KISKIMINETAS TOWNSHIP

ENVIRONMENTAL REPORT

FOR

ACT 537 SEWAGE FACILITIES PLAN UPDATE

(ORCHARD HILL AREA)

AUGUST 2024

PREPARED BY:

SENATE ENGINEERS AND SURVEYORS, DIVISION OF LSSE
420 WILLIAM PITT WAY
PITTSBURGH, PA 15238

Contents

KISKIMINETAS TOWNSHIP
Armstrong County, PA

Uniform Environmental Report
Orchard Hills Area – Act 537 Plan - Sanitary Sewer Project

Chapter 1: Project Need and Description

1.1 Project Purpose and Scope

1.1.1 The proposed project is being undertaken by Kiskiminetas Township (Township) to fulfill the requirements as set forth in the Pennsylvania Sewage Facilities Act (Act 537) to address known and suspected failing onlot septic systems, as well as wildcat sewers contaminating groundwater and surface waters with bacteria, viruses, nutrients, and oxides of nitrogen. These contaminates can produce toxic conditions that lead to poor health and death in wildlife, as well as the general public.

The final review of sanitary surveys and assessments was performed by the Township Sewage Enforcement Officer (SEO), Rebecaa Rupert and members of the PADEP Clean Water Staff. Based on these surveys and subsequent inspections and testing, it has been determined that of the 434 onlot systems surveyed and assessed, 191 were deemed malfunctioning, 33 are suspected of failing, and 149 are potentially failing. It was also noted that approximately 20 wildcat systems were detected, and approximately 7 holding tanks are being utilized within the planning area. A map of the malfunctioning, suspected malfunctioning, and potential malfunctioning onlot systems, as well as the copies of the surveys are provided in Exhibit 1 of this report.

1.2 Project Description

1.2.1 The proposed project will install public sanitary collection/conveyance system to the unsewered area of the Township, more specifically the Orchard Hill Area along and surrounding Old State Road and State Route 56 just east of Apollo Borough. The proposed system will also collect sanitary flows from two existing small flow treatment plants – Apollo Ridge School and Pine Valley Mobile Home Park. Both facilities will be abandoned once the proposed system is constructed, and connections are made.

This new system will connect to an existing system located along Old State Road. The existing system eventually connects to the Kiski Valley Water Pollution Control Authority (KVWPCA), which ultimately delivers sewage to their regional treatment plant located in Allegheny Township, Westmoreland County. The majority of the proposed service area consist of approximately single-family homes (660), several churches and small businesses (along the SR 56 corridor), a mobile-home park and the Apollo Ridge School District. There are no industries in the proposed service area. A planning area map is provided in Exhibit 2.

The estimated construction cost of the recommended alternative of the proposed project is $43,830,000 with an estimated annual operating cost of $181,300. The primary source of funding is proposed through PENNVEST. The use of PENNVEST funding is based on a concept level design and opinion of probable cost. Once final design is completed, a more refined opinion of probable costs for construction will be performed. These costs exceed the maximum $11 million PENNVEST funding cap, and the actual construction planning will require phased construction and a minimum of four separate applications to PENNVEST to construct the whole project depicted within this revised plan. Based on estimated capital, operation, and maintenance cost and the expected funding terms a monthly user fee of $55 -75 can be expected.

Chapter 2: Reasonable Alternatives Considered

2.1 No-Action – Continue with Onlot Systems

This alternative would leave the collection, treatment, and disposal of sanitary wastewater to the current onlot systems. The current count of failing or suspect failing onlot systems will increase over time multiplying the risk of undesirable environmental and public health impacts. Failure to address the immediate and present risks to the environment and public health is unreasonable and irresponsible. Due to the substantial number of confirmed, potential, and suspected malfunctioning onlot systems, this alternative was not considered.

Currently, the failing onlot systems are degrading the local streams and waterways. Future residential and commercial (Economic and Recreational) growth would be hindered as more restrictive requirements on onlot systems will have to be enforced.

2.2 Alternative 1 – Conventional Gravity Sewers, Pump Stations, and Forcemains

2.2.1 In this alternative, the following items are proposed:

- Gravity sewers would be extended from the existing sanitary system terminus along Old State Road near Kirkman Lane. Gravity sewers would also be extended to all populated areas surrounding Old State Road including areas along Jackson Road, Wright Road, Kings Road, Sugar Hollow Road, and Metzer Road; State Route 56 and surrounding areas including Elwood Road, Balsiger Road, Sportsman Road, GI Road, Lutheran Church Road and Cole Road; as well as, Birch Street, Oak Street, Evergreen Road and Maple Drive.
- The Pine Valley mobile home park is located on the north-western portion of the project area and will also be connected into the proposed system.
- The topography dictates that three pump stations will be required at low points near the intersection of Jackson Road at Kings Road, State Route 56 near the intersection with Ridge Road, and at the Apollo Ridge School. Four-inch force mains will pump sewage to a proposed manhole located northwest, north, and north of the pump stations, respectively, where sewage would then flow by gravity to the existing Township system.
- Due to topography, individual grinder pumps and low pressure forcemains are proposed along Laurel Way and Ridge Road to provide public sewers in this area.

A system layout map/schematic is provided in Exhibit 2

Limiting factors for this alternative include installation of long section of conveyance sewer along Rattling Run with no service connections. This is not cost effective and is expected to have large stream and wetland impacts.

2.2.2 Total Costs of Alternative 1

Total costs of the project for alternative is estimated at $46,017,000. An engineer's opinion of probable costs for Alternative 1 is provided in Exhibit 3.

2.3 Alternative 2 – Gravity Sewers and Eastern Portion Low Pressure Forcemains

2.3.1 In this alternative, the following items are proposed:

- Gravity sewers would be extended from the existing sanitary system terminus along Old State Road near Kirkman Lane. Gravity sewers would also be extended on all populated areas surrounding Old State Road including areas along Jackson Road, Wright Road, Kings Road, Sugar Hollow Road, and Metzer Road; State Route 56 and surrounding areas including Balsiger Road, Sportsman Road, GI Road, Lutheran Church Road, and Cole Road.
- Low pressure forcemains would be installed in the Elwood Lane area, the private road east of Elwood Lane, along Ridge Road running to the southwest, as well as Laurel Way, and Ross Lane.
- The Pine Valley mobile home park is located on the northern portion of the project area and will also be connected by gravity to the proposed system.
- The topography dictates that a pump station will be required at a low point near the intersection of Jackson Road at Kings Road, and at the Apollo School. A four-inch force main will pump sewage to a proposed manhole located northwest and of the pump stations, respectively, where sewage would then flow by gravity to the existing Township system.

A system layout map/schematic is provided in Exhibit 2.

2.3.2 Total Costs of Alternative 2

Total costs of the project for the recommended alternative is estimated at $43,830,000. An engineer's opinion of probable costs for Alternative 2 is provided in Exhibit 3.

2.4 Alternative 3 – Gravity Sewer, Pump Stations, and Limited Low-Pressure Sewers

2.4.1 In this alternative, the following items are proposed:

- Gravity sewers would be extended from the existing sanitary system terminus along Old State Road near Kirkman Lane. Gravity sewers would also be extended on all populated areas surrounding Old State Road including areas along Jackson Road, Wright Road, Kings Road, Sugar Hollow Road, and Metzer Road; State Route 56 and surrounding areas including Balsiger Road, Sportsman Road, GI Road, Lutheran Church Road, Cole Road; as well as Birch Street, Oak Street, Evergreen Road, and Maple Drive.
- The Pine Valley mobile home park is located on the north-western portion of the project area and will also be connected into the proposed system.
- The topography dictates that pump stations will be required at low points near the intersection of Jackson Road at Kings Road, State Route 56 near the intersection with Ridge Road, and at the Apollo School. Four-inch force mains will pump sewage to a proposed manhole located northwest, north, and north of the pump stations, respectively, where sewage would then flow by gravity to the existing Township system.

- Due to topography, individual grinder pumps are proposed along Elwood Lane area, the private lane east of Elwood Lane, Ridge Road, Laurel Way, and a section of Ross Lane to provide public sewers in these areas.

A system layout map/schematic is provided in Exhibit 2.

2.4.2 Total Costs of Alternative 3

Total costs of the project for the selected alternative is estimated at $ 44,634,000. An engineer's opinion of probable costs for Alternative 3 is provided in Exhibit 3.

2.5 Alternative 4 – Low Pressure Sewers and Forcemains

2.4.1 In this alternative, the following items are proposed:

- Gravity Sewers would be installed from the connection with the existing sewer at Old State Road and Jackson Road. Sections of Jackson Road, Old State Road Wright Road and the main sections of Orchard Hill and Spring Church would be gravity flow.
- Three pumpstations are required. One on King Road at Rattling Run, one at the end of GI Road, and one at the Apollo School.
- The remainder of the proposed service area would use low pressure forcemains.

2.4.2 Total Costs of Alternative 4

Total costs of the project for the selected alternative is estimated at $ 49,111,000. An engineer's opinion of probable costs for Alternative 4 is provided in Exhibit 3. A system layout map/schematic is provided in Exhibit 2.

Costing Comparison

2.5.1 For the basis of comparison of the operational and maintenance (O&M) costs for the pump stations and the grinder pumps , as all other operation and maintenance cost being similar for all alternatives; the capital costs for larger pump station pumps were estimated to be $65,000 (each, pumps only) each and the grinder pumps $12,000 (pump only).

In Alternative 1, there are three pump stations with tandem lead/lag pumps and 38 residential grinder pumps that total $846,000 in capital costs. Assuming O&M costs will be roughly 2% of the capital cost, the annual O&M costs for Alternative 1 is $16,920.

In Alternative 2, there is a two pumpstation and 200 residential grinder pumps that equates to $2,660,000 in capital costs, and $53,200 in annual O&M costs.

Alternative 3 there are two pumpstations and 57 residential grinder pumps that equates to a capital cost of $1,074,000 and an O&M cost of $21,480.

Alternative 4 there are three pumpstations and 380 residential grinder pumps that equates to a capital cost of $4,950,000 and an O&M cost of $99,000.

Utilizing the NCRS 2024 discount rate of 5.50%, the 20-year present worth for the Alternatives are:

#1 - $47,750,000
#2 - $45,997,000
#3 - $46,421,000
#4 - $51,825,000

Alternative 2 has the lower 20 year present worth. See costing spreadsheet in Exhibit 3

Chapter 3: Environmental Impacts

3.1 Land Use/Farmland:

The project will consist of sewer lines which will be located underground. Pump station(s) will occupy very small parcels of land. Therefore, the project will have no significant impact on any land use. A NRCS soils map and suitable for farmland map for the project area are provided as Exhibit 4-2. A map of the ASA and PF properties is also provided in Exhibit 4-4.

The current land use within the project area is a mix of farmland, residential, and wooded lots. There is one area declared ed as "Agricultural Protected Area (APA)" and thirteen separate areas that are "Agricultural Security Areas (ASA)" (see mapping in Appendix D.) With the exception of ASA 8 and 9 depicted on the mapping, the project will have no impact on the APA and ASAs as the sewer system will be installed within the state and township right of ways.

The proposed land use is consistent with the Armstrong County Planning and Development Commission's current land use plan. A copy of the County's response letter is provided in Exhibit 9-1

3.1.1 ASA 8:

In Alternative 1, sections of sanitary piping will pass through ASA 8. One section will parallel a private drive/road to residences west of Elwood Lane, and the other will be installed parallel to Rattling Run (low point of the drainage shed) near the southern section of the ASA that currently does not appear to be utilized as pasture or crops.

In Alternatives 2, 3, and 4 a low pressure forcemain will be installed along the private drive/road noted above, and the section of gravity sewer paralleling Rattling Run is eliminated.

Alternative 1 will require more linear feet of earth disturbance than Alternative 2, 3, and 4 during installation. Erosion and sedimentation control is major concern post construction and must be monitored and mitigated. Other environmental impact after construction would be from potential failures in the collection systems. Over time, the gravity sewer in Alternative 1 could experience infiltration of ground/surface water as piping or manholes develop separations or cracks. If too much infiltration occurs across the whole collection system, the sewage treatment plant could become hydraulically overloaded and adversely affect the receiving stream. Exfiltration into local soils around the collection system is not common but could be experienced with severe damage/deterioration of the collection system. Alternative 2, 3, and 4 provides low pressure forcemains. These alternatives have the same potential for erosion and sedimentation as number one, but assuming a similar failure in the piping system; raw sewage would be discharged at the failure point with every cycle of the grinder pumps connected to the forcemain. The environmental impacts are self-evident.

3.1.2 ASA 9:

The proposed project will also cross ASA 9. The southwest section of ASA 9 will be transected twice by two separate sanitary piping systems. The impacts to this area will be minimized by spacing the connecting manholes outside the ASA and the gravity piping being buried a minimum of 4 feet deep. The second area of potential impacts in ASA 9 is southeast of the intersection of SR 56 and Balsiger Road. This area is heavily wooded, a

right of way clearing will be made and stumps removed. Like the other portion of ASA 9, the manholes will be space as far apart as allowed and the gravity piping will be installed at least 4 feet deep to minimize impact to any potential future farming activity. The system layouts for Alternative 1, 2, 3 are the same within this area. The gravity collection system will have the same environmental risk as discussed in ASA 8.

3.2 Flood Plain

A check with F.I.R.M. indicates that a substantial area of the proposed project is above the 100-year flood elevation. The sanitary collection and conveyance system as designed will be installed with the north and south forks of the Rattling Run, as well as an unnamed tributary that has headwaters near Florida Avenue and Cypress Drive. Manholes that will be located within the flood plain will be constructed with watertight covers and lids and have a top of structure no more than 6-inches above grade as to not impact water flow. FEMA flood maps (3) have been super imposed over base mapping of Alternative 1 located in Exhibit 5.

The two pump stations will be within or near the 100-flood plain zone. The pump stations will be designed to have top of concrete for wet wells and equipment pads that are approximately 6-inches above the flood plain elevation. The wet well access door will be waterproof to keep rain and flood waters out. It is anticipated that a GP-5 Permit will be required for all work within 100-year flood plain or within 50 feet of the stream channel, whichever is greater.

3.3 Wetlands

It is anticipated that wetland will be encountered within the scope of this project. The highest probability will be within and adjacent to the streams and drainage channels. During preliminary design, a wetland and stream delineation will be performed by professionals trained in the PADEP and Army Corps of Engineers wetland identification methods. If wetlands are determined to be within the construction limits of disturbance, avoidance measures will be evaluated to determine if they are feasible and reasonable. Avoidance measures may include but not be limited to rerouting sanitary sewer or directionally drilling under wetlands. Wetlands that cannot be avoided will be restored with original hydric soils; other mitigation may be required for wetland types other than emergent. It is anticipated that a GP-5 Permit to cover wetland disturbances will be required. A copy of the National Wetland Inventory and Hydric Soils Maps for the plan area is provided as Exhibit 6.

3.4 Historical Resources

As part of due diligence, the proposed service area mapping was submitted to the Pennsylvania Historical and Museum Commission (PHMC) for their tabletop review. Based on the PHMC review letter dated October 11, 2018, this area has high probability of archaeological sites. This will be addressed during preliminary design. Phase I Archaeological Surveys will be performed within areas of proposed disturbances throughout the project area. A report of the findings will be submitted to the PHMC for review and clearance. If additional or more complex study(s) are required, it will be addressed at that time. A copy of the PHMC submittal and comment letter is provided as Exhibit 7.

3.5 Rare and Endangered Species

A Pennsylvania Natural Diversity Inventory (PNDI) review was made online through the PNDI portal on August 2, 2024. The search provided that no impacts were anticipated. Since the classification for species of plants and animals can change over time, a new PNDI review for the project area will be made, in accordance with PA state law, if the most current PNDI is older than 2 years during the permitting phase of design. A copy of the PNDI study request, initial review response, and the focused review letter are provided as Exhibit 8.

3.6 Water Quality

Currently the proposed project area has documented failing septic systems that have been polluting the surface water, and potentially the groundwater for many years. Once the new public sewer is installed and all connections are made, the contamination will end and over the long-term water quality should improve. During construction of the sanitary system, best management practices will be applied to stormwater discharging from disturbed areas and minimize erosion and sedimentation pollution to surface waters, trench plugs will be installed at all stream and wetland crossing to avoid draining streams and wetlands.

All sanitary wastewater will be conveyed to the existing Apollo treatment plant, and as such, there are no stream discharge as part of this plan.

This project is not within a sole-source aquifer recharge area.

Most residents and businesses within the Township have access to public water service provided by the Municipal Authority of Westmoreland County. A map depicting the extents of the public water service area is provided in Exhibit 4-5.

3.7 Coastal Resources

Not Applicable to this project.

3.8 Socio-Economical Issues

Based on the 2020 census there were 2,152 people, 837 households, and 621 families living in Orchard Hill. The population density was 549.0 people per square mile. There were 901 housing units at an average density of 229.9/sq mi. The racial makeup was 98.19% White, 0.51% African American, 0.46% Asian, 0.23% from other races, and 0.60% from two or more races. Hispanic or Latino of any race were 0.70%. The median household income was $30,403 and the median family income was $36,000. Males had a median income of $31,406 versus $21,553 for females. The per capita income was $15,105. About 16.0% of families and 17.9% of the population were below the poverty line, including 29.8% of those under age 18 and 8.0% of those age 65 or over.

The proposed project is not expected to disproportionately impact minority or disadvantaged populations.

3.9 Air Quality

The implementation of the project is not expected to have a significant or long-lasting impact on local air quality. The most significant sources of air pollution during project implementation will likely come from construction vehicles. This impact is expected to have a limited and short-term impact. Fugitive dust emissions that may be encountered during construction can be controlled with wetting dusty surfaces.

During operation of the pump stations odors associated with sewage may be the most significant air quality issue. These odors can be controlled by dosing bioxide, peroxide, or chlorine into the wet wells.

In addition to sewage odors, intermittent use of gas generators at the pump stations have the potential to impact local air quality. The use of generators is expected to be infrequent enough to have a negligible impact on air quality.

3.10 Transportation

The greatest impact on transportation will be during the construction phase of the project with the installation of gravity sewers and force mains. It is expected that traffic disruptions will be minimal and short in duration.

3.11 Noise Abatement and Control

Pump stations will be located in rural areas. The pump station will be submersible pumps located in the wet well. Generators will be within a building or an outdoor acoustic enclosure. It is not anticipated that noise will be a concern at each pump station.

3.12 Wild and Scenic Rivers

The proposed project is not located within the vicinity of and is not expected to impact any river registered in the National Wild and Scenic Rivers System, the National Rivers Inventory, or an American Heritage River.

3.13 Miscellaneous Environmental Considerations

The proposed project aims to reduce the number of onlot systems and improve the surface and groundwater quality within the Township. There are no expected negative environmental considerations to address that have not already been addressed in previous sections.

3.14 Summary of Mitigation

It is expected that the proposed project will have minor and temporary stream and wetland encroachments and impacts. A wetland and stream delineation will be performed during preliminary design to identify and attempt to avoid or minimize these impacts. A General Permit 5 (CH 105) permit is anticipated to be required from PADEP and USACE. Based on the PHMC review letter, there is a potential to encounter archaeological sites. A Phase 1 survey will be conducted in attempt to locate and mitigate any sites prior to construction disturbances.

3.15 Public Participation

A public advertisement was placed in local newspaper to allow residents 30 days to review and comment on the Plan. Comments received during the public comment period were tabulated, addressed, and included in the Act 537 Plan Update in Appendix D and I.

