETLAND?	☐	☒	

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities TRANSECT: N/A PLOT: Footprint of Proposed STP #2

South Tamaqua

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities

TRANSECT: N/A

PLOT: Footprint of Proposed STP Site South Tamaqua #3

DELINEATOR(S): Wayne Bowen

DATE: 12-13-05

VEGETATION

Stratum and Species		Dominance Ratio	Percent Dominance	DOM	NWI Status
HERBS					
Solidago canadensis	80%	80/80	100	X	FACU
SHRUBS					
Rosa multiflora	40%	40/45	89	X	FAC
Acer rubrum	5%	5/45	11		FAC
SAPLINGS					
Prunus pennsylvanica	35%	35/40	88	X	FACU-
Acer rubrum	5%	5/40	12		FAC

HYDROPHYTES

OBL	FACW	FAC	*OTHER
		1	

Hydrophytes Subtotal (A): 1

NON-HYDROPHYTES

FAC-	FACU	UPL
	2	

Non-hydrophytes Subtotal (B): 2

PERCENT HYDROPHYTES (100A/A+B): 1/3 = 33%

HYDROLOGY

☐ RECORDED DATA
- Stream, lake, or tidal gage — Identification: _____
- Aerial photography — Identification: _____
- Other — Identification: _____

☒ NO RECORDED DATA

☐ OBSERVATIONS:
- Depth to Free Water: None
- Depth to Saturation (including capillary fringe): _____
- Altered Hydrology (explain): _____

☐ Inundated ☐ Saturated in upper 12" ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns within Wetland

☐ OTHER (explain):

South Tamaqua

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-8	A	10YR 3/3	none	channery s. lt loam, med granular friable
8-16	B	10YR 5/3	none	channery silt loam, MSMO

HYDRIC SOIL INDICATOR(S): No hyric soil indicators

REFERENCE(S):

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	☐	☒	
Hydric soils criterion met?	☐	☒	
Wetland hydrology criterion met?	☐	☒	
IS THIS DATAPOINT IN A WETLAND?	☐	☒	

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities TRANSECT: N/A PLOT: Footprint of Site Proposed STP #3

Clayton

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-16	A	10YR 0/2	none	Coal silt, loose granular. w/ channery fragments

HYDRIC SOIL INDICATOR(S): None

REFERENCE(S):

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	☐	☒	
Hydric soils criterion met?	☐	☒	
Wetland hydrology criterion met?	☐	☒	
IS THIS DATAPOINT IN A WETLAND?	☐	☒	

PROJECT TITLE: West Penn Twp. Act 537 Plan Proposed Sewage Treatment Facilities TRANSECT: N/A PLOT: Footprint of Proposed STP #4

Clantown

PROJECT TITLE: West Penn Twp Act 537 Plan Proposed Sewage Treatment Facilities | TRANSECT: N/A | PLOT: Footprint of Proposed STP Clantown Site #4

DELINEATOR(S): Wayne Bowen | DATE: 12-13-05

VEGETATION

Stratum and Species		Dominance Ratio	Percent Dominance	DOM	NWI Status
HERBS					
Microstegium nepal	70%	70/90	78	X	FAC
Eupatorium rugosum	20%	20/90	22	X	FACU-
SHRUBS					
Berberis thunbergii	25%	25/25	100	X	FACU
TREES					
Quercus borealis	20%	20/80	25	X	UPL
Betula lenta	20%	20/80	25	X	FACU
Fraxinus americana	20%	20/80	25	X	FACU
Acer rubrum	20%	20/80	25	X	FAC

HYDROPHYTES

OBL	FACW	FAC	*OTHER
		2	

Hydrophytes Subtotal (A): 2

NON-HYDROPHYTES

FAC-	FACU	UPL
	4	1

Non-hydrophytes Subtotal (B): 5

PERCENT HYDROPHYTES (100A/A+B): 2/7 = 29%

HYDROLOGY

☐ RECORDED DATA
- Stream, lake, or tidal gage — Identification: _____
- Aerial photography — Identification: _____
- Other — Identification: _____