Exhibit 1

1.1 - Existing Township Sewers

1.2 - Sewer Planning Area,

1.3 - Onlot Evalutations Summary Map,

1.4 - SEO Community Needs Report, and Community Completed Surveys

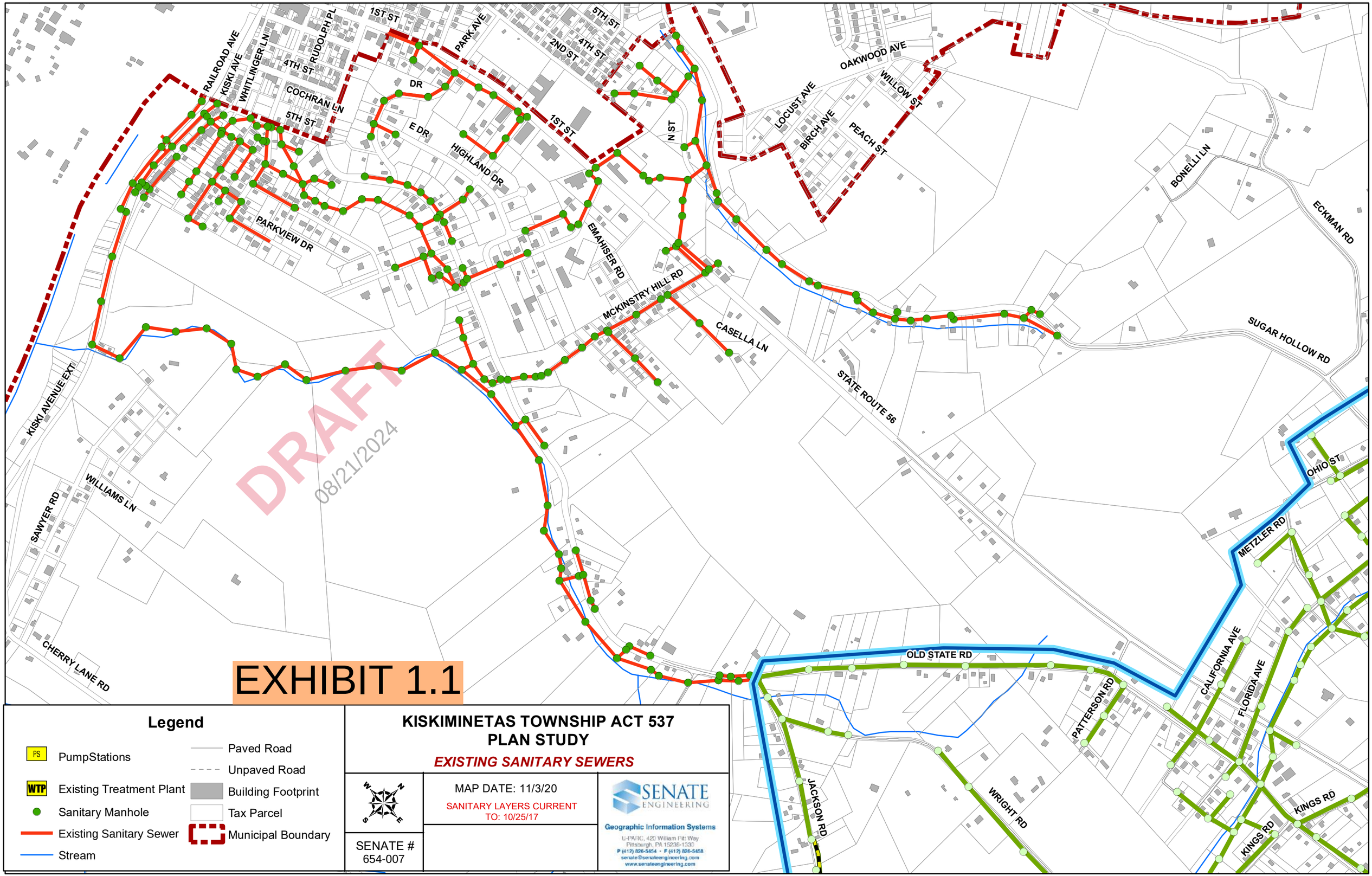

EXHIBIT 1.1

Legend

- PS — PumpStations
- WTP — Existing Treatment Plant
- Sanitary Manhole
- Existing Sanitary Sewer
- Stream
- Paved Road
- Unpaved Road
- Building Footprint
- Tax Parcel
- Municipal Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

EXISTING SANITARY SEWERS

MAP DATE: 11/3/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 654-007

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Pine Valley Mobile Home Park
Wastewater Treatment Plant

Apollo-Ridge School District
Wastewater Treatment Plant

WTP

CASELLA LN
TALMADGE AVE
STATE ROUTE 56
SUGAR HOLLOW RD
ECKMAN RD
MOORE
OHIO ST
HOLLY DR
PINE CIR
FLORIDA AVE
PENNSYLVANIA AVE
CALIFORNIA AVE
OLD STATE RD
PATTERSON RD
KIRKMAN LN
WRIGHT RD
JACKSON RD
KINGS RD
RADIO STATION LN
SUGAR HOLLOW RD
COULTER RD
CRAVENER RD
CLARKS HOLLOW RD
CAMPS LN
GARVERS FERRY RD
ELWOOD LN
Rattling Run
BALSIGER RD
ELKS LODGE DR
SPRING DR
SPORTSMEN RD
LUTHERAN CHURCH RD
RIDGE RD
FRAIN RD
Carnahan Run
COLE RD
WOODLAKE LN
QUEENS LN
PEARL LN
BRENHAVEN LN
GI RD
LAUREL WAY
MAPLE DR
ELM ST
BIRCH ST
OAK ST
ROSS LN
EDMON RD
MCCARTNEY RD
BLACKS HOLLOW RD
Roaring Run
MARTIN RD
HILTY RD
STONEY LONESOME RD
ROARING RUN LN
RUMBAUGH RD
RIFFER RD
BOLLINGER RD
BROWNSTOWN RD

DRAFT
08/21/2024

USGS The National Map: National Bou
Land Cover Database, National Struct
Road Data; Natural Earth Data; U.S. D
Relief Model. Data refreshed February

EXHIBIT 1.2

Legend

- WTP Existing Treatment Plant
- Paved Road
- Unpaved Road
- Stream
- Building Footprint
- Tax Parcel
- Municipal Boundary
- Project Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

PLANNING AREA

MAP DATE: 6/2/20

SENATE # 654-007

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Scale in Feet

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Pine Valley Mobile Home Park
Wastewater Treatment Plant

Apollo-Ridge School District
Wastewater Treatment Plant

WTP

CASELLA LN
TALMADGE AVE
STATE ROUTE 56
SUGAR HOLLOW RD
ECKMAN RD
MOORE
CRAVENER RD
CLARKS HOLLOW RD
CAMPS LN
OHIO ST
HOLLY DR
PINE CIR
FLORIDA AVE
PENNSYLVANIA AVE
COULTER RD
SUGAR HOLLOW RD
OLD STATE RD
CALIFORNIA AVE
PATTERSON RD
KINGS RD
KIRKMAN LN
WRIGHT RD
JACKSON RD
RADIO STATION LN
GARVERS FERRY RD
ELWOOD LN
Rattling Run
BALSIGER RD
ELKS LODGE DR
SPRING DR
SPORTSMEN RD
LUTHERAN CHURCH RD
Carnahan Run
RIDGE RD
FRAIN RD
COLE RD
WOODLAKE LN
KINGS RD
QUEENS LN
PEARL LN
BRENHAVEN LN
GI RD
LAUREL WAY
MAPLE DR
ELM ST
BIRCH ST
OAK ST
ROSS LN
EDMON RD
MCCARTNEY RD
BLACKS HOLLOW RD
MARTIN RD
HILTY RD
STONEY LONESOME RD
ROARING RUN LN
RUMBAUGH RD
Roaring Run

DRAFT
08/21/2024

EXHIBIT 1.3

ONLOT SYSTEM DETERMINATIONS
BASED ON SURVEYS AND SITE EVALUATIONS

* - MALFUNCTIONING SYSTEM

* - SUSPECTED MALFUNCTIONING SYSTEM

* - POTENTIALLY MALFUNCTION SYSTEM

Legend

WTP Existing Treatment Plant
Paved Road
Unpaved Road
Stream
Building Footprint
Tax Parcel
Municipal Boundary
Project Boundary

USGS The National Map: National Bou
Land Cover Database, National Struct
Road Data; Natural Earth Data; U.S. D
Relief Model. Data refreshed February

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ONLOT SURVEY DETERMINATIONS

MAP DATE: 6/2/20

SENATE # 12147

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Scale in Feet

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EXHIBIT 1.4

KISKIMINETAS TOWNSHIP

COMMUNITY NEEDS REPORT AND SUPPORTING DOCUMENTATION

(SEE SEPARATE STAND ALONE DOCUMENT)

JULY 2024

PREPARED BY:

REBECCA RUPURT, SEO

REVIEWED BY
SENATE ENGINEERS AND SURVEYORS,
A DIVISION OF LSSE

Exhibit 2

Public Sewer Alternatives 1, 2, 3, and 4

Pine Valley Mobile Home Park
Wastewater Treatment Plant
(To be Abandoned)

Apollo-Ridge School District
Wastewater Treatment Plant
(To be Abandoned)

- Manholes (Total: 343)
- Sanitary Line Total: (121,164 LF)
- Force Main (5,034 LF)
- Low Pressure Pipe (2,785 LF)

DRAFT 08/21/2024

EXHIBIT 2.1

Legend

- PS — PumpStations
- WTP — Existing Treatment Plant
- Sanitary Manhole
- Sanitary Sewer Pipe
- Stream
- Paved Road
- Unpaved Road
- Building Footprint
- Tax Parcel
- Municipal Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ALTERNATIVE 1

MAP DATE: 6/22/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 654-007

0 1,000 2,000

Scale in Feet

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Manholes (Total: 269)
Sanitary Line Total: (97,224 LF)
Force Main (3,170 LF)
Low Presesure Pipe (24,146 LF)

Pine Valley Mobile Home Park
Wastewater Treatment Plant
(To be Abandoned)

Apollo-Ridge School District
Wastewater Treatment Plant
(To be Abandoned)

DRAFT
08/21/2024

EXHIBIT 2.2

Legend

- PS — Pump Station
- WTP — Existing Treatment Plant
- Sanitary Manhole
- Sanitary Sewer Pipe
- Stream
- Paved Road
- Unpaved Road
- Building Footprint
- Tax Parcel
- Municipal Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ALTERNATIVE 2

MAP DATE: 6/22/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 654-007

0 1,000 2,000

Scale in Feet

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Pine Valley Mobile Home Park
Wastewater Treatment Plant
(To be Abandoned)

Apollo-Ridge School District
Wastewater Treatment Plant
(To be Abandoned)

Manholes (Total: 343)
Sanitary Line Total: (121,164 LF)
Force Main (5,034 LF)
Low Pressure Pipe (2,785 LF)

DRAFT
08/21/2024

EXHIBIT 2.3

Legend

- PS — PumpStations
- WTP — Existing Treatment Plant
- Sanitary Manhole
- Sanitary Sewer Pipe
- Stream
- Paved Road
- Unpaved Road
- Building Footprint
- Tax Parcel
- Municipal Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ALTERNATIVE 3

MAP DATE: 6/22/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 654-007

0 1,000 2,000
Scale in Feet

SENATE ENGINEERING
Geographic Information Systems
U-PARC, 420 William Pitt Way
Pittsburgh, PA 15238-1330
P (412) 826-5454 · F (412) 826-5458
senate@senateengineering.com
www.senateengineering.com

Pine Valley Mobile Home Park
Wastewater Treatment Plant

Apollo-Ridge School District
Wastewater Treatment Plant

WTP

PS

DRAFT
08/21/2024

EXHIBIT 2.4

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ALTERNATE 4

Legend

- WTP Existing Treatment Plant
- Paved Road
- Unpaved Road
- Stream
- Building Footprint
- Tax Parcel
- Municipal Boundary
- Project Boundary

MAP DATE: 6/22/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 654-007

0 1,000 2,000

Scale in Feet

SENATE ENGINEERING
Geographic Information Systems
U-PARC, 420 William Pitt Way
Pittsburgh, PA 15238-1330
P (412) 826-5454 · F (412) 826-5458
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www.senateengineering.com

Exhibit 3

Engineer's Opinion of Probable Costs

Alternatives 1 - 4

KISKIMINETAS TOWNSHIP
ORCHARD HILL ACT 537 PLAN
EXHIBIT 3.1

ALTERNATIVE 1

PROJECT ESTIMATE COST

Prepared By: Senate Engineers and Surveyors/LSSE

SENATE/LSSE # 654-007-23

Date: JULY 2024

No	DESCRIPTION	UNIT	ENGINEER'S ESTIMATE QUANTITY	UNIT PRICE	TOTAL PRICE
1	MOBILATION/DEMOBILIZATION	LS	1	$204,200	$204,200
2	8" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	80,040	$125	$10,005,000
3	12" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	39,960	$140	$5,594,400
4	BORING (8" PVC Pipe x 16" Casing)	LF	300	$475	$142,500
5	BORING (12" PVC Pipe x 24" Casing)	LF	150	$600	$90,000
6	MANHOLES (TO 12 FT DEPTH) W/FRAME & COVER	EA	336	$7,500	$2,520,000
7	SERVICE CONNECTIONS/CLEANOUTS	EA	682	$350	$238,700
8	6" SDR 35 SERVICE LATERALS	LF	27,280	$85	$2,318,800
9	CONNECTIONS TO EXISTING SYSTEMS	EA	3	$2,500	$7,500
10	PUMP STATION (2 LOCATIONS)	LS	3	$400,000	$1,200,000
11	4 INCH FORCEMAINS (HDPE)	LF	5,400	$75	$405,000
12	RESIDENTIAL GRINDER PUMPS	EA	38	$24,000	$912,000
13	LOWER PRESSURE FORCEMAINS (HDPE)	LF	3,400	$60	$204,000
14	SELECT BACKFILLE 2A - (NOT PIPE BEDDING)	CY	44,757	$45	$2,014,067
15	STREAM RESTORATION	LF	350	$450	$157,500
16	PAVING RESTORATION				
A	25 mm BINDER - 5" DEPTH	TONS	28,300	$150	$4,245,000
B	19 mm BINDER - 3" DEPTH	TONS	16,900	$150	$2,535,000
C	9.5 mm WEARING - 1½" DEPTH	SY	42,929	$15	$643,933
17	DRIVEWAY RESTORATION				
A	BITUMINUS - 8" 25mm BINDER	SY	3,900	$75	$292,500
B	CONCRETE	CY	450	$250	$112,500
18	TRAFFICE CONTROL	LS	1	$45,000	$45,000
19	PROJECT TRAILER	LS	1	$18,000	$18,000
20	LAWN/UNDEVELOPED ROW RESTORATION	LF	33,000	$8	$264,000
21	E&S PLAN IMPLEMENTATION AND MAINT.	LS	1	$75,000	$75,000
	TOTAL - CONSTRUCTION				$34,244,600
	CONTINGENCIES = 20%				$6,848,900
	TOTAL				$41,093,500
A	ADMINISTRATIVE COSTS	LS	1	$70,000	$70,000
B	INTEREST DURING CONSTRUCTION	LS	1	$150,000	$150,000
C	LEGAL FEES (ASSUMES LAGUDA & ROWS)	LS	1	$250,000	$250,000
D	ENGINEERING (8.0%)	LS	1	$2,740,000	$2,740,000
E	CONSTRUCTION ADMINISTRATION (5.0%)	LS	1	$1,713,000	$1,713,000
	TOTAL - SOFT COSTS				$4,923,000
	GRAND TOTAL				$46,016,500

KISKIMINETAS TOWNSHIP
ORCHARD HILL ACT 537 PLAN
EXHIBIT 3.2

ALTERNATIVE 2

PROJECT ESTIMATE COST

Prepared By: Senate Engineers and Surveyors/LSSE

SENATE/LSSE # 654-007-23

Date: JULY 2024

			ENGINEER'S ESTIMATE		
No	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
1	MOBILATION/DEMOBILIZATION	LS	1	$194,400	$194,400
2	8" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	59,363	$125	$7,420,375
3	12" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	29,637	$140	$4,149,180
4	BORING (8" PVC Pipe x 16" Casing)	LF	300	$475	$142,500
5	BORING (12" PVC Pipe x 24" Casing)	LF	150	$600	$90,000
6	MANHOLES (TO 12 FT DEPTH) W/FRAME & COVER	EA	290	$7,500	$2,175,000
7	SERVICE CONNECTIONS/CLEANOUTS	EA	520	$350	$182,000
8	6" SDR 35 SERVICE LATERALS	LF	20,800	$85	$1,768,000
9	CONNECTIONS TO EXISTING SYSTEMS	EA	3	$2,500	$7,500
10	PUMP STATION	LS	2	$400,000	$800,000
11	4 INCH FORCEMAINS (HDPE)	LF	6,100	$75	$457,500
12	RESIDENTIAL GRINDER PUMPS	EA	200	$24,000	$4,800,000
13	LOWER PRESSURE FORCEMAINS (HDPE)	LF	21,500	$60	$1,290,000
14	SELECT BACKFILLE 2A - (NOT PIPE BEDDING)	CY	34,637	$45	$1,558,676
15	STREAM RESTORATION	LF	180	$450	$81,000
16	PAVING RESTORATION				
A	25 mm BINDER - 5" DEPTH	TONS	24,400	$150	$3,660,000
B	19 mm BINDER - 3" DEPTH	TONS	14,700	$150	$2,205,000
C	9.5 mm WEARING - 1½" DEPTH	SY	58,298	$15	$874,463
17	DRIVEWAY RESTORATION				
A	BITUMINUS - 8" 25mm BINDER	SY	3,900	$75	$292,500
B	CONCRETE	CY	300	$250	$75,000
18	TRAFFICE CONTROL	LS	1	$45,000	$45,000
19	PROJECT TRAILER	LS	1	$18,000	$18,000
20	LAWN/UNDEVELOPED ROW RESTORATION	LF	30,000	$8	$240,000
21	E&S PLAN IMPLEMENTATION AND MAINT.	LS	1	$75,000	$75,000
	TOTAL - CONSTRUCTION				$32,601,094
	CONTINGENCIES - 20%				$6,520,219
	TOTAL				$39,121,313
A	ADMINISTRATIVE COSTS	LS	1	$70,000	$70,000
B	INTEREST DURING CONSTRUCTION	LS	1	$150,000	$150,000
C	LEGAL FEES (ASSUMES LAGUDA & ROWS)	LS	1	$250,000	$250,000
D	ENGINEERING (8.0%)	LS	1	$2,608,000	$2,608,000
E	CONSTRUCTION ADMINISTRATION (5.0%)	LS	1	$1,631,000	$1,631,000
	TOTAL - SOFT COSTS				$4,709,000
	GRAND TOTAL				$43,830,313

KISKIMINETAS TOWNSHIP
ORCHARD HILL ACT 537 PLAN
EXHIBIT 3.3

ALTERNATIVE 3

PROJECT ESTIMATE COST

Prepared By: Senate Engineers and Surveyors/LSSE
SENATE/LSSE # 654-007-23

Date: JULY 2024

No	DESCRIPTION	UNIT	ENGINEER'S ESTIMATE QUANTITY	UNIT PRICE	TOTAL PRICE
1	MOBILATION/DEMOBILIZATION	LS	1	$198,000	$198,000
2	8" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	75,040	$125	$9,380,000
3	12" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	36,960	$140	$5,174,400
3	BORING (8" PVC Pipe x 16" Casing)	LF	300	$475	$142,500
4	BORING (12" PVC Pipe x 24" Casing)	LF	150	$600	$90,000
4	MANHOLES (TO 12 FT DEPTH) W/FRAME & COVER	EA	309	$7,500	$2,317,500
5	SERVICE CONNECTIONS/CLEANOUTS	EA	663	$350	$232,050
6	6" SDR 35 SERVICE LATERALS	LF	26,520	$85	$2,254,200
7	CONNECTIONS TO EXISTING SYSTEMS	EA	2	$2,500	$5,000
8	PUMP STATION (2 LOCATIONS)	LS	3	$400,000	$1,200,000
9	4 INCH FORCEMAINS (HDPE)	LF	6,000	$75	$450,000
10	RESIDENTIAL GRINDER PUMPS	EA	57	$24,000	$1,368,000
11	LOWER PRESSURE FORCEMAINS (HDPE)	LF	6,810	$60	$408,600
12	SELECT BACKFILLE 2A - (NOT PIPE BEDDING)	CY	42,450	$45	$1,910,250
13	STREAM RESTORATION	EA	9	$450	$4,050
14	PAVING RESTORATION				
A	25 mm BINDER - 5" DEPTH	TONS	26,200	$150	$3,930,000
B	19 mm BINDER - 3" DEPTH	TONS	15,800	$150	$2,370,000
C	9.5 mm WEARING - 1½" DEPTH	SY	67,030	$15	$1,005,450
15	DRIVEWAY RESTORATION				
A	BITUMINUS - 8" 25mm BINDER	SY	3,900	$75	$292,500
B	CONCRETE	CY	300	$250	$75,000
16	TRAFFICE CONTROL	LS	1	$45,000	$45,000
17	PROJECT TRAILER	LS	1	$18,000	$18,000
18	LAWN/UNDEVELOPED ROW RESTORATION	LF	32,500	$8	$260,000
19	E&S PLAN IMPLEMENTATION AND MAINT.	LS	1	$75,000	$75,000
	TOTAL - CONSTRUCTION				$33,205,500
	CONTINGENCIES - 20%				$6,641,100
	TOTAL				$39,846,600
A	ADMINISTRATIVE COSTS	LS	1	$70,000	$70,000
B	INTEREST DURING CONSTRUCTION	LS	1	$150,000	$150,000
C	LEGAL FEES (ASSUMES LAGUDA & ROWS)	LS	1	$250,000	$250,000
D	ENGINEERING (8.0%)	LS	1	$2,656,000	$2,656,000
E	CONSTRUCTION ADMINISTRATION (5.0%)	LS	1	$1,661,000	$1,661,000
	TOTAL - SOFT COSTS				$4,787,000
	GRAND TOTAL				$44,633,600

KISKIMINETAS TOWNSHIP
ORCHARD HILL ACT 537 PLAN
EXHIBIT 3.4

ALTERNATIVE 4
PROJECT ESTIMATE COST

Prepared By: Senate Engineers and Surveyors/LSSE Date: JULY 2024

SENATE/LSSE # 654-007-23

			ENGINEER'S ESTIMATE		
No	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
1	MOBILATION/DEMOBILIZATION	LS	1	$218,100	$218,100
2	8" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	42,700	$125	$5,337,500
3	12" SDR26 PVC GASKETED PIPE (8-12 FT)	LF	18,300	$140	$2,562,000
4	BORING (8" PVC Pipe x 16" Casing)	LF	450	$475	$213,800
5	BORING (12" PVC Pipe x 24" Casing)	LF	450	$600	$270,000
6	MANHOLES (TO 12 FT DEPTH) W/FRAME & COVER	EA	405	$7,500	$3,037,500
7	SERVICE CONNECTIONS/CLEANOUTS	EA	340	$350	$119,000
8	6" SDR 35 SERVICE LATERALS	LF	13,600	$85	$1,156,000
9	CONNECTIONS TO EXISTING SYSTEMS	EA	3	$2,500	$7,500
10	PUMP STATION (2 LOCATIONS)	EA	3	$400,000	$1,200,000
11	4 INCH FORCEMAINS (HDPE)	LF	68,000	$75	$5,100,000
12	RESIDENTIAL GRINDER PUMPS	EA	380	$24,000	$9,120,000
13	LOWER PRESSURE FORCEMAINS (HDPE)	LF	16,000	$60	$960,000
14	SELECT BACKFILLE 2A - (NOT PIPE BEDDING)	CY	41,220	$45	$1,854,900
15	STREAM RESTORATION	LF	350	$450	$157,500
16	PAVING RESTORATION				
A	25 mm BINDER - 5" DEPTH	TONS	16,500	$150	$2,475,000
B	19 mm BINDER - 3" DEPTH	TONS	9,900	$150	$1,485,000
C	9.5 mm WEARING - 1½" DEPTH	SY	41,400	$15	$621,000
17	DRIVEWAY RESTORATION				
A	BITUMINUS	SY	3,900	$75	$292,500
B	CONCRETE	SY	600	$250	$150,000
18	TRAFFICE CONTROL	LS	1	$45,000	$45,000
19	PROJECT TRAILER	LS	1	$18,000	$18,000
20	LAWN/UNDEVELOPED ROW RESTORATION	LF	12,000	$8	$96,000
21	E&S PLAN IMPLEMENTATION AND MAINT.	LS	1	$75,000	$75,000
	TOTAL - CONSTRUCTION				$36,571,300
	CONTINGENCIES - 20%				$7,314,300
	TOTAL				$43,885,600
A	ADMINISTRATIVE COSTS	LS	1	$70,000	$70,000
B	INTEREST DURING CONSTRUCTION	LS	1	$150,000	$150,000
C	LEGAL FEES (ASSUMES LAGUDA & ROWS)	LS	1	$250,000	$250,000
D	ENGINEERING (8.0%)	LS	1	$2,926,000	$2,926,000
E	CONSTRUCTION INSPECTION (5.0%)	LS	1	$1,829,000	$1,829,000
	TOTAL - SOFT COSTS				$5,225,000
	GRAND TOTAL				$49,110,600

Exhibit 4

NRCS Soils Maps

4.1 - General Soils

4.2 - Farmland - Agricultural Suitable Areas

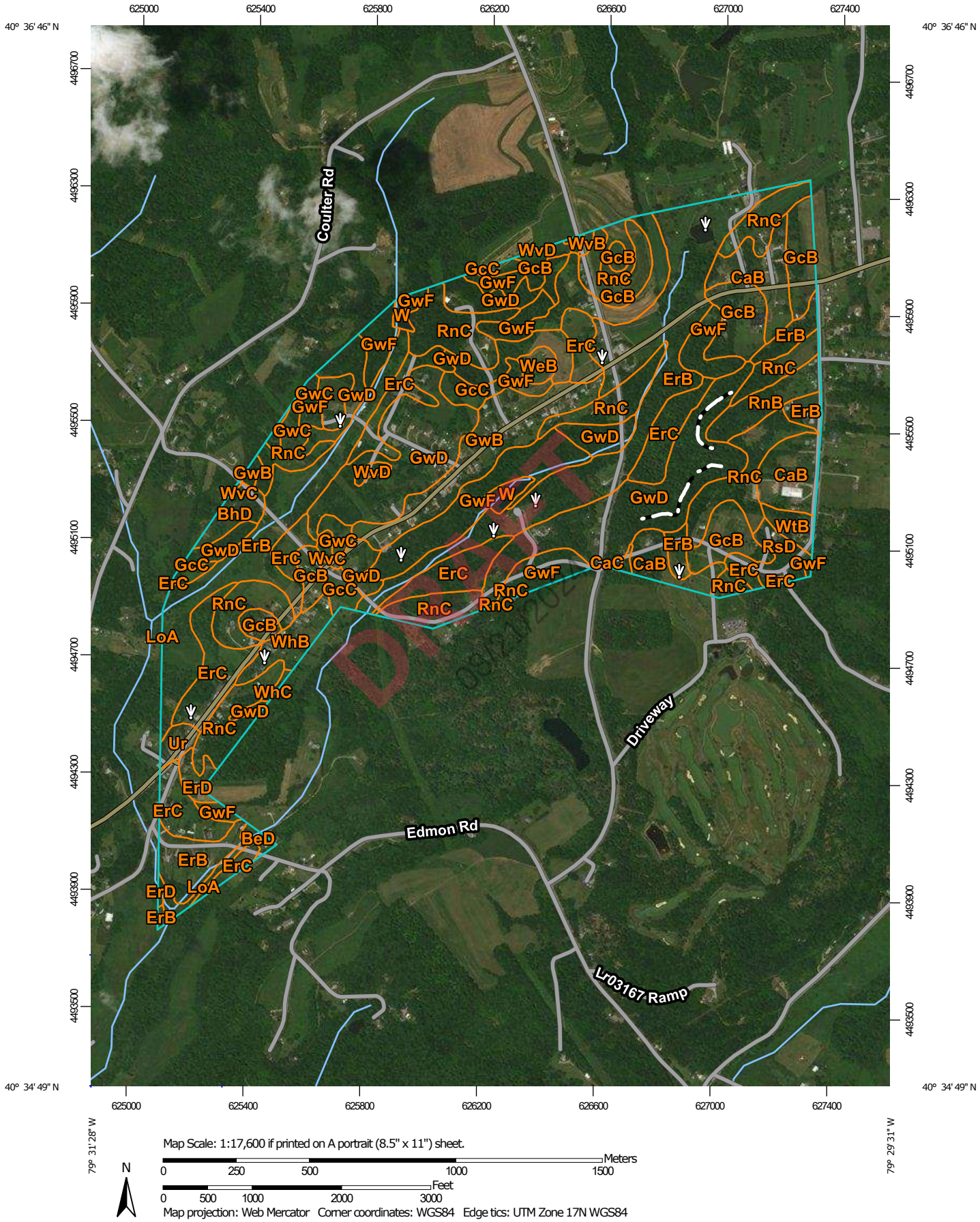
4.3 - Suitability for Onlot Sanitary Systems
(Conventional Septic, Sand Mound, & Spray Irrigation)

AG PRESERVE AND SECURITY MAP

4.4 – County AG Preserve and Security Areas

EXHIBIT 4.1.1

Soil Map—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - CENTER)



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
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

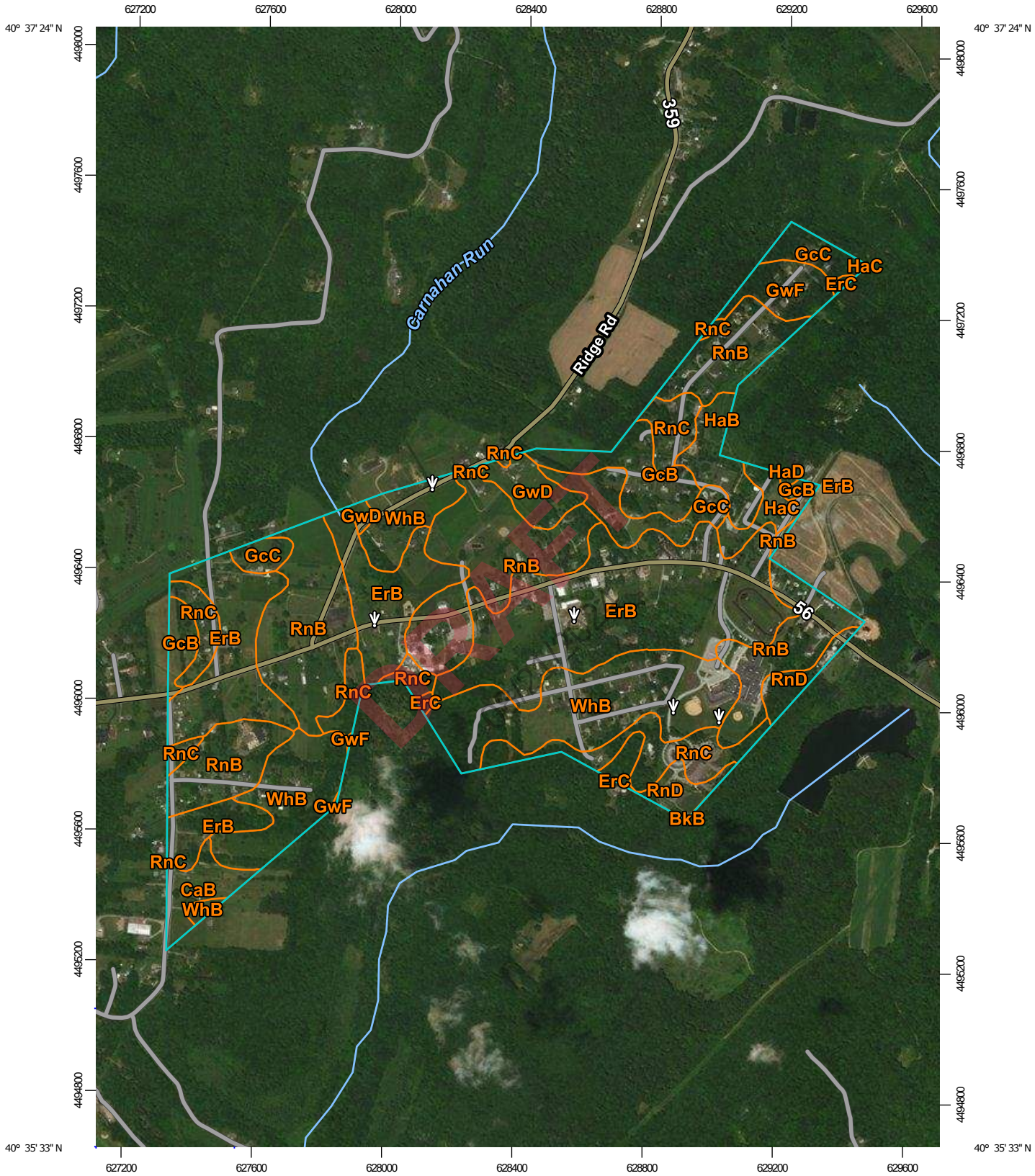
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	1.4	0.2%
BhD	Bethesda very channery silt loam, 8 to 25 percent slopes, very stony	5.7	0.9%
CaB	Cavode silt loam, 3 to 8 percent slopes	32.1	5.0%
CaC	Cavode silt loam, 8 to 15 percent slopes	0.6	0.1%
ErB	Ernest silt loam, 3 to 8 percent slopes	125.4	19.4%
ErC	Ernest silt loam, 8 to 15 percent slopes	62.5	9.7%
ErD	Ernest silt loam, 15 to 25 percent slopes	3.8	0.6%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	47.7	7.4%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	10.5	1.6%
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	28.2	4.4%
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	9.3	1.4%
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	116.7	18.1%
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	55.4	8.6%
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	2.7	0.4%
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	9.8	1.5%
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	98.8	15.3%
RsD	Rayne-Gilpin channery silt loams, 8 to 25 percent slopes, very stony	6.2	1.0%
Ur	Urban land	3.2	0.5%
W	Water	3.8	0.6%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	3.0	0.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WhB	Wharton silt loam, 3 to 8 percent slopes	8.6	1.3%
WhC	Wharton silt loam, 8 to 15 percent slopes	0.7	0.1%
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	4.1	0.6%
WvB	Wharton-Vandergrift complex, 3 to 8 percent slopes	0.6	0.1%
WvC	Wharton-Vandergrift complex, 8 to 15 percent slopes	2.2	0.3%
WvD	Wharton-Vandergrift complex, 15 to 25 percent slopes	2.0	0.3%
Totals for Area of Interest		**645.1**	**100.0%**

EXHIBIT 4.1.2

Soil Map—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - EAST)



Map Scale: 1:16,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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
BkB	Brinkerton silt loam, 3 to 8 percent slopes	0.0	0.0%
CaB	Cavode silt loam, 3 to 8 percent slopes	8.9	1.8%
ErB	Ernest silt loam, 3 to 8 percent slopes	141.8	28.5%
ErC	Ernest silt loam, 8 to 15 percent slopes	1.1	0.2%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	21.3	4.3%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	23.3	4.7%
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	10.2	2.1%
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	10.1	2.0%
HaB	Hazleton channery loam, 3 to 8 percent slopes	11.4	2.3%
HaC	Hazleton channery loam, 8 to 15 percent slopes	7.2	1.4%
HaD	Hazleton channery loam, 15 to 25 percent slopes	0.4	0.1%
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	125.7	25.3%
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	38.5	7.7%
RnD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	13.5	2.7%
WhB	Wharton silt loam, 3 to 8 percent slopes	83.9	16.9%
Totals for Area of Interest		**497.4**	**100.0%**

EXHIBIT 4.1.3

Soil Map—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - WEST)

Map Scale: 1:17,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

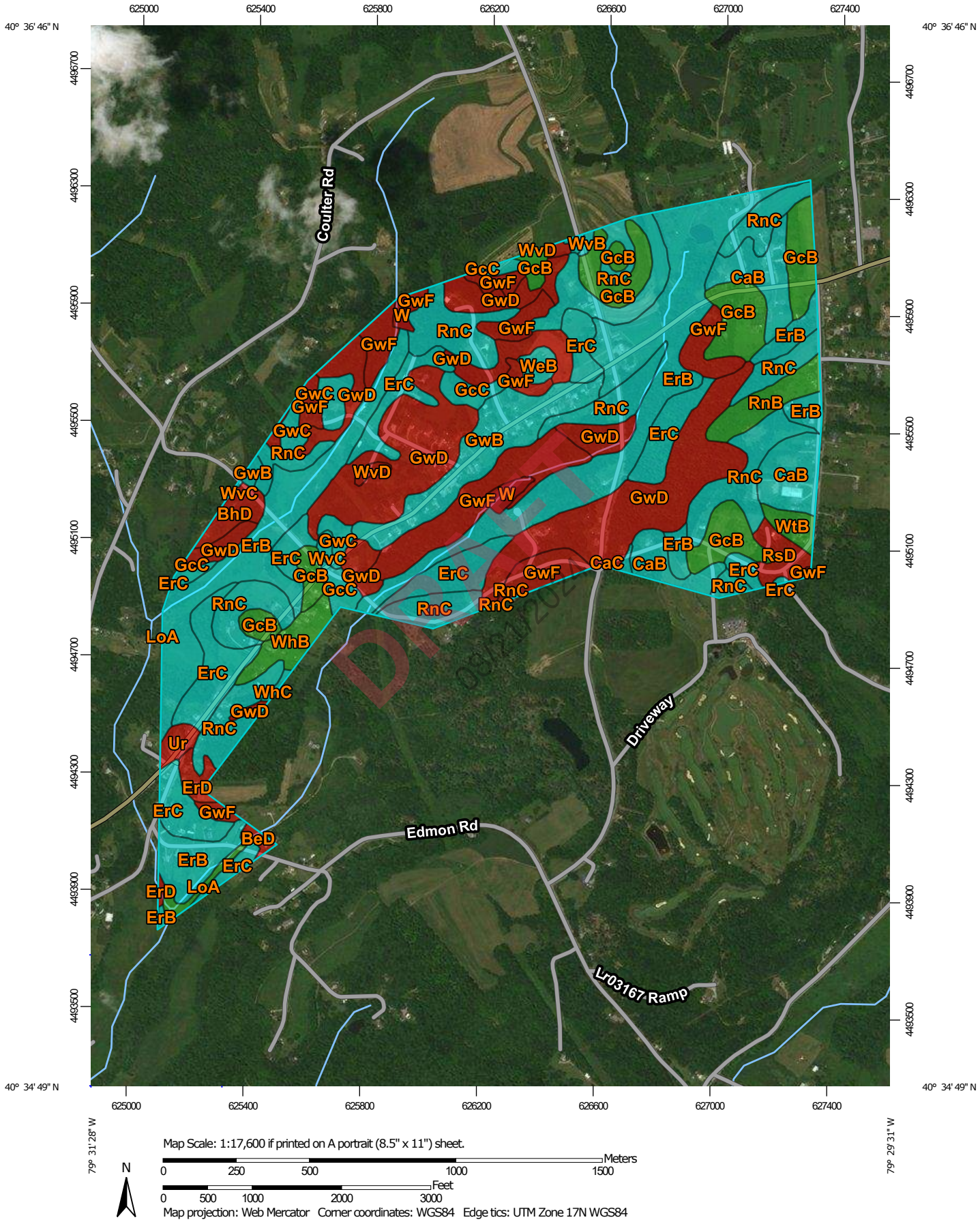
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	3.1	0.4%
BhF	Bethesda very channery silt loam, 25 to 75 percent slopes, very stony	1.8	0.2%
CaB	Cavode silt loam, 3 to 8 percent slopes	41.4	5.1%
CaC	Cavode silt loam, 8 to 15 percent slopes	30.3	3.8%
CaD	Cavode silt loam, 15 to 25 percent slopes	7.9	1.0%
ErB	Ernest silt loam, 3 to 8 percent slopes	141.8	17.6%
ErC	Ernest silt loam, 8 to 15 percent slopes	161.6	20.1%
ErD	Ernest silt loam, 15 to 25 percent slopes	11.8	1.5%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	35.0	4.3%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	16.1	2.0%
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	6.4	0.8%
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	14.3	1.8%
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	5.2	0.6%
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	95.3	11.8%
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	26.3	3.3%
HoA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	26.1	3.2%
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	10.3	1.3%
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	44.2	5.5%
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	44.5	5.5%
UdB	Udorthents, 0 to 8 percent slopes	3.1	0.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ur	Urban land	0.8	0.1%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	4.1	0.5%
WeC	Weikert channery silt loam, 8 to 15 percent slopes	3.3	0.4%
WhB	Wharton silt loam, 3 to 8 percent slopes	18.0	2.2%
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	22.6	2.8%
WtC	Wharton-Gilpin silt loams, 8 to 15 percent slopes	29.2	3.6%
WtD	Wharton-Gilpin silt loams, 15 to 25 percent slopes	0.7	0.1%
Totals for Area of Interest		**805.3**	**100.0%**