☒ NO RECORDED DATA

☐ OBSERVATIONS:
- Depth to Free Water: none
- Depth to Saturation (including capillary fringe): _____
- Altered Hydrology (explain): _____

☐ Inundated ☐ Saturated in upper 12" ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns within Wetland

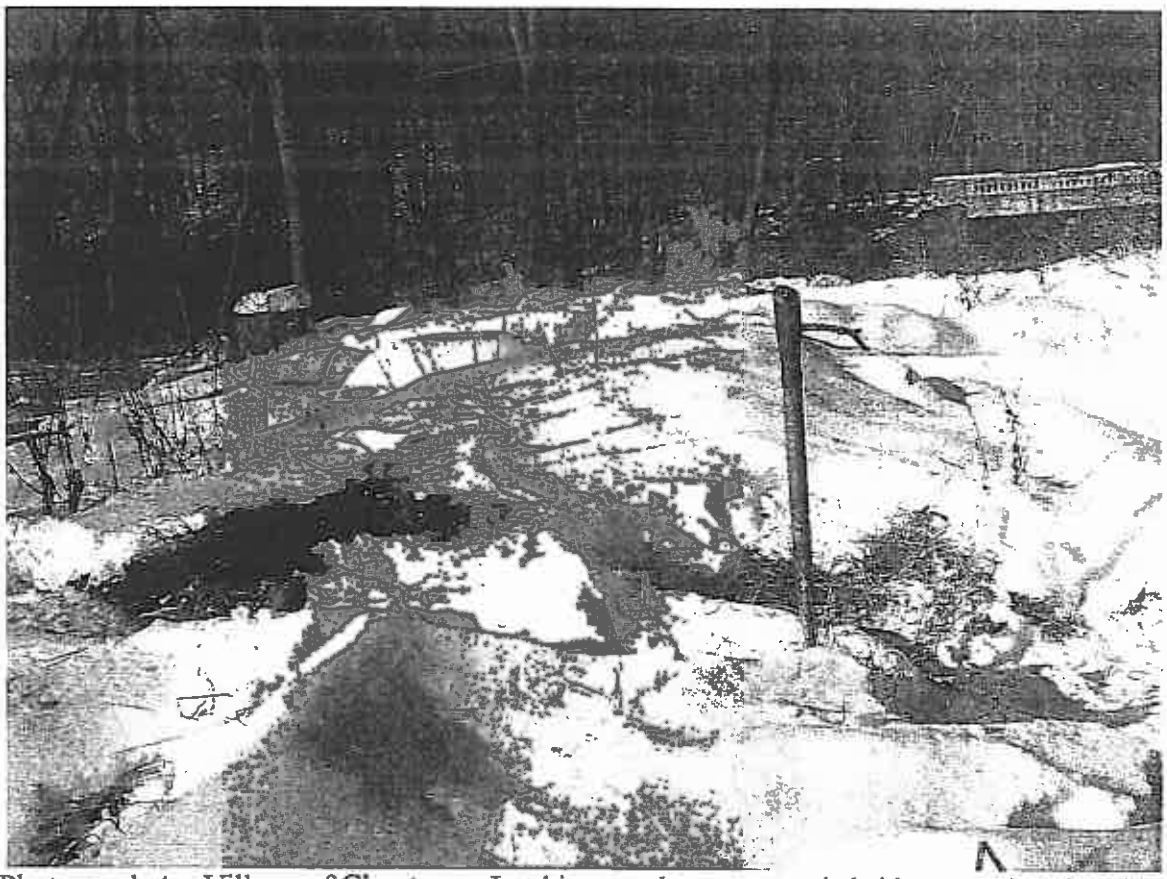
☐ OTHER (explain):

Attachment "D"
Study Plot Photographs

Photograph 1 – Village of Andreas. Standing at study plot looking north towards the village

Photograph 2 – Village of Snyders. Looking south toward unnamed tributary to Lizard Creek

Photograph 3 – Village of South Tamaqua. Looking north towards Wachovia Bank



Photograph 4 – Village of Clamtown. Looking northwest towards bridge crossing the Little Schuylkill River