EXHIBIT 4.2.1

Farmland Classification—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - CENTER)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Not prime farmland	1.4	0.2%
BhD	Bethesda very channery silt loam, 8 to 25 percent slopes, very stony	Not prime farmland	5.7	0.9%
CaB	Cavode silt loam, 3 to 8 percent slopes	Farmland of statewide importance	32.1	5.0%
CaC	Cavode silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0.6	0.1%
ErB	Ernest silt loam, 3 to 8 percent slopes	Farmland of statewide importance	125.4	19.4%
ErC	Ernest silt loam, 8 to 15 percent slopes	Farmland of statewide importance	62.5	9.7%
ErD	Ernest silt loam, 15 to 25 percent slopes	Not prime farmland	3.8	0.6%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	All areas are prime farmland	47.7	7.4%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance	10.5	1.6%
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Farmland of statewide importance	28.2	4.4%
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance	9.3	1.4%
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Not prime farmland	116.7	18.1%
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not prime farmland	55.4	8.6%
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	All areas are prime farmland	2.7	0.4%
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	All areas are prime farmland	9.8	1.5%
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance	98.8	15.3%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RsD	Rayne-Gilpin channery silt loams, 8 to 25 percent slopes, very stony	Not prime farmland	6.2	1.0%
Ur	Urban land	Not prime farmland	3.2	0.5%
W	Water	Not prime farmland	3.8	0.6%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	3.0	0.5%
WhB	Wharton silt loam, 3 to 8 percent slopes	All areas are prime farmland	8.6	1.3%
WhC	Wharton silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0.7	0.1%
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	All areas are prime farmland	4.1	0.6%
WvB	Wharton-Vandergrift complex, 3 to 8 percent slopes	Farmland of statewide importance	0.6	0.1%
WvC	Wharton-Vandergrift complex, 8 to 15 percent slopes	Farmland of statewide importance	2.2	0.3%
WvD	Wharton-Vandergrift complex, 15 to 25 percent slopes	Not prime farmland	2.0	0.3%
Totals for Area of Interest			**645.1**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

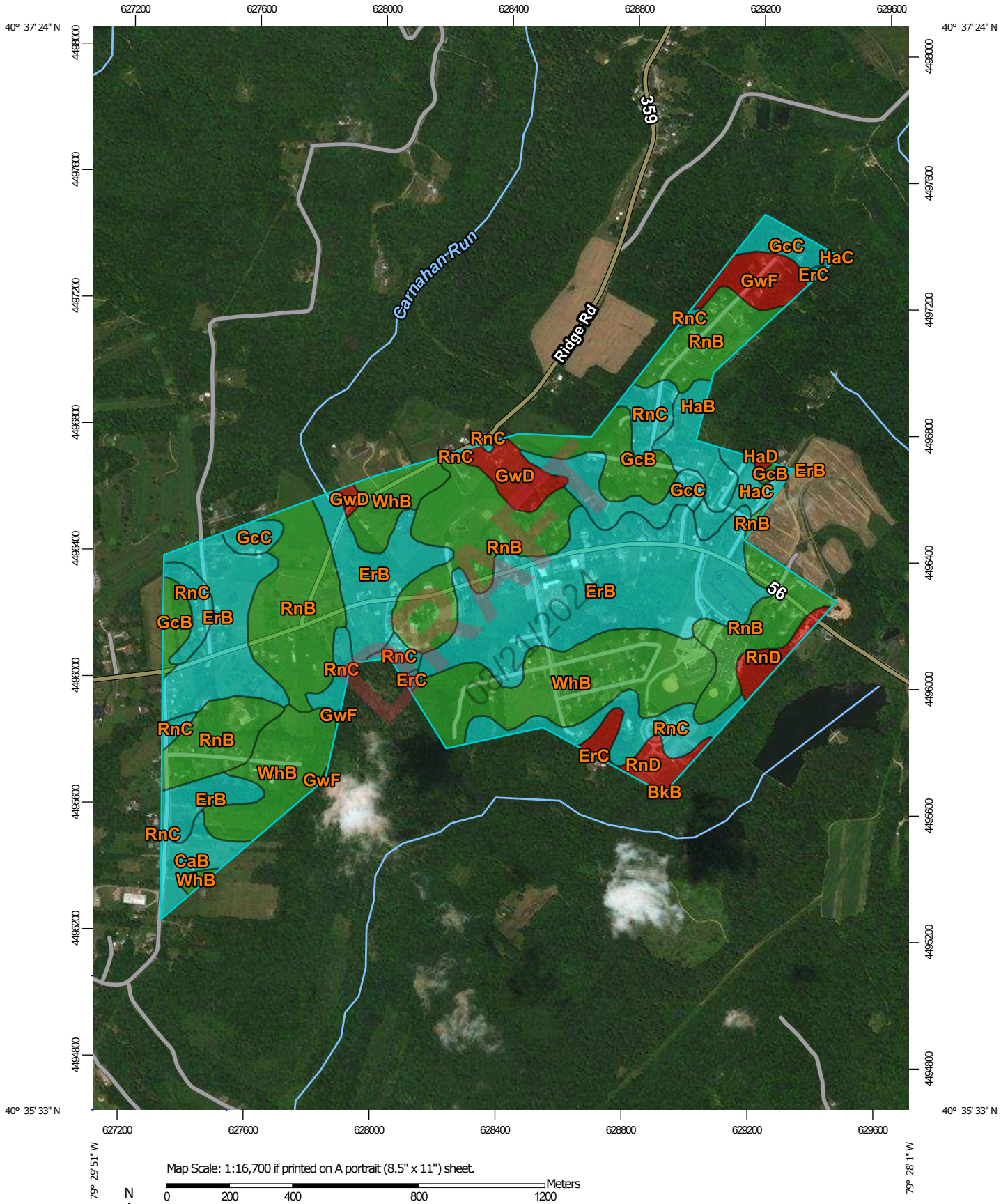
Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

EXHIBIT 4.2.2

Farmland Classification—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - EAST)



Map Scale: 1:16,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BkB	Brinkerton silt loam, 3 to 8 percent slopes	Not prime farmland	0.0	0.0%
CaB	Cavode silt loam, 3 to 8 percent slopes	Farmland of statewide importance	8.9	1.8%
ErB	Ernest silt loam, 3 to 8 percent slopes	Farmland of statewide importance	141.8	28.5%
ErC	Ernest silt loam, 8 to 15 percent slopes	Farmland of statewide importance	1.1	0.2%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	All areas are prime farmland	21.3	4.3%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance	23.3	4.7%
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Not prime farmland	10.2	2.1%
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not prime farmland	10.1	2.0%
HaB	Hazleton channery loam, 3 to 8 percent slopes	Farmland of statewide importance	11.4	2.3%
HaC	Hazleton channery loam, 8 to 15 percent slopes	Farmland of statewide importance	7.2	1.4%
HaD	Hazleton channery loam, 15 to 25 percent slopes	Not prime farmland	0.4	0.1%
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	All areas are prime farmland	125.7	25.3%
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance	38.5	7.7%
RnD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	Not prime farmland	13.5	2.7%
WhB	Wharton silt loam, 3 to 8 percent slopes	All areas are prime farmland	83.9	16.9%
Totals for Area of Interest			**497.4**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

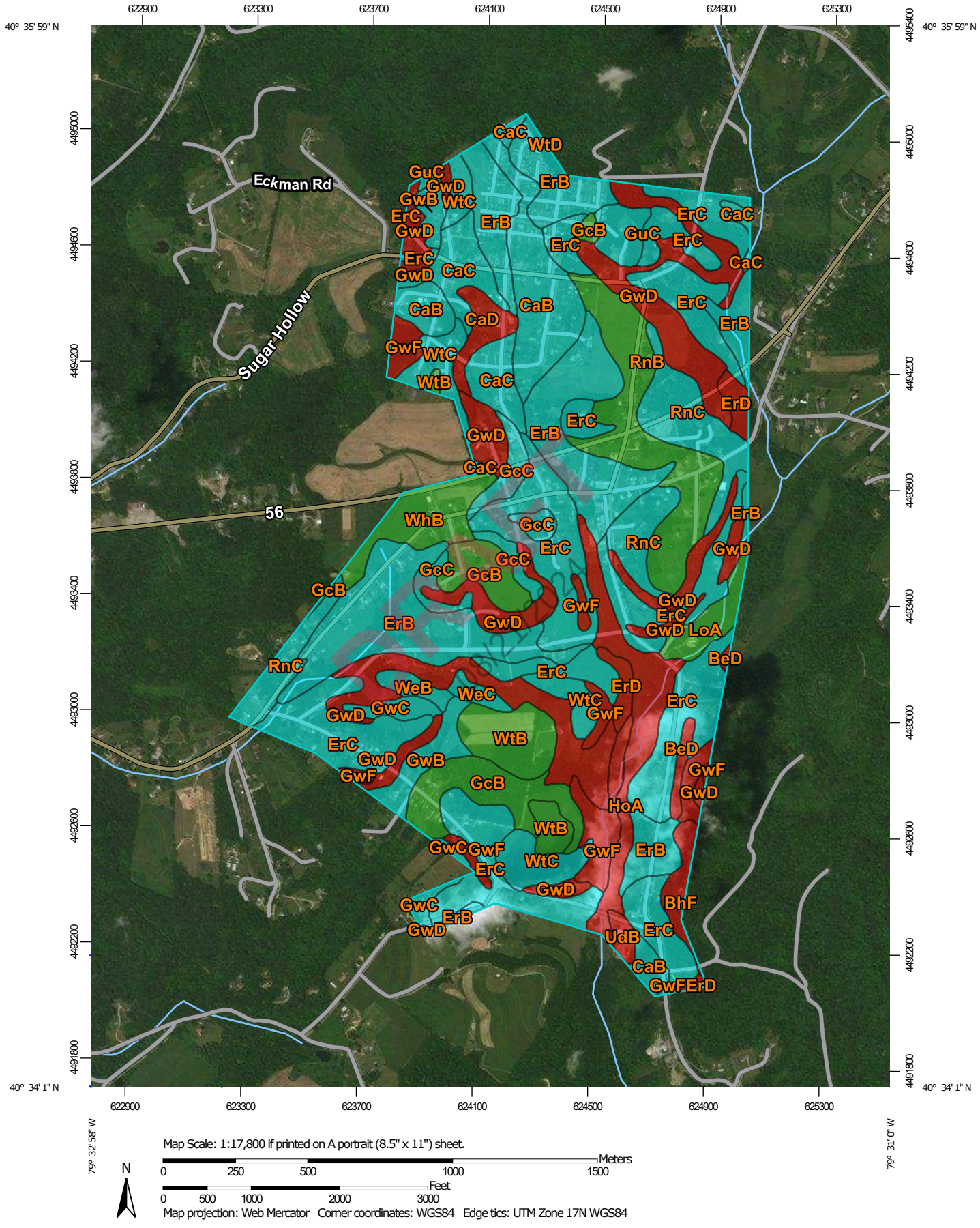
Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

EXHIBIT 4.2.3

Farmland Classification—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - WEST)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Not prime farmland	3.5	0.4%
BhF	Bethesda very channery silt loam, 25 to 75 percent slopes, very stony	Not prime farmland	6.4	0.8%
CaB	Cavode silt loam, 3 to 8 percent slopes	Farmland of statewide importance	40.6	5.1%
CaC	Cavode silt loam, 8 to 15 percent slopes	Farmland of statewide importance	27.0	3.4%
CaD	Cavode silt loam, 15 to 25 percent slopes	Not prime farmland	7.9	1.0%
ErB	Ernest silt loam, 3 to 8 percent slopes	Farmland of statewide importance	129.4	16.1%
ErC	Ernest silt loam, 8 to 15 percent slopes	Farmland of statewide importance	169.6	21.1%
ErD	Ernest silt loam, 15 to 25 percent slopes	Not prime farmland	11.7	1.5%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	All areas are prime farmland	34.8	4.3%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance	16.1	2.0%
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	Farmland of statewide importance	8.1	1.0%
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Farmland of statewide importance	14.1	1.8%
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance	7.6	0.9%
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Not prime farmland	98.9	12.3%
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not prime farmland	23.9	3.0%
HoA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland	26.6	3.3%
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	All areas are prime farmland	9.3	1.2%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	All areas are prime farmland	44.2	5.5%
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance	42.9	5.3%
UdB	Udorthents, 0 to 8 percent slopes	Not prime farmland	2.8	0.4%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	4.1	0.5%
WeC	Weikert channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance	3.3	0.4%
WhB	Wharton silt loam, 3 to 8 percent slopes	All areas are prime farmland	18.4	2.3%
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	All areas are prime farmland	22.2	2.8%
WtC	Wharton-Gilpin silt loams, 8 to 15 percent slopes	Farmland of statewide importance	28.6	3.6%
WtD	Wharton-Gilpin silt loams, 15 to 25 percent slopes	Not prime farmland	0.0	0.0%
Totals for Area of Interest			**802.0**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Report—Prime and other Important Farmlands

Prime and other Important Farmlands–Armstrong County, Pennsylvania		
Map Symbol	**Map Unit Name**	**Farmland Classification**
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Not prime farmland
BhD	Bethesda very channery silt loam, 8 to 25 percent slopes, very stony	Not prime farmland
BhF	Bethesda very channery silt loam, 25 to 75 percent slopes, very stony	Not prime farmland
BkB	Brinkerton silt loam, 3 to 8 percent slopes	Not prime farmland
CaB	Cavode silt loam, 3 to 8 percent slopes	Farmland of statewide importance
CaC	Cavode silt loam, 8 to 15 percent slopes	Farmland of statewide importance
CaD	Cavode silt loam, 15 to 25 percent slopes	Not prime farmland
ErB	Ernest silt loam, 3 to 8 percent slopes	Farmland of statewide importance
ErC	Ernest silt loam, 8 to 15 percent slopes	Farmland of statewide importance
ErD	Ernest silt loam, 15 to 25 percent slopes	Not prime farmland
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	All areas are prime farmland
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	Farmland of statewide importance

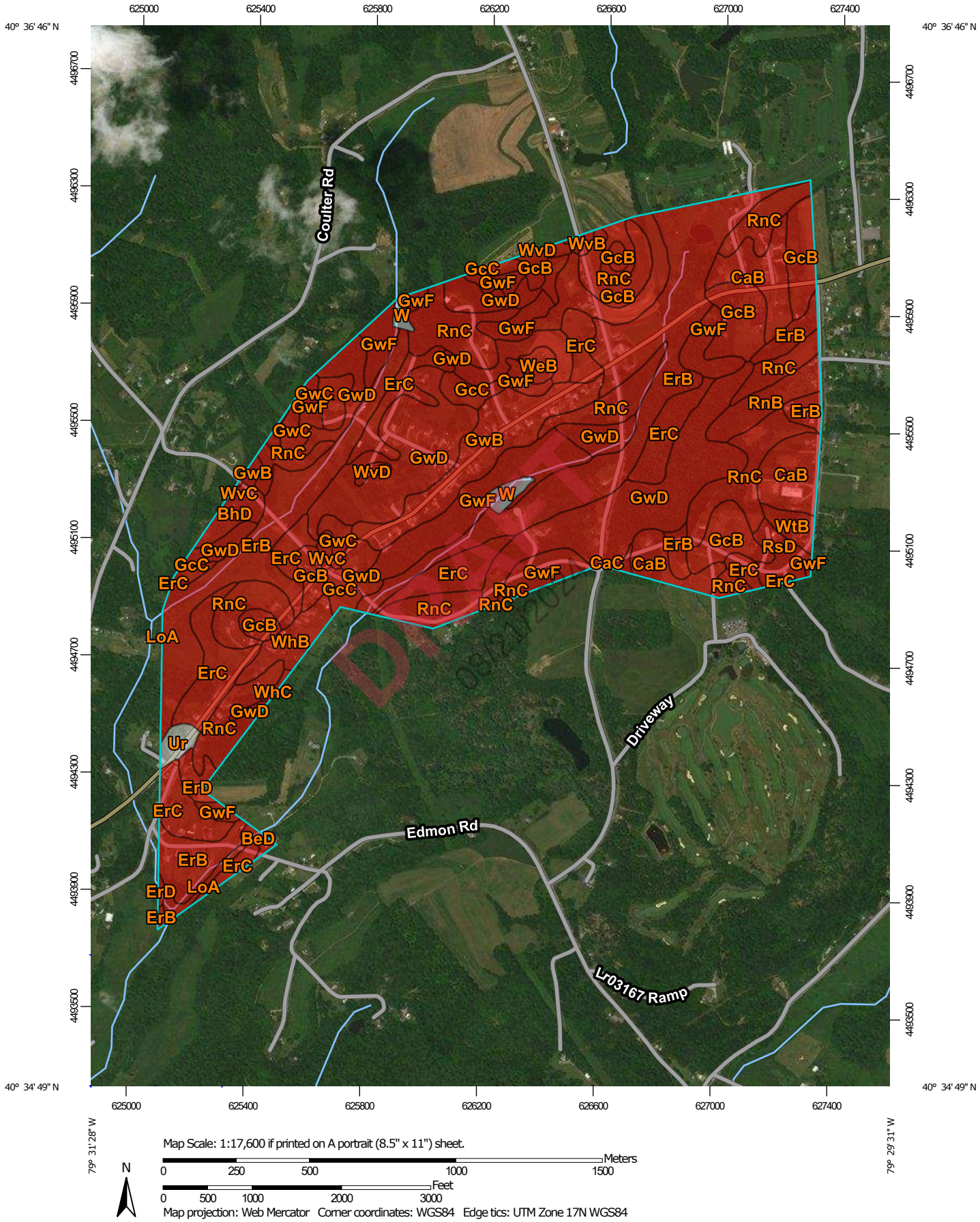
Prime and other Important Farmlands–Armstrong County, Pennsylvania		
Map Symbol	**Map Unit Name**	**Farmland Classification**
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Farmland of statewide importance
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Not prime farmland
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not prime farmland
HaB	Hazleton channery loam, 3 to 8 percent slopes	Farmland of statewide importance
HaC	Hazleton channery loam, 8 to 15 percent slopes	Farmland of statewide importance
HaD	Hazleton channery loam, 15 to 25 percent slopes	Not prime farmland
HoA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	All areas are prime farmland
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	All areas are prime farmland
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance
RnD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	Not prime farmland
RsD	Rayne-Gilpin channery silt loams, 8 to 25 percent slopes, very stony	Not prime farmland
UdB	Udorthents, 0 to 8 percent slopes	Not prime farmland
Ur	Urban land	Not prime farmland
W	Water	Not prime farmland
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance
WeC	Weikert channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance
WhB	Wharton silt loam, 3 to 8 percent slopes	All areas are prime farmland
WhC	Wharton silt loam, 8 to 15 percent slopes	Farmland of statewide importance
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	All areas are prime farmland
WtC	Wharton-Gilpin silt loams, 8 to 15 percent slopes	Farmland of statewide importance
WtD	Wharton-Gilpin silt loams, 15 to 25 percent slopes	Not prime farmland
WvC	Wharton-Vandergrift complex, 8 to 15 percent slopes	Farmland of statewide importance
WvD	Wharton-Vandergrift complex, 15 to 25 percent slopes	Not prime farmland

Data Source Information

Soil Survey Area: Armstrong County, Pennsylvania
Survey Area Data: Version 12, Sep 18, 2018

EXHIBIT 4.3.1.1

Septic System In-Ground Bed (Conventional) (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - CENTER)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System In-Ground Bed (Conventional) (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Very limited	Bethesda, unstable fill (90%)	Too steep (1.00)	1.4	0.2%
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
			Fairpoint, unstable fill (4%)	Too steep (1.00)		
				Potential karst (0.30)		
BhD	Bethesda very channery silt loam, 8 to 25 percent slopes, very stony	Very limited	Bethesda, unstable fill (85%)	Too steep (1.00)	5.7	0.9%
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
			Fairpoint, unstable fill (4%)	Too steep (1.00)		
				Potential karst (0.30)		
			Sewell, unstable fill (3%)	Too steep (1.00)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Very limited	Cavode (85%)	Seasonal high water table (1.00)	32.1	5.0%
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
CaC	Cavode silt loam, 8 to 15 percent slopes	Very limited	Cavode (85%)	Seasonal high water table (1.00)	0.6	0.1%
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	125.4	19.4%
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Buchanan (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	62.5	9.7%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Buchanan (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation >12" (1.00)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
ErD	Ernest silt loam, 15 to 25 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	3.8	0.6%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Shelocta (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Very limited	Gilpin (85%)	Bedrock, above 60" (1.00)	47.7	7.4%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Wharton (10%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Very limited	Gilpin (85%)	Bedrock, above 60" (1.00)	10.5	1.6%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Wharton (10%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Very limited	Gilpin (55%)	Bedrock, above 60" (1.00)	28.2	4.4%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Weikert (30%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
			Wharton (5%)	Seasonal high water table (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Hazleton (5%)	Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
				Too steep (0.88)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (0.88)		
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Very limited	Gilpin (55%)	Bedrock, above 60" (1.00)	9.3	1.4%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (30%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Hazleton (5%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Very limited	Gilpin (45%)	Bedrock, above 60" (1.00)	116.7	18.1%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (40%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Hazleton (10%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Very limited	Gilpin (50%)	Bedrock, above 60" (1.00)	55.4	8.6%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (35%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Hazleton (10%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Lobdell (85%)	Seasonal high water table (1.00)	2.7	0.4%
				Flooding (1.00)		
				Slow percolation >12" (0.90)		
				Slope (0.13)		
			Orrville (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.89)		
				Slope (0.13)		
			Holly (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.96)		
				Slope (0.13)		
			Melvin (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.90)		
				Slope (0.13)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Very limited	Rayne (45%)	Bedrock, above 60" (1.00)	9.8	1.5%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Gilpin (40%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slight voided fragments (0.01)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
				Potential bedrock near 60" (0.27)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Very limited	Rayne (46%)	Too steep (1.00)	98.8	15.3%
				Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
			Gilpin (44%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
RsD	Rayne-Gilpin channery silt loams, 8 to 25 percent slopes, very stony	Very limited	Rayne (50%)	Too steep (1.00)	6.2	1.0%
				Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
			Gilpin (35%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slight voided fragments (0.00)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
Ur	Urban land	Not rated	Urban land (90%)		3.2	0.5%
W	Water	Not rated	Water (100%)		3.8	0.6%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Very limited	Weikert (85%)	Bedrock, above 60" (1.00)	3.0	0.5%
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
			Gilpin (15%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Very limited	Wharton (80%)	Seasonal high water table (1.00)	8.6	1.3%
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Cavode (8%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Gilpin (7%)	Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
WhC	Wharton silt loam, 8 to 15 percent slopes	Very limited	Wharton (80%)	Seasonal high water table (1.00)	0.7	0.1%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
			Rarden (5%)	Seasonal high water table (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (1.00)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	Very limited	Wharton (51%)	Seasonal high water table (1.00)	4.1	0.6%
				Slow percolation >12" (1.00)		
				Slope (0.72)		
				Potential bedrock near 60" (0.27)		
			Gilpin (49%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
				Slight voided fragments (0.01)		
WvB	Wharton-Vandergrift complex, 3 to 8 percent slopes	Very limited	Wharton (50%)	Seasonal high water table (1.00)	0.6	0.1%
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Vandergrift (35%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Potential bedrock near 60" (0.44)		
				Potential karst (0.30)		
			Cavode (10%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
WvC	Wharton-Vandergrift complex, 8 to 15 percent slopes	Very limited	Wharton (45%)	Seasonal high water table (1.00)	2.2	0.3%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Vandergrift (40%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.44)		
				Potential karst (0.30)		
			Cavode (10%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
WvD	Wharton-Vandergrift complex, 15 to 25 percent slopes	Very limited	Wharton (45%)	Seasonal high water table (1.00)	2.0	0.3%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Vandergrift (40%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.44)		
				Potential karst (0.30)		
			Cavode (10%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
Totals for Area of Interest					**645.1**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	638.1	98.9%
Null or Not Rated	7.0	1.1%
Totals for Area of Interest	**645.1**	**100.0%**

Description

This is a system of subsurface lines that distribute effluent from a septic tank into the natural soil. The distribution lines are at a minimum depth of 12 inches. Only the part of the soils between depths of 0 and 60 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this

interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

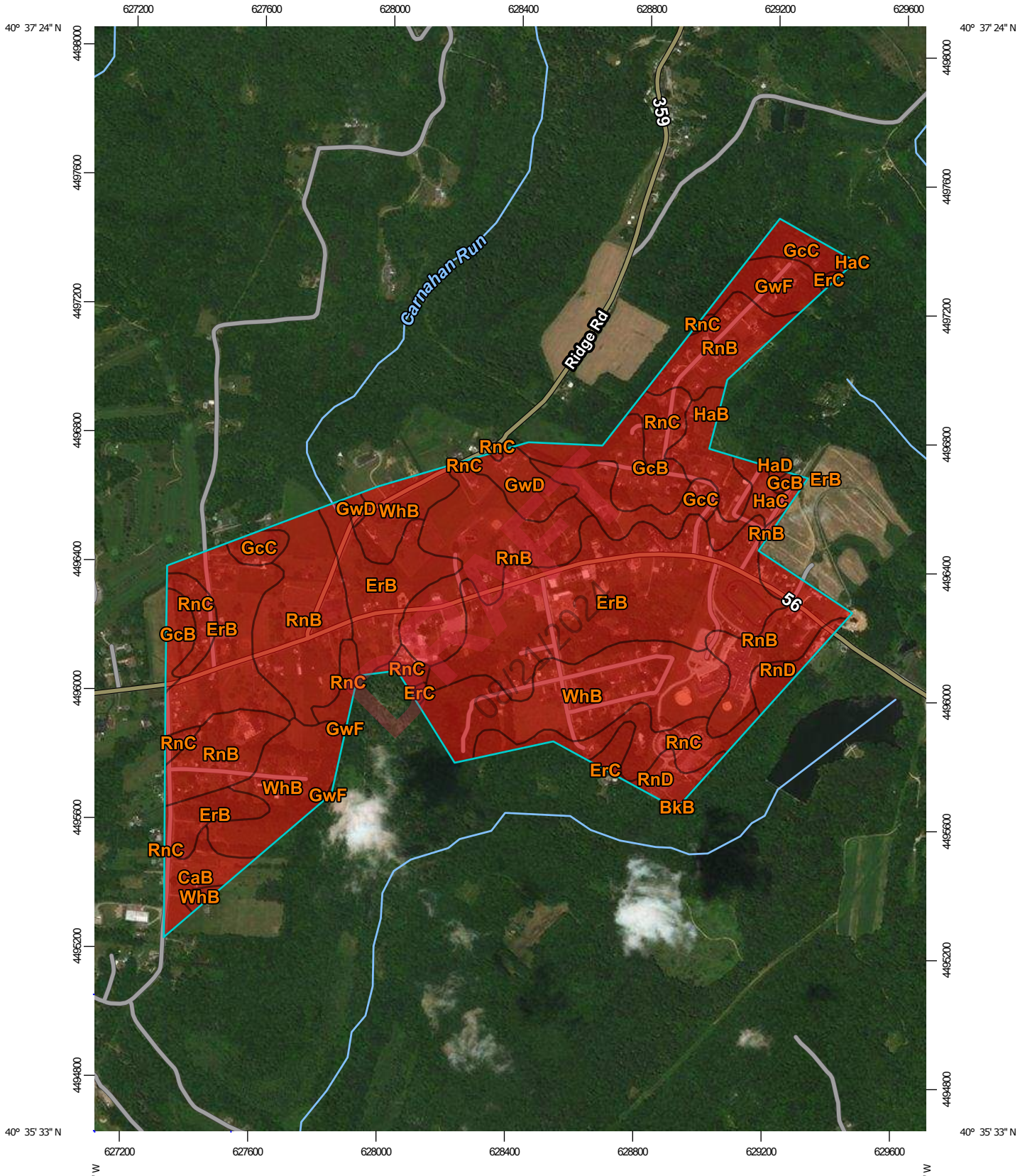
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.1.2

Septic System In-Ground Bed (Conventional) (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - EAST)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System In-Ground Bed (Conventional) (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BkB	Brinkerton silt loam, 3 to 8 percent slopes	Very limited	Brinkerton (80%)	Seasonal high water table (1.00)	0.0	0.0%
				Slow percolation >12" (1.00)		
				Slope (0.72)		
			Ernest (15%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
			Lobdell (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.90)		
				Slope (0.03)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Very limited	Cavode (85%)	Seasonal high water table (1.00)	8.9	1.8%
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	141.8	28.5%
				Slow percolation >12" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Too steep (0.88)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Buchanan (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	1.1	0.2%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Buchanan (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Very limited	Gilpin (85%)	Bedrock, above 60" (1.00)	21.3	4.3%
				Slow percolation >12" (0.89)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Too steep (0.88)		
			Wharton (10%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Very limited	Gilpin (85%)	Bedrock, above 60" (1.00)	23.3	4.7%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Wharton (10%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Very limited	Gilpin (45%)	Bedrock, above 60" (1.00)	10.2	2.1%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (40%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Hazleton (10%)	Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Very limited	Gilpin (50%)	Bedrock, above 60" (1.00)	10.1	2.0%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (35%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Hazleton (10%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
HaB	Hazleton channery loam, 3 to 8 percent slopes	Very limited	Hazleton (85%)	Bedrock, above 60" (1.00)	11.4	2.3%
				Fast percolation >12" (1.00)		
				Slope (0.72)		
			Cookport (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope (0.72)		
			Germano (5%)	Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Westmoreland (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Slope (0.72)		
HaC	Hazleton channery loam, 8 to 15 percent slopes	Very limited	Hazleton (85%)	Too steep (1.00)	7.2	1.4%
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Cookport (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Germano (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
			Westmoreland (5%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
HaD	Hazleton channery loam, 15 to 25 percent slopes	Very limited	Hazleton (85%)	Too steep (1.00)	0.4	0.1%
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Westmoreland (5%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
			Germano (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Guernsey (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Very limited	Rayne (45%)	Bedrock, above 60" (1.00)	125.7	25.3%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Gilpin (40%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
				Slight voided fragments (0.01)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
				Potential bedrock near 60" (0.27)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
RnC	Rayne-Gilpin channery silt	Very limited	Rayne (46%)	Too steep (1.00)	38.5	7.7%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	loams, 8 to 15 percent slopes			Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
			Gilpin (44%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
RnD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	Very limited	Rayne (55%)	Too steep (1.00)	13.5	2.7%
				Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
			Gilpin (35%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slight voided fragments (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Very limited	Wharton (80%)	Seasonal high water table (1.00)	83.9	16.9%
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Cavode (8%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Gilpin (7%)	Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
Totals for Area of Interest					**497.4**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	497.4	100.0%
Totals for Area of Interest	**497.4**	**100.0%**

Description

This is a system of subsurface lines that distribute effluent from a septic tank into the natural soil. The distribution lines are at a minimum depth of 12 inches. Only the part of the soils between depths of 0 and 60 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this

interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

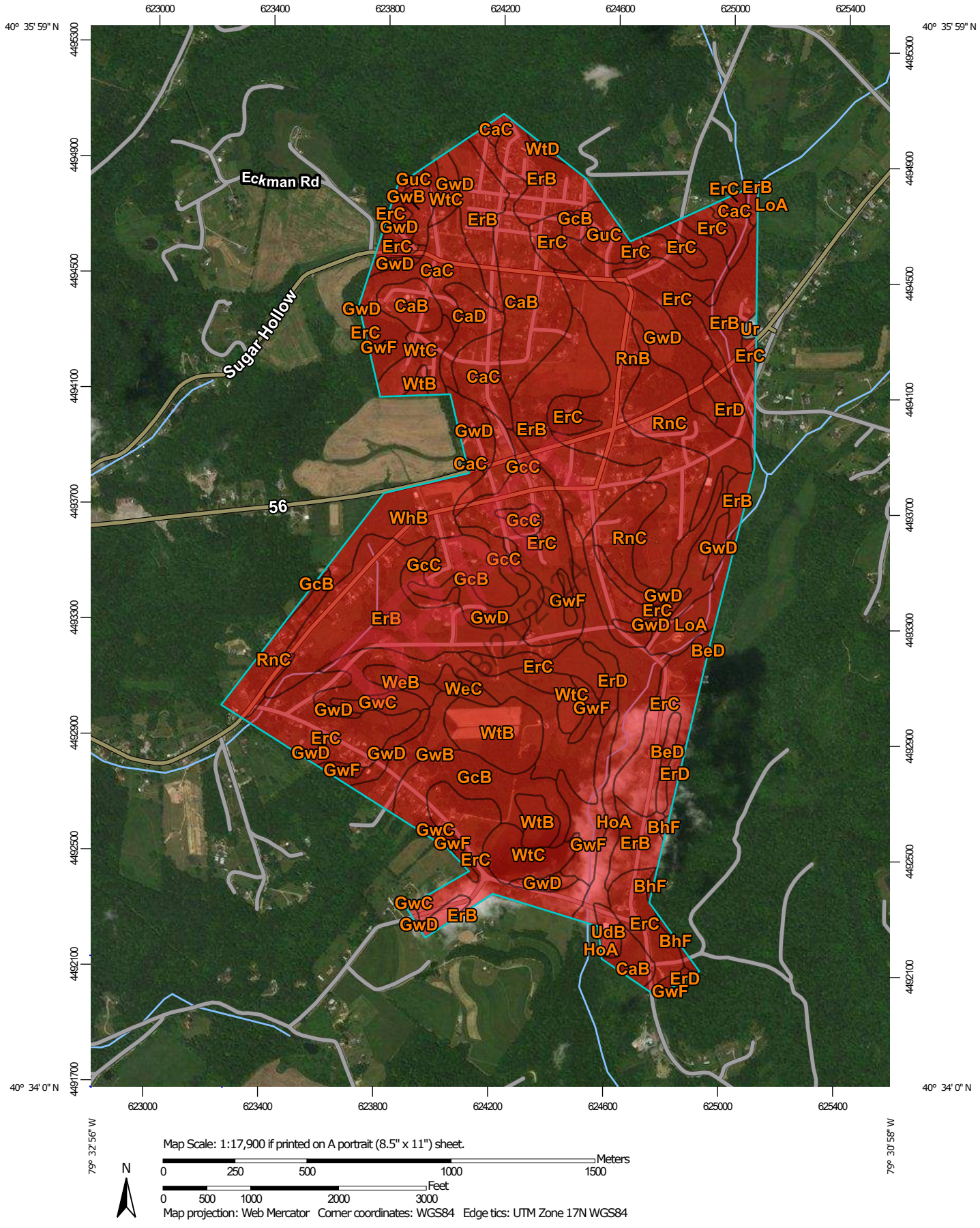
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.1.3

Septic System In-Ground Bed (Conventional) (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - WEST)



Map Scale: 1:17,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System In-Ground Bed (Conventional) (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Very limited	Bethesda, unstable fill (90%)	Too steep (1.00)	3.1	0.4%
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
			Fairpoint, unstable fill (4%)	Too steep (1.00)		
				Potential karst (0.30)		
BhF	Bethesda very channery silt loam, 25 to 75 percent slopes, very stony	Very limited	Bethesda, unstable fill (90%)	Too steep (1.00)	1.8	0.2%
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
			Fairpoint, unstable fill (5%)	Too steep (1.00)		
				Potential karst (0.30)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Very limited	Cavode (85%)	Seasonal high water table (1.00)	41.4	5.1%
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
CaC	Cavode silt loam, 8 to 15 percent slopes	Very limited	Cavode (85%)	Seasonal high water table (1.00)	30.3	3.8%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Bedrock, above 60" (1.00)		
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
CaD	Cavode silt loam, 15 to 25 percent slopes	Very limited	Cavode (80%)	Seasonal high water table (1.00)	7.9	1.0%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Wharton (10%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Gilpin (10%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	141.8	17.6%
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Buchanan (5%)	Seasonal high water table (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	161.6	20.1%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Buchanan (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
ErD	Ernest silt loam, 15 to 25 percent slopes	Very limited	Ernest (85%)	Seasonal high water table (1.00)	11.8	1.5%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Shelocta (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Gilpin (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Very limited	Gilpin (85%)	Bedrock, above 60" (1.00)	35.0	4.3%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Wharton (10%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Very limited	Gilpin (85%)	Bedrock, above 60" (1.00)	16.1	2.0%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Wharton (10%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Potential bedrock near 60" (0.27)		
			Weikert (5%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	Very limited	Gilpin (45%)	Bedrock, above 60" (1.00)	6.4	0.8%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Upshur (35%)	Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Potential karst (0.30)		
			Wharton (20%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Very limited	Gilpin (55%)	Bedrock, above 60" (1.00)	14.3	1.8%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Weikert (30%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Potential bedrock near 60" (0.27)		
			Hazleton (5%)	Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
				Too steep (0.88)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (0.88)		
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Very limited	Gilpin (55%)	Bedrock, above 60" (1.00)	5.2	0.6%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (30%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
			Hazleton (5%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Fast percolation >12" (1.00)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Very limited	Gilpin (45%)	Bedrock, above 60" (1.00)	95.3	11.8%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (40%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Hazleton (10%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Very limited	Gilpin (50%)	Bedrock, above 60" (1.00)	26.3	3.3%
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
			Weikert (35%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.90)		
			Hazleton (10%)	Too steep (1.00)		
				Bedrock, above 60" (1.00)		
				Fast percolation >12" (1.00)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation >12" (1.00)		
HoA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	Very limited	Holly (75%)	Seasonal high water table (1.00)	26.1	3.2%
				Flooding (1.00)		
				Slope (0.03)		
				Potential slow percolation >12" (0.01)		
			Lobdell (15%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.90)		
				Slope (0.03)		
			Ernest (10%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.13)		
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Lobdell (85%)	Seasonal high water table (1.00)	10.3	1.3%
				Flooding (1.00)		
				Slow percolation >12" (0.90)		
				Slope (0.13)		
			Orrville (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.89)		
				Slope (0.13)		
			Holly (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.96)		
				Slope (0.13)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Melvin (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation >12" (0.90)		
				Slope (0.13)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Very limited	Rayne (45%)	Bedrock, above 60" (1.00)	44.2	5.5%
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
			Gilpin (40%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
				Slight voided fragments (0.01)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Slope (0.72)		
				Potential bedrock near 60" (0.27)		
			Cavode (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Slope (0.72)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Very limited	Rayne (46%)	Too steep (1.00)	44.5	5.5%
				Bedrock, above 60" (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation >12" (0.89)		
			Gilpin (44%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
			Ernest (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
			Wharton (5%)	Seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
UdB	Udorthents, 0 to 8 percent slopes	Very limited	Udorthents, unstable fill (100%)	Miscellaneous area (1.00)	3.1	0.4%
				Slope (0.72)		
Ur	Urban land	Not rated	Urban land (90%)		0.8	0.1%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Very limited	Weikert (85%)	Bedrock, above 60" (1.00)	4.1	0.5%
				Slow percolation >12" (0.90)		
				Too steep (0.88)		
			Gilpin (15%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		
WeC	Weikert channery silt loam, 8 to 15 percent slopes	Very limited	Weikert (85%)	Bedrock, above 60" (1.00)	3.3	0.4%
				Too steep (1.00)		
				Slow percolation >12" (0.90)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Gilpin (15%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Very limited	Wharton (80%)	Seasonal high water table (1.00)	18.0	2.2%
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
				Potential bedrock near 60" (0.27)		
			Cavode (8%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Gilpin (7%)	Bedrock, above 60" (1.00)		
				Too steep (0.88)		
			Brinkerton (5%)	Seasonal high water table (1.00)		
				Slow percolation >12" (1.00)		
				Too steep (0.88)		
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	Very limited	Wharton (51%)	Seasonal high water table (1.00)	22.6	2.8%
				Slow percolation >12" (1.00)		
				Slope (0.72)		
				Potential bedrock near 60" (0.27)		
			Gilpin (49%)	Bedrock, above 60" (1.00)		
				Slow percolation >12" (0.89)		
				Too steep (0.88)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slight voided fragments (0.01)		
WtC	Wharton-Gilpin silt loams, 8 to 15 percent slopes	Very limited	Wharton (51%)	Seasonal high water table (1.00)	29.2	3.6%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Gilpin (49%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
WtD	Wharton-Gilpin silt loams, 15 to 25 percent slopes	Very limited	Wharton (55%)	Seasonal high water table (1.00)	0.7	0.1%
				Too steep (1.00)		
				Slow percolation >12" (1.00)		
				Potential bedrock near 60" (0.27)		
			Gilpin (45%)	Bedrock, above 60" (1.00)		
				Too steep (1.00)		
				Slow percolation >12" (0.89)		
				Slight voided fragments (0.01)		
Totals for Area of Interest					**805.3**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	804.5	99.9%
Null or Not Rated	0.8	0.1%
Totals for Area of Interest	**805.3**	**100.0%**

Description

This is a system of subsurface lines that distribute effluent from a septic tank into the natural soil. The distribution lines are at a minimum depth of 12 inches. Only the part of the soils between depths of 0 and 60 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this

interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

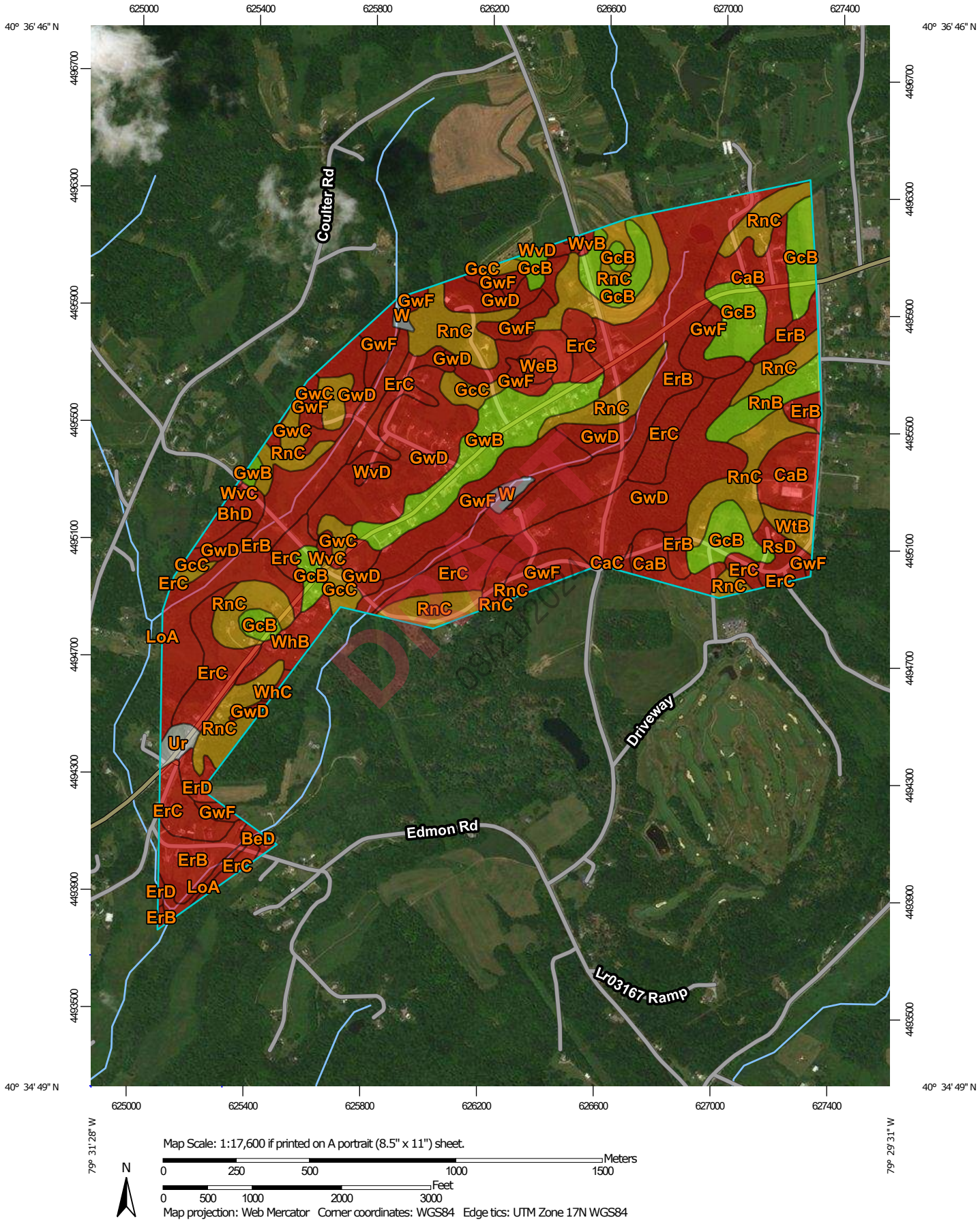
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.2.1

Septic System Sand Mound Bed or Trench (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - CENTER)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System Sand Mound Bed or Trench (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Very limited	Bethesda, unstable fill (90%)	Too steep (1.00)	1.4	0.2%
				Slow percolation 12-20" (1.00)		
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
			Fairpoint, unstable fill (4%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
				Potential karst (0.30)		
BhD	Bethesda very channery silt loam, 8 to 25 percent slopes, very stony	Very limited	Bethesda, unstable fill (85%)	Too steep (1.00)	5.7	0.9%
				Slow percolation 12-20" (1.00)		
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
			Fairpoint, unstable fill (4%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
				Potential karst (0.30)		
			Sewell, unstable fill (3%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Very limited	Cavode (85%)	Potential seasonal high water table (1.00)	32.1	5.0%
				Slow percolation 12-20" (1.00)		
				Slope (0.35)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.35)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
CaC	Cavode silt loam, 8 to 15 percent slopes	Very limited	Cavode (85%)	Potential seasonal high water table (1.00)	0.6	0.1%
				Slow percolation 12-20" (1.00)		
				Too steep (0.85)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Too steep (0.85)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	125.4	19.4%
				Slope (0.40)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	62.5	9.7%
				Too steep (0.85)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Too steep (0.85)		
ErD	Ernest silt loam, 15 to 25 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	3.8	0.6%
				Too steep (1.00)		
			Shelocta (5%)	Too steep (1.00)		
				Low potential seasonal high water table (0.01)		
			Wharton (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation 12-20" (0.58)		
			Gilpin (5%)	Too steep (1.00)		
				Potential bedrock near 20" (0.27)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Slightly limited	Gilpin (85%)	Slope (0.40)	47.7	7.4%
				Potential bedrock near 20" (0.27)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Moderately limited	Gilpin (85%)	Too steep (0.85)	10.5	1.6%
				Potential bedrock near 20" (0.27)		
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Slightly limited	Gilpin (55%)	Slope (0.40)	28.2	4.4%
				Potential bedrock near 20" (0.16)		
			Hazleton (5%)	Slope (0.40)		
				Potential fast percolation 12-20" (0.26)		
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Moderately limited	Gilpin (55%)	Too steep (0.85)	9.3	1.4%
				Potential bedrock near 20" (0.16)		
			Hazleton (5%)	Too steep (0.85)		
				Potential fast percolation 12-20" (0.26)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Very limited	Gilpin (45%)	Too steep (1.00)	116.7	18.1%
				Potential bedrock near 20" (0.16)		
			Weikert (40%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
			Hazleton (10%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
			Wharton (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slow percolation 12-20" (0.58)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Very limited	Gilpin (50%)	Too steep (1.00)	55.4	8.6%
				Potential bedrock near 20" (0.16)		
			Weikert (35%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
			Hazleton (10%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
			Ernest (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Lobdell (85%)	Potential seasonal high water table (1.00)	2.7	0.4%
				Flooding (1.00)		
				Slope (0.18)		
			Orrville (5%)	Potential seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.18)		
			Holly (5%)	Potential seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.18)		
			Melvin (5%)	Potential seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.18)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Slightly limited	Rayne (45%)	Slope (0.40)	9.8	1.5%
			Gilpin (40%)	Slope (0.40)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Potential bedrock near 20" (0.35)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Moderately limited	Rayne (46%)	Too steep (0.85)	98.8	15.3%
			Gilpin (44%)	Too steep (0.85)		
				Potential bedrock near 20" (0.35)		
			Wharton (5%)	Too steep (0.85)		
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
RsD	Rayne-Gilpin channery silt loams, 8 to 25 percent slopes, very stony	Very limited	Rayne (50%)	Too steep (1.00)	6.2	1.0%
			Gilpin (35%)	Too steep (1.00)		
				Potential bedrock near 20" (0.35)		
			Weikert (5%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
				Slight voided fragments (0.00)		
			Ernest (5%)	Potential seasonal high water table (1.00)		
				Slope (0.60)		
			Wharton (5%)	Too steep (1.00)		
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
Ur	Urban land	Not rated	Urban land (90%)		3.2	0.5%
W	Water	Not rated	Water (100%)		3.8	0.6%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Very limited	Weikert (85%)	Bedrock, above 20" (1.00)	3.0	0.5%
				Slope (0.40)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
WhB	Wharton silt loam, 3 to 8 percent slopes	Very limited	Wharton (80%)	Potential seasonal high water table (1.00)	8.6	1.3%
				Slow percolation 12-20" (0.58)		
				Slope (0.40)		
			Cavode (8%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.40)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		
WhC	Wharton silt loam, 8 to 15 percent slopes	Very limited	Wharton (80%)	Potential seasonal high water table (1.00)	0.7	0.1%
				Too steep (0.85)		
				Slow percolation 12-20" (0.58)		
			Ernest (5%)	Potential seasonal high water table (1.00)		
				Too steep (0.85)		
			Rarden (5%)	Slow percolation 12-20" (1.00)		
				Too steep (0.85)		
				Low potential seasonal high water table (0.50)		
				Potential bedrock near 20" (0.45)		
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	Moderately limited	Wharton (51%)	Slow percolation 12-20" (0.79)	4.1	0.6%
				Low potential seasonal high water table (0.67)		
				Slope (0.35)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
WvB	Wharton-Vandergrift complex, 3 to 8 percent slopes	Very limited	Vandergrift (35%)	Slow percolation 12-20" (1.00)	0.6	0.1%
				Potential seasonal high water table (0.98)		
				Slope (0.40)		
				Potential karst (0.30)		
			Cavode (10%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.35)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.35)		
WvC	Wharton-Vandergrift complex, 8 to 15 percent slopes	Very limited	Vandergrift (40%)	Slow percolation 12-20" (1.00)	2.2	0.3%
				Potential seasonal high water table (0.98)		
				Too steep (0.85)		
				Potential karst (0.30)		
			Cavode (10%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Too steep (0.85)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.35)		
WvD	Wharton-Vandergrift complex, 15 to 25 percent slopes	Very limited	Wharton (45%)	Too steep (1.00)	2.0	0.3%
				Slow percolation 12-20" (0.79)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low potential seasonal high water table (0.67)		
			Vandergrift (40%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
				Potential seasonal high water table (0.98)		
				Potential karst (0.30)		
			Cavode (10%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Too steep (0.85)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.35)		
Totals for Area of Interest					**645.1**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	429.7	66.6%
Moderately limited	122.7	19.0%
Slightly limited	85.7	13.3%
Null or Not Rated	7.0	1.1%
Totals for Area of Interest	**645.1**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a mound with sand under aggregate. The mound is placed on top of the mineral soil surface. About 1 to 4 feet of sand could be placed on the mineral soil surface in a sand mound system. Only the part of the soils between depths of 0 and 20 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be

viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

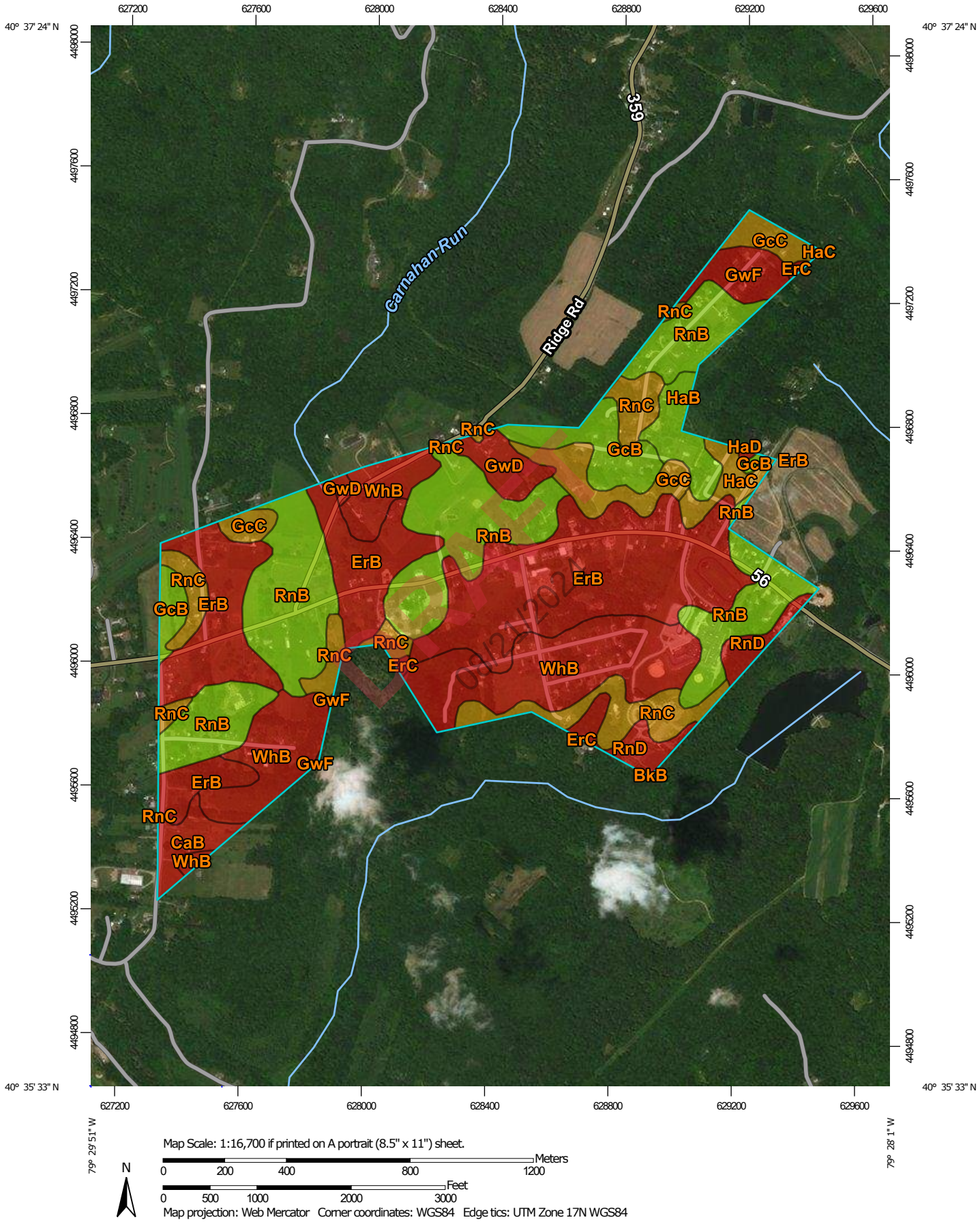
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.2.2

Septic System Sand Mound Bed or Trench (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - EAST)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System Sand Mound Bed or Trench (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BkB	Brinkerton silt loam, 3 to 8 percent slopes	Very limited	Brinkerton (80%)	Potential seasonal high water table (1.00)	0.0	0.0%
				Slope (0.35)		
			Ernest (15%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		
			Lobdell (5%)	Flooding (1.00)		
				Potential seasonal high water table (0.98)		
				Slope (0.09)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Very limited	Cavode (85%)	Potential seasonal high water table (1.00)	8.9	1.8%
				Slow percolation 12-20" (1.00)		
				Slope (0.35)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.35)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	141.8	28.5%
				Slope (0.40)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	1.1	0.2%
				Too steep (0.85)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Too steep (0.85)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Slightly limited	Gilpin (85%)	Slope (0.40)	21.3	4.3%
				Potential bedrock near 20" (0.27)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Moderately limited	Gilpin (85%)	Too steep (0.85)	23.3	4.7%
				Potential bedrock near 20" (0.27)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Very limited	Gilpin (45%)	Too steep (1.00)	10.2	2.1%
				Potential bedrock near 20" (0.16)		
			Weikert (40%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
			Hazleton (10%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
			Wharton (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation 12-20" (0.58)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Very limited	Gilpin (50%)	Too steep (1.00)	10.1	2.0%
				Potential bedrock near 20" (0.16)		
			Weikert (35%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
			Hazleton (10%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
			Ernest (5%)	Potential seasonal high water table (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Too steep (1.00)		
HaB	Hazleton channery loam, 3 to 8 percent slopes	Slightly limited	Hazleton (85%)	Slope (0.35)	11.4	2.3%
				Potential fast percolation 12-20" (0.26)		
			Germano (5%)	Slope (0.35)		
				Potential bedrock near 20" (0.20)		
			Westmoreland (5%)	Slope (0.35)		
HaC	Hazleton channery loam, 8 to 15 percent slopes	Moderately limited	Hazleton (85%)	Too steep (0.85)	7.2	1.4%
				Potential fast percolation 12-20" (0.26)		
			Germano (5%)	Too steep (0.85)		
				Potential bedrock near 20" (0.20)		
			Westmoreland (5%)	Too steep (0.85)		
HaD	Hazleton channery loam, 15 to 25 percent slopes	Very limited	Hazleton (85%)	Too steep (1.00)	0.4	0.1%
				Potential fast percolation 12-20" (0.26)		
			Westmoreland (5%)	Too steep (1.00)		
			Germano (5%)	Too steep (1.00)		
				Potential bedrock near 20" (0.20)		
			Guernsey (5%)	Too steep (1.00)		
				Potential seasonal high water table (0.94)		
				Slow percolation 12-20" (0.58)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Slightly limited	Rayne (45%)	Slope (0.40)	125.7	25.3%
			Gilpin (40%)	Slope (0.40)		
				Potential bedrock near 20" (0.35)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Moderately limited	Rayne (46%)	Too steep (0.85)	38.5	7.7%
			Gilpin (44%)	Too steep (0.85)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Potential bedrock near 20" (0.35)		
			Wharton (5%)	Too steep (0.85)		
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
RnD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	Very limited	Rayne (55%)	Too steep (1.00)	13.5	2.7%
			Gilpin (35%)	Too steep (1.00)		
				Potential bedrock near 20" (0.35)		
			Weikert (5%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
				Slight voided fragments (0.00)		
			Wharton (5%)	Too steep (1.00)		
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Very limited	Wharton (80%)	Potential seasonal high water table (1.00)	83.9	16.9%
				Slow percolation 12-20" (0.58)		
				Slope (0.40)		
			Cavode (8%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.40)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Totals for Area of Interest					**497.4**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	270.0	54.3%
Slightly limited	158.4	31.8%
Moderately limited	68.9	13.9%
Totals for Area of Interest	**497.4**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a mound with sand under aggregate. The mound is placed on top of the mineral soil surface. About 1 to 4 feet of sand could be placed on the mineral soil surface in a sand mound system. Only the part of the soils between depths of 0 and 20 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be

viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

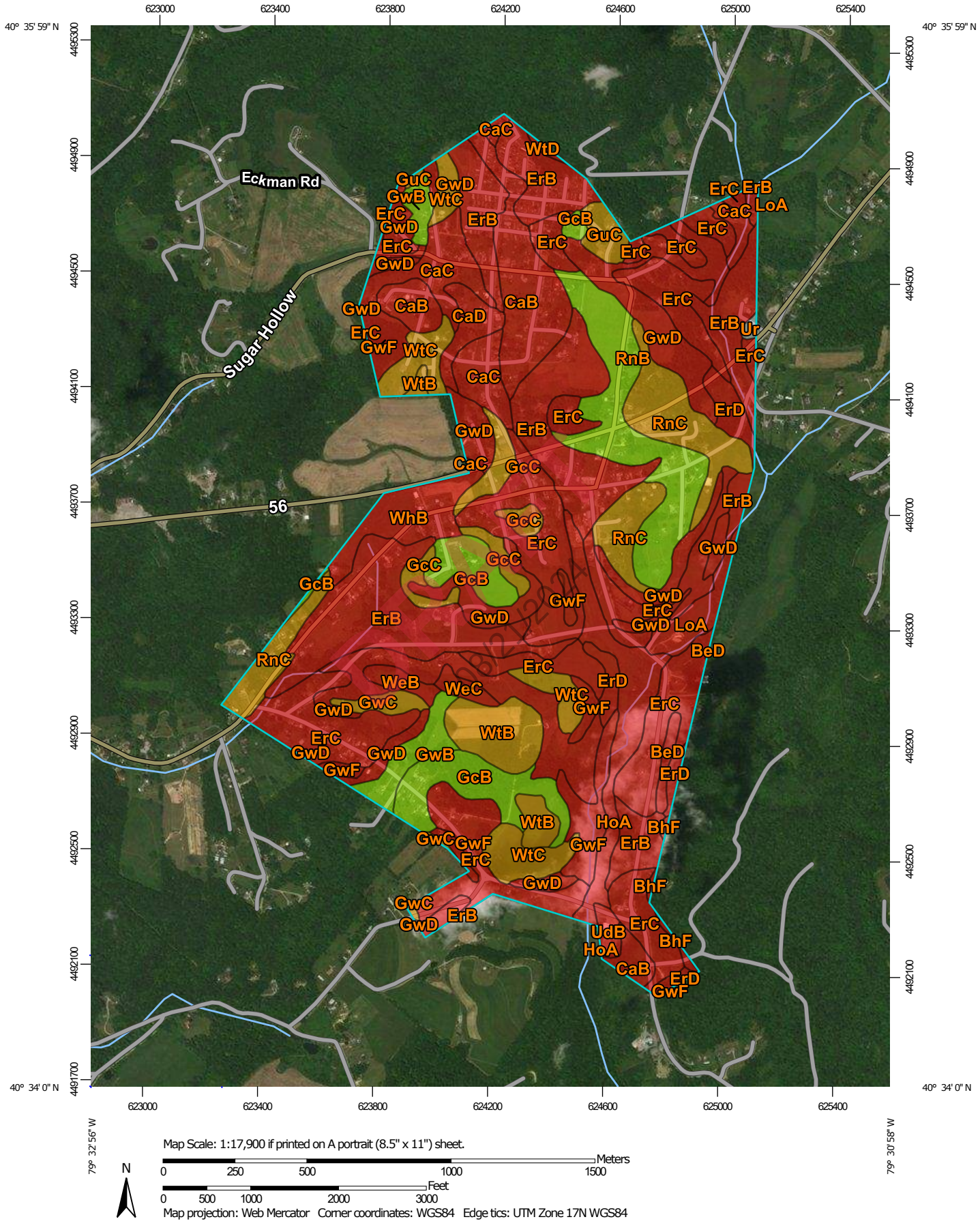
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.2.3

Septic System Sand Mound Bed or Trench (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - WEST)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System Sand Mound Bed or Trench (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Very limited	Bethesda, unstable fill (90%)	Too steep (1.00)	3.1	0.4%
				Slow percolation 12-20" (1.00)		
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
			Fairpoint, unstable fill (4%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
				Potential karst (0.30)		
BhF	Bethesda very channery silt loam, 25 to 75 percent slopes, very stony	Very limited	Bethesda, unstable fill (90%)	Too steep (1.00)	1.8	0.2%
				Slow percolation 12-20" (1.00)		
			Bethesda, loam, unstable fill (5%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
			Fairpoint, unstable fill (5%)	Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
				Potential karst (0.30)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Very limited	Cavode (85%)	Potential seasonal high water table (1.00)	41.4	5.1%
				Slow percolation 12-20" (1.00)		
				Slope (0.35)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.35)		
CaC	Cavode silt loam, 8 to 15 percent slopes	Very limited	Cavode (85%)	Potential seasonal high water table (1.00)	30.3	3.8%
				Slow percolation 12-20" (1.00)		
				Too steep (0.85)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Too steep (0.85)		
CaD	Cavode silt loam, 15 to 25 percent slopes	Very limited	Cavode (80%)	Potential seasonal high water table (1.00)	7.9	1.0%
				Too steep (1.00)		
				Slow percolation 12-20" (1.00)		
			Wharton (10%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation 12-20" (0.58)		
			Gilpin (10%)	Too steep (1.00)		
				Potential bedrock near 20" (0.27)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	141.8	17.6%
				Slope (0.40)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	161.6	20.1%
				Too steep (0.85)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Too steep (0.85)		
ErD	Ernest silt loam, 15 to 25 percent slopes	Very limited	Ernest (85%)	Potential seasonal high water table (1.00)	11.8	1.5%
				Too steep (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Shelocta (5%)	Too steep (1.00)		
				Low potential seasonal high water table (0.01)		
			Wharton (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation 12-20" (0.58)		
			Gilpin (5%)	Too steep (1.00)		
				Potential bedrock near 20" (0.27)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Slightly limited	Gilpin (85%)	Slope (0.40)	35.0	4.3%
				Potential bedrock near 20" (0.27)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Moderately limited	Gilpin (85%)	Too steep (0.85)	16.1	2.0%
				Potential bedrock near 20" (0.27)		
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	Moderately limited	Gilpin (45%)	Too steep (0.85)	6.4	0.8%
				Potential bedrock near 20" (0.26)		
			Wharton (20%)	Too steep (0.85)		
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Slightly limited	Gilpin (55%)	Slope (0.40)	14.3	1.8%
				Potential bedrock near 20" (0.16)		
			Hazleton (5%)	Slope (0.40)		
				Potential fast percolation 12-20" (0.26)		
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Moderately limited	Gilpin (55%)	Too steep (0.85)	5.2	0.6%
				Potential bedrock near 20" (0.16)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Hazleton (5%)	Too steep (0.85)		
				Potential fast percolation 12-20" (0.26)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Very limited	Gilpin (45%)	Too steep (1.00)	95.3	11.8%
				Potential bedrock near 20" (0.16)		
			Weikert (40%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
			Hazleton (10%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
			Wharton (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		
				Slow percolation 12-20" (0.58)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Very limited	Gilpin (50%)	Too steep (1.00)	26.3	3.3%
				Potential bedrock near 20" (0.16)		
			Weikert (35%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
			Hazleton (10%)	Too steep (1.00)		
				Potential fast percolation 12-20" (0.26)		
			Ernest (5%)	Potential seasonal high water table (1.00)		
				Too steep (1.00)		
HoA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	Very limited	Holly (75%)	Potential seasonal high water table (1.00)	26.1	3.2%
				Flooding (1.00)		
				Slope (0.09)		
			Lobdell (15%)	Flooding (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Potential seasonal high water table (0.98)		
				Slope (0.09)		
			Ernest (10%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (0.79)		
				Slope (0.18)		
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Lobdell (85%)	Potential seasonal high water table (1.00)	10.3	1.3%
				Flooding (1.00)		
				Slope (0.18)		
			Orrville (5%)	Potential seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.18)		
			Melvin (5%)	Potential seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.18)		
			Holly (5%)	Potential seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.18)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Slightly limited	Rayne (45%)	Slope (0.40)	44.2	5.5%
			Gilpin (40%)	Slope (0.40)		
				Potential bedrock near 20" (0.35)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Moderately limited	Rayne (46%)	Too steep (0.85)	44.5	5.5%
			Gilpin (44%)	Too steep (0.85)		
				Potential bedrock near 20" (0.35)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Wharton (5%)	Too steep (0.85)		
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
UdB	Udorthents, 0 to 8 percent slopes	Very limited	Udorthents, unstable fill (100%)	Miscellaneous area (1.00)	3.1	0.4%
				Slow percolation 12-20" (0.50)		
				Slope (0.35)		
Ur	Urban land	Not rated	Urban land (90%)		0.8	0.1%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Very limited	Weikert (85%)	Bedrock, above 20" (1.00)	4.1	0.5%
				Slope (0.40)		
WeC	Weikert channery silt loam, 8 to 15 percent slopes	Very limited	Weikert (85%)	Bedrock, above 20" (1.00)	3.3	0.4%
				Too steep (0.85)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Very limited	Wharton (80%)	Potential seasonal high water table (1.00)	18.0	2.2%
				Slow percolation 12-20" (0.58)		
				Slope (0.40)		
			Cavode (8%)	Potential seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.40)		
			Brinkerton (5%)	Potential seasonal high water table (1.00)		
				Slope (0.40)		
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	Moderately limited	Wharton (51%)	Slow percolation 12-20" (0.79)	22.6	2.8%
				Low potential seasonal high water table (0.67)		
				Slope (0.35)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
WtC	Wharton-Gilpin silt loams, 8 to 15 percent slopes	Moderately limited	Wharton (51%)	Too steep (0.85)	29.2	3.6%
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
			Gilpin (49%)	Too steep (0.85)		
				Potential bedrock near 20" (0.26)		
WtD	Wharton-Gilpin silt loams, 15 to 25 percent slopes	Very limited	Wharton (55%)	Too steep (1.00)	0.7	0.1%
				Slow percolation 12-20" (0.79)		
				Low potential seasonal high water table (0.67)		
			Gilpin (45%)	Too steep (1.00)		
				Potential bedrock near 20" (0.27)		
Totals for Area of Interest					**805.3**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	586.9	72.9%
Moderately limited	124.1	15.4%
Slightly limited	93.5	11.6%
Null or Not Rated	0.8	0.1%
Totals for Area of Interest	**805.3**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a mound with sand under aggregate. The mound is placed on top of the mineral soil surface. About 1 to 4 feet of sand could be placed on the mineral soil surface in a sand mound system. Only the part of the soils between depths of 0 and 20 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be

viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

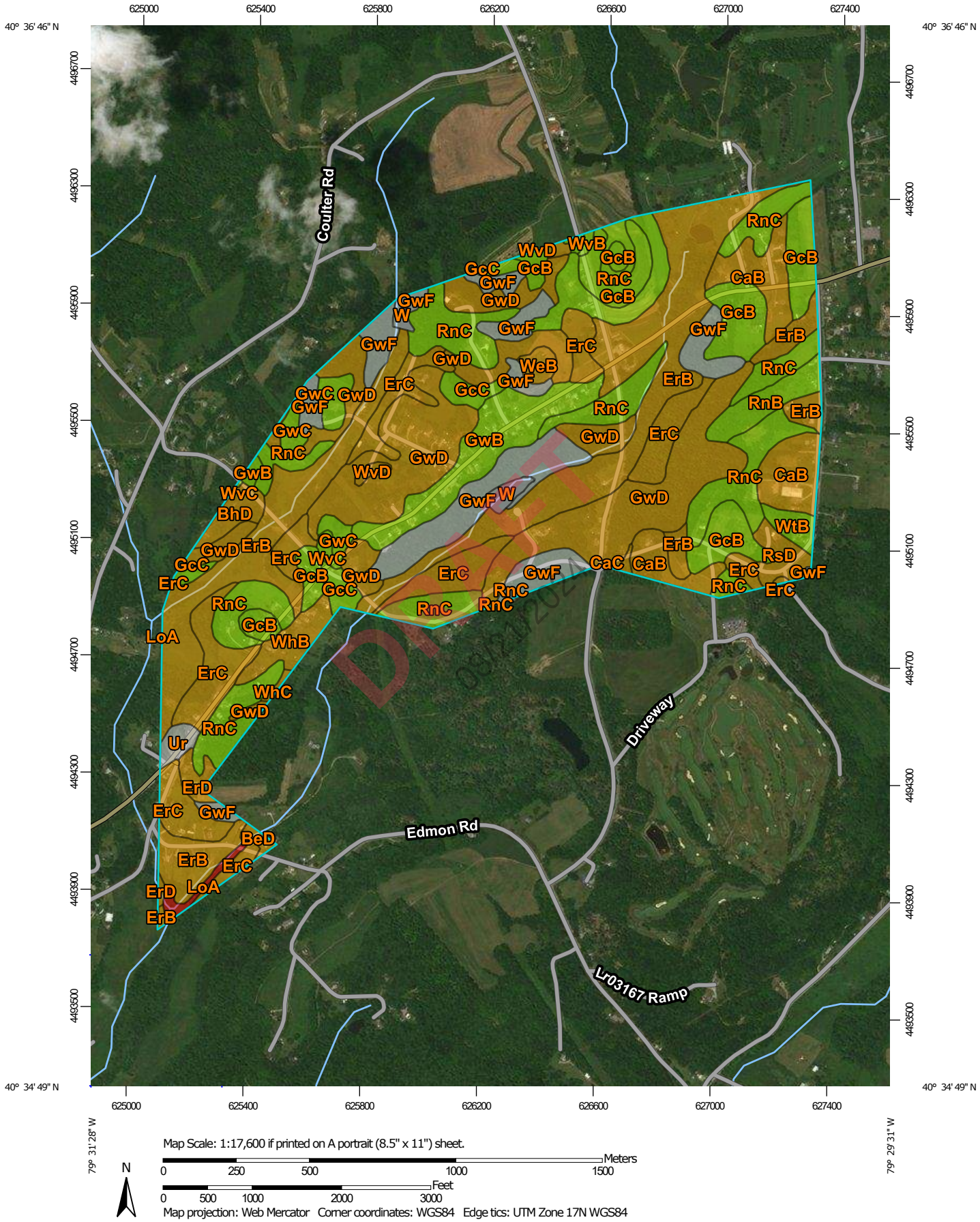
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.3.1

Septic System Spray Irrigation (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - CENTER)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System Spray Irrigation (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Moderately limited	Bethesda, unstable fill (90%)	Slope 0-25%; see land cover criteria (0.75)	1.4	0.2%
			Bethesda, loam, unstable fill (5%)	Slope 0-25%; see land cover criteria (0.75)		
			Fairpoint, unstable fill (4%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential karst (0.30)		
BhD	Bethesda very channery silt loam, 8 to 25 percent slopes, very stony	Moderately limited	Bethesda, unstable fill (85%)	Slope 0-25%; see land cover criteria (0.75)	5.7	0.9%
			Bethesda, loam, unstable fill (5%)	Slope 0-25%; see land cover criteria (0.75)		
			Fairpoint, unstable fill (4%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential karst (0.30)		
			Sewell, unstable fill (3%)	Slope 0-25%; see land cover criteria (0.75)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Moderately limited	Cavode (85%)	Potential seasonal high water table (0.86)	32.1	5.0%
				Slope 0-12%; see land cover criteria (0.50)		
CaC	Cavode silt loam, 8 to 15 percent slopes	Moderately limited	Cavode (85%)	Potential seasonal high water table (0.86)	0.6	0.1%
				Slope 0-12%; see land cover criteria (0.50)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	125.4	19.4%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope 0-12%; see land cover criteria (0.50)		
			Brinkerton (5%)	Seasonal high water table (0.94)		
				Slope 0-12%; see land cover criteria (0.50)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	62.5	9.7%
				Slope 0-12%; see land cover criteria (0.50)		
ErD	Ernest silt loam, 15 to 25 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	3.8	0.6%
				Slope 0-25%; see land cover criteria (0.75)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.73)		
			Gilpin (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.25)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Slightly limited	Gilpin (85%)	Slope 0-12%; see land cover criteria (0.50)	47.7	7.4%
				Potential bedrock near 16" (0.25)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Slightly limited	Gilpin (85%)	Slope 0-12%; see land cover criteria (0.50)	10.5	1.6%
				Potential bedrock near 16" (0.25)		
GwB	Gilpin-Weikert channery silt	Slightly limited	Gilpin (55%)	Slope 0-12%; see land cover criteria (0.50)	28.2	4.4%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	loams, 3 to 8 percent slopes			Potential bedrock near 16" (0.17)		
			Hazleton (5%)	Slope 0-12%; see land cover criteria (0.50)		
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Slightly limited	Gilpin (55%)	Slope 0-12%; see land cover criteria (0.50)	9.3	1.4%
				Potential bedrock near 16" (0.17)		
			Hazleton (5%)	Slope 0-12%; see land cover criteria (0.50)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Moderately limited	Gilpin (45%)	Slope 0-25%; see land cover criteria (0.75)	116.7	18.1%
				Potential bedrock near 16" (0.17)		
			Weikert (40%)	Bedrock, above 16" (0.95)		
				Slope 0-25%; see land cover criteria (0.75)		
			Hazleton (10%)	Slope 0-25%; see land cover criteria (0.75)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.73)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not rated	Gilpin (50%)		55.4	8.6%
			Weikert (35%)			
			Rock outcrop (0%)			
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Lobdell (85%)	Flooding (1.00)	2.7	0.4%
				Low potential seasonal high water table (0.50)		
			Orrville (5%)	Flooding (1.00)		
				Seasonal high water table (0.94)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Holly (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
			Melvin (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Slightly limited	Rayne (45%)	Slope 0-12%; see land cover criteria (0.50)	9.8	1.5%
			Gilpin (40%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.30)		
			Wharton (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Slightly limited	Rayne (46%)	Slope 0-12%; see land cover criteria (0.50)	98.8	15.3%
			Gilpin (44%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.30)		
			Wharton (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
RsD	Rayne-Gilpin channery silt loams, 8 to 25 percent slopes, very stony	Moderately limited	Rayne (50%)	Slope 0-25%; see land cover criteria (0.75)	6.2	1.0%
			Gilpin (35%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.30)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Weikert (5%)	Potential bedrock near 16" (0.78)		
				Slope 0-25%; see land cover criteria (0.75)		
				Slight voided fragments (0.00)		
			Ernest (5%)	Low potential seasonal high water table (0.52)		
				Slope 0-12%; see land cover criteria (0.50)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.19)		
Ur	Urban land	Not rated	Urban land (90%)		3.2	0.5%
W	Water	Not rated	Water (100%)		3.8	0.6%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Moderately limited	Weikert (85%)	Potential bedrock near 16" (0.78)	3.0	0.5%
				Slope 0-12%; see land cover criteria (0.50)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Moderately limited	Wharton (80%)	Low potential seasonal high water table (0.73)	8.6	1.3%
				Slope 0-12%; see land cover criteria (0.50)		
			Cavode (8%)	Potential seasonal high water table (0.86)		
				Slope 0-12%; see land cover criteria (0.50)		
WhC	Wharton silt loam, 8 to 15 percent slopes	Moderately limited	Wharton (80%)	Low potential seasonal high water table (0.73)	0.7	0.1%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope 0-12%; see land cover criteria (0.50)		
			Ernest (5%)	Low potential seasonal high water table (0.52)		
				Slope 0-12%; see land cover criteria (0.50)		
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	Slightly limited	Wharton (51%)	Slope 0-12%; see land cover criteria (0.50)	4.1	0.6%
				Low potential seasonal high water table (0.19)		
			Gilpin (49%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.24)		
WvB	Wharton-Vandergrift complex, 3 to 8 percent slopes	Slightly limited	Wharton (50%)	Slope 0-12%; see land cover criteria (0.50)	0.6	0.1%
				Low potential seasonal high water table (0.19)		
			Vandergrift (35%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.47)		
				Potential karst (0.30)		
WvC	Wharton-Vandergrift complex, 8 to 15 percent slopes	Slightly limited	Wharton (45%)	Slope 0-12%; see land cover criteria (0.50)	2.2	0.3%
				Low potential seasonal high water table (0.19)		
			Vandergrift (40%)	Slope 0-12%; see land cover criteria (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low potential seasonal high water table (0.47)		
				Potential karst (0.30)		
WvD	Wharton-Vandergrift complex, 15 to 25 percent slopes	Moderately limited	Wharton (45%)	Slope 0-25%; see land cover criteria (0.75)	2.0	0.3%
				Low potential seasonal high water table (0.19)		
			Vandergrift (40%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.47)		
				Potential karst (0.30)		
			Cavode (10%)	Potential seasonal high water table (0.86)		
				Slope 0-12%; see land cover criteria (0.50)		
Totals for Area of Interest					**645.1**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Moderately limited	368.9	57.2%
Slightly limited	211.2	32.7%
Very limited	2.7	0.4%
Null or Not Rated	62.4	9.7%
Totals for Area of Interest	**645.1**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a sand filter tank and chlorination system and then through spray heads that disperse the effluent onto the surface of the soil. Only the part of the soils between depths of 0 and 16 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

These ratings do not preclude the need for onsite investigation to determine the limitations affecting system placement.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

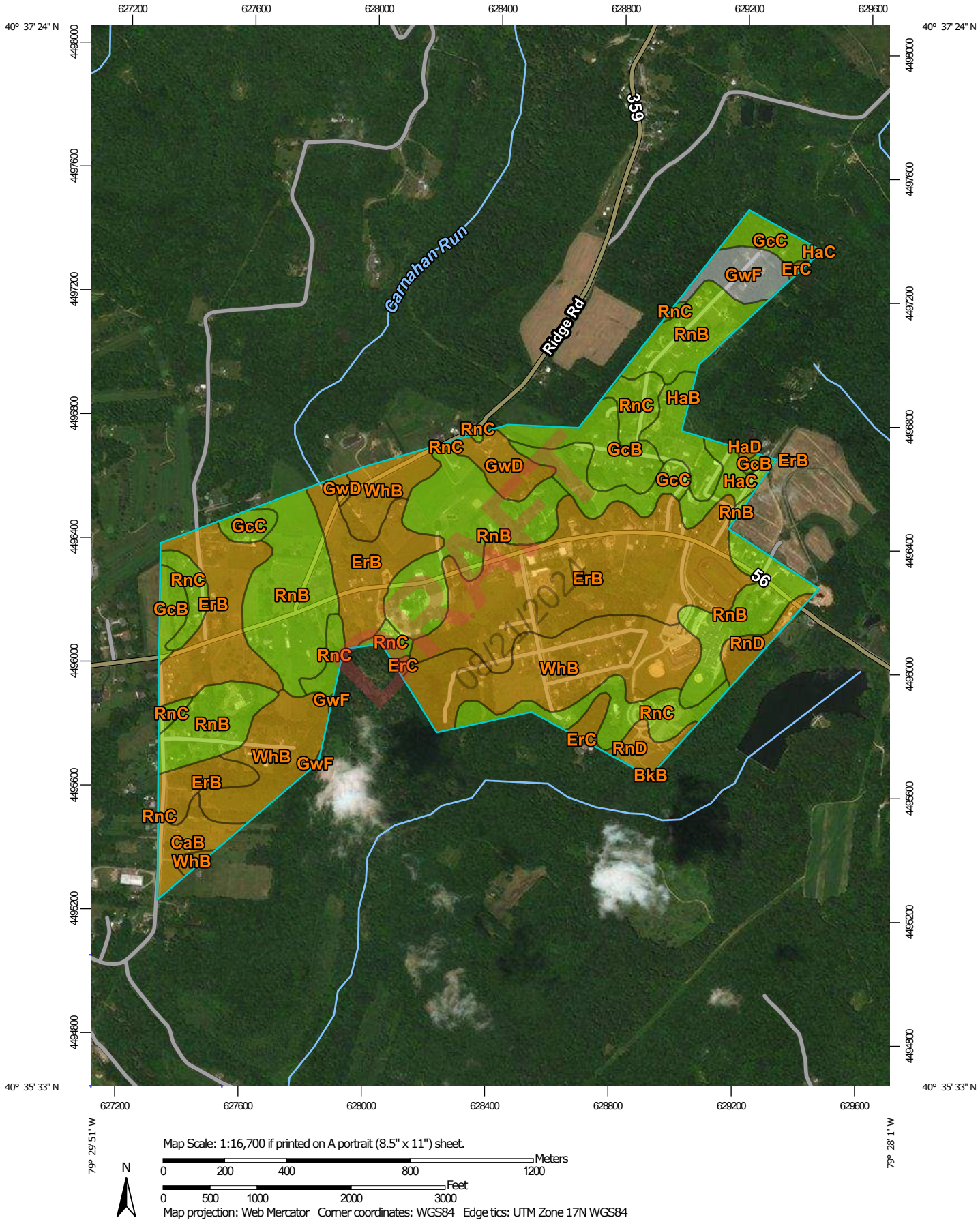
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.3.2

Septic System Spray Irrigation (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - EAST)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System Spray Irrigation (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BkB	Brinkerton silt loam, 3 to 8 percent slopes	Very limited	Brinkerton (80%)	Seasonal high water table (1.00)	0.0	0.0%
				Slope 0-12%; see land cover criteria (0.50)		
			Lobdell (5%)	Flooding (1.00)		
				Low potential seasonal high water table (0.47)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Moderately limited	Cavode (85%)	Potential seasonal high water table (0.86)	8.9	1.8%
				Slope 0-12%; see land cover criteria (0.50)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	141.8	28.5%
				Slope 0-12%; see land cover criteria (0.50)		
			Brinkerton (5%)	Seasonal high water table (0.94)		
				Slope 0-12%; see land cover criteria (0.50)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	1.1	0.2%
				Slope 0-12%; see land cover criteria (0.50)		
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Slightly limited	Gilpin (85%)	Slope 0-12%; see land cover criteria (0.50)	21.3	4.3%
				Potential bedrock near 16" (0.25)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Slightly limited	Gilpin (85%)	Slope 0-12%; see land cover criteria (0.50)	23.3	4.7%
				Potential bedrock near 16" (0.25)		
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Moderately limited	Gilpin (45%)	Slope 0-25%; see land cover criteria (0.75)	10.2	2.1%
				Potential bedrock near 16" (0.17)		
			Weikert (40%)	Bedrock, above 16" (0.95)		
				Slope 0-25%; see land cover criteria (0.75)		
			Hazleton (10%)	Slope 0-25%; see land cover criteria (0.75)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.73)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not rated	Gilpin (50%)		10.1	2.0%
			Weikert (35%)			
			Rock outcrop (0%)			
HaB	Hazleton channery loam, 3 to 8 percent slopes	Slightly limited	Hazleton (85%)	Slope 0-12%; see land cover criteria (0.50)	11.4	2.3%
			Cookport (5%)	Low potential seasonal high water table (0.50)		
				Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.00)		
			Germano (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.20)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Westmoreland (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.01)		
HaC	Hazleton channery loam, 8 to 15 percent slopes	Slightly limited	Hazleton (85%)	Slope 0-12%; see land cover criteria (0.50)	7.2	1.4%
			Cookport (5%)	Low potential seasonal high water table (0.50)		
				Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.00)		
			Germano (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.20)		
			Westmoreland (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.01)		
HaD	Hazleton channery loam, 15 to 25 percent slopes	Moderately limited	Hazleton (85%)	Slope 0-25%; see land cover criteria (0.75)	0.4	0.1%
			Westmoreland (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.01)		
			Germano (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.20)		
			Guernsey (5%)	Slope 0-25%; see land cover criteria (0.75)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low potential seasonal high water table (0.42)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Slightly limited	Rayne (45%)	Slope 0-12%; see land cover criteria (0.50)	125.7	25.3%
			Gilpin (40%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.30)		
			Wharton (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Slightly limited	Rayne (46%)	Slope 0-12%; see land cover criteria (0.50)	38.5	7.7%
			Gilpin (44%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.30)		
			Wharton (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
RnD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	Moderately limited	Rayne (55%)	Slope 0-25%; see land cover criteria (0.75)	13.5	2.7%
			Gilpin (35%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.30)		
			Weikert (5%)	Potential bedrock near 16" (0.78)		
				Slope 0-25%; see land cover criteria (0.75)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slight voided fragments (0.00)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.19)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Moderately limited	Wharton (80%)	Low potential seasonal high water table (0.73)	83.9	16.9%
				Slope 0-12%; see land cover criteria (0.50)		
			Cavode (8%)	Potential seasonal high water table (0.86)		
				Slope 0-12%; see land cover criteria (0.50)		
Totals for Area of Interest					**497.4**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Moderately limited	260.0	52.3%
Slightly limited	227.3	45.7%
Very limited	0.0	0.0%
Null or Not Rated	10.1	2.0%
Totals for Area of Interest	**497.4**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a sand filter tank and chlorination system and then through spray heads that disperse the effluent onto the surface of the soil. Only the part of the soils between depths of 0 and 16 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

These ratings do not preclude the need for onsite investigation to determine the limitations affecting system placement.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

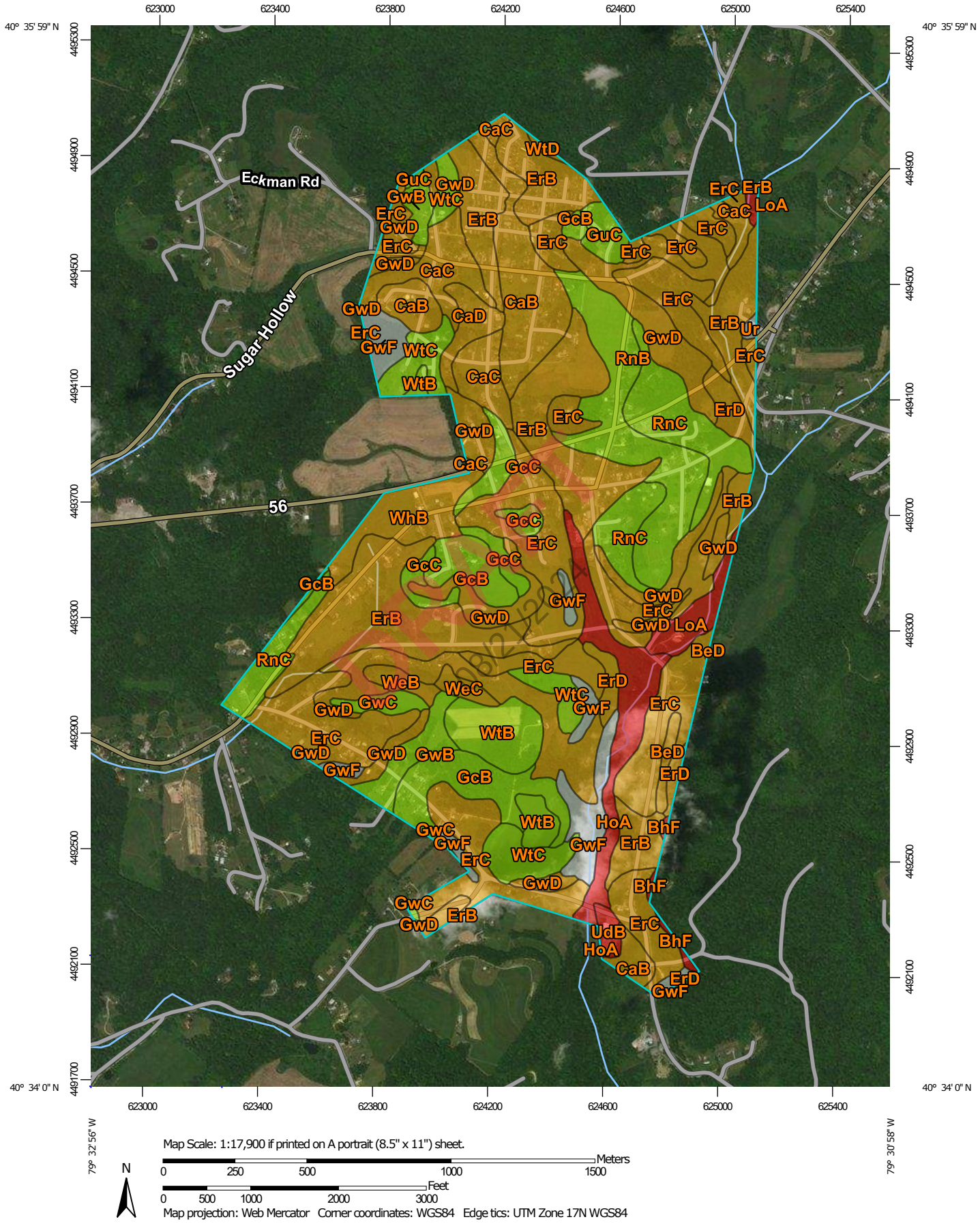
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT 4.3.3.3

Septic System Spray Irrigation (PA)—Armstrong County, Pennsylvania
(KISKI TWP ACT 537 - WEST)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Armstrong County, Pennsylvania
Survey Area Data: Version 14, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 7, 2012—Mar 23, 2017

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.

Septic System Spray Irrigation (PA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Moderately limited	Bethesda, unstable fill (90%)	Slope 0-25%; see land cover criteria (0.75)	3.1	0.4%
			Bethesda, loam, unstable fill (5%)	Slope 0-25%; see land cover criteria (0.75)		
			Fairpoint, unstable fill (4%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential karst (0.30)		
BhF	Bethesda very channery silt loam, 25 to 75 percent slopes, very stony	Very limited	Bethesda, unstable fill (90%)	Slope > 25% too steep (1.00)	1.8	0.2%
			Bethesda, loam, unstable fill (5%)	Slope > 25% too steep (1.00)		
			Fairpoint, unstable fill (5%)	Slope > 25% too steep (1.00)		
				Potential karst (0.30)		
CaB	Cavode silt loam, 3 to 8 percent slopes	Moderately limited	Cavode (85%)	Potential seasonal high water table (0.86)	41.4	5.1%
				Slope 0-12%; see land cover criteria (0.50)		
CaC	Cavode silt loam, 8 to 15 percent slopes	Moderately limited	Cavode (85%)	Potential seasonal high water table (0.86)	30.3	3.8%
				Slope 0-12%; see land cover criteria (0.50)		
CaD	Cavode silt loam, 15 to 25 percent slopes	Moderately limited	Cavode (80%)	Potential seasonal high water table (0.86)	7.9	1.0%
				Slope 0-25%; see land cover criteria (0.75)		
			Wharton (10%)	Slope 0-25%; see land cover criteria (0.75)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low potential seasonal high water table (0.73)		
			Gilpin (10%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.25)		
ErB	Ernest silt loam, 3 to 8 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	141.8	17.6%
				Slope 0-12%; see land cover criteria (0.50)		
			Brinkerton (5%)	Seasonal high water table (0.94)		
				Slope 0-12%; see land cover criteria (0.50)		
ErC	Ernest silt loam, 8 to 15 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	161.6	20.1%
				Slope 0-12%; see land cover criteria (0.50)		
ErD	Ernest silt loam, 15 to 25 percent slopes	Moderately limited	Ernest (85%)	Potential seasonal high water table (0.80)	11.8	1.5%
				Slope 0-25%; see land cover criteria (0.75)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.73)		
			Gilpin (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.25)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	Slightly limited	Gilpin (85%)	Slope 0-12%; see land cover criteria (0.50)	35.0	4.3%
				Potential bedrock near 16" (0.25)		
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	Slightly limited	Gilpin (85%)	Slope 0-12%; see land cover criteria (0.50)	16.1	2.0%
				Potential bedrock near 16" (0.25)		
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	Slightly limited	Gilpin (45%)	Slope 0-12%; see land cover criteria (0.50)	6.4	0.8%
				Potential bedrock near 16" (0.24)		
			Upshur (35%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential karst (0.30)		
			Wharton (20%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
GwB	Gilpin-Weikert channery silt loams, 3 to 8 percent slopes	Slightly limited	Gilpin (55%)	Slope 0-12%; see land cover criteria (0.50)	14.3	1.8%
				Potential bedrock near 16" (0.17)		
			Hazleton (5%)	Slope 0-12%; see land cover criteria (0.50)		
GwC	Gilpin-Weikert channery silt loams, 8 to 15 percent slopes	Slightly limited	Gilpin (55%)	Slope 0-12%; see land cover criteria (0.50)	5.2	0.6%
				Potential bedrock near 16" (0.17)		
			Hazleton (5%)	Slope 0-12%; see land cover criteria (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
GwD	Gilpin-Weikert channery silt loams, 15 to 25 percent slopes	Moderately limited	Gilpin (45%)	Slope 0-25%; see land cover criteria (0.75)	95.3	11.8%
				Potential bedrock near 16" (0.17)		
			Weikert (40%)	Bedrock, above 16" (0.95)		
				Slope 0-25%; see land cover criteria (0.75)		
			Hazleton (10%)	Slope 0-25%; see land cover criteria (0.75)		
			Wharton (5%)	Slope 0-25%; see land cover criteria (0.75)		
				Low potential seasonal high water table (0.73)		
GwF	Gilpin-Weikert channery silt loams, 25 to 70 percent slopes	Not rated	Gilpin (50%)		26.3	3.3%
			Weikert (35%)			
			Rock outcrop (0%)			
HoA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	Very limited	Holly (75%)	Seasonal high water table (1.00)	26.1	3.2%
				Flooding (1.00)		
			Lobdell (15%)	Flooding (1.00)		
				Low potential seasonal high water table (0.47)		
LoA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Lobdell (85%)	Flooding (1.00)	10.3	1.3%
				Low potential seasonal high water table (0.50)		
			Orrville (5%)	Flooding (1.00)		
				Seasonal high water table (0.94)		
			Holly (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Melvin (5%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
RnB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	Slightly limited	Rayne (45%)	Slope 0-12%; see land cover criteria (0.50)	44.2	5.5%
			Gilpin (40%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.30)		
			Wharton (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
RnC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	Slightly limited	Rayne (46%)	Slope 0-12%; see land cover criteria (0.50)	44.5	5.5%
			Gilpin (44%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.30)		
			Wharton (5%)	Slope 0-12%; see land cover criteria (0.50)		
				Low potential seasonal high water table (0.19)		
UdB	Udorthents, 0 to 8 percent slopes	Very limited	Udorthents, unstable fill (100%)	Miscellaneous area (1.00)	3.1	0.4%
				Slope 0-12%; see land cover criteria (0.50)		
Ur	Urban land	Not rated	Urban land (90%)		0.8	0.1%
WeB	Weikert channery silt loam, 3 to 8 percent slopes	Moderately limited	Weikert (85%)	Potential bedrock near 16" (0.78)	4.1	0.5%
				Slope 0-12%; see land cover criteria (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
WeC	Weikert channery silt loam, 8 to 15 percent slopes	Moderately limited	Weikert (85%)	Potential bedrock near 16" (0.78)	3.3	0.4%
				Slope 0-12%; see land cover criteria (0.50)		
WhB	Wharton silt loam, 3 to 8 percent slopes	Moderately limited	Wharton (80%)	Low potential seasonal high water table (0.73)	18.0	2.2%
				Slope 0-12%; see land cover criteria (0.50)		
			Cavode (8%)	Potential seasonal high water table (0.86)		
				Slope 0-12%; see land cover criteria (0.50)		
WtB	Wharton-Gilpin silt loams, 3 to 8 percent slopes	Slightly limited	Wharton (51%)	Slope 0-12%; see land cover criteria (0.50)	22.6	2.8%
				Low potential seasonal high water table (0.19)		
			Gilpin (49%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.24)		
WtC	Wharton-Gilpin silt loams, 8 to 15 percent slopes	Slightly limited	Wharton (51%)	Slope 0-12%; see land cover criteria (0.50)	29.2	3.6%
				Low potential seasonal high water table (0.19)		
			Gilpin (49%)	Slope 0-12%; see land cover criteria (0.50)		
				Potential bedrock near 16" (0.24)		
WtD	Wharton-Gilpin silt loams, 15 to 25 percent slopes	Moderately limited	Wharton (55%)	Slope 0-25%; see land cover criteria (0.75)	0.7	0.1%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low potential seasonal high water table (0.19)		
			Gilpin (45%)	Slope 0-25%; see land cover criteria (0.75)		
				Potential bedrock near 16" (0.25)		
Totals for Area of Interest					**805.3**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Moderately limited	519.4	64.5%
Slightly limited	217.5	27.0%
Very limited	41.2	5.1%
Null or Not Rated	27.2	3.4%
Totals for Area of Interest	**805.3**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a sand filter tank and chlorination system and then through spray heads that disperse the effluent onto the surface of the soil. Only the part of the soils between depths of 0 and 16 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

These ratings do not preclude the need for onsite investigation to determine the limitations affecting system placement.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Pine Valley Mobile Home Park
Wastewater Treatment Plant
(To be Abandoned)

Apollo-Ridge School District
Wastewater Treatment Plant
(To be Abandoned)

- Manholes (Total: 343)
- Sanitary Line Total: (121,164 LF)
- Force Main (5,034 LF)
- Low Pressure Pipe (2,785 LF)
- Agricultural Preserved Area
- Agricultural Security Area

AS PROVIDED BY ARMSTRONG COUNTY FARMLAND PRESERVATION PROGRAM COORDINATOR - NOVEMBER 21, 2019

EXHIBIT 4.4

Legend

- PS — PumpStations
- WTP — Existing Treatment Plant
- Sanitary Manhole
- Sanitary Sewer Pipe
- Stream
- Paved Road
- Unpaved Road
- Building Footprint
- Tax Parcel
- Municipal Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ALTERNATIVE 3 W/ AG PROTECTED AND SECURITY AREAS

MAP DATE: 6/22/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 654-007

0 1,000 2,000

Scale in Feet

SENATE ENGINEERING
Geographic Information Systems
U-PARC, 420 William Pitt Way
Pittsburgh, PA 15238-1330
P (412) 826-5454 · F (412) 826-5458
senate@senateengineering.com
www.senateengineering.com

Exhibit 5

Floodplain Map

Pine Valley Mobile Home Park
Wastewater Treatment Plant
(To be Abandoned)

Apollo-Ridge School District
Wastewater Treatment Plant
(To be Abandoned)

Manholes (Total: 343)
Sanitary Line Total: (121,164 LF)
Force Main (5,034 LF)
Low Pressure Pipe (2,785 LF)

DRAFT
08/21/2024
Township of Kiskiminetas
421209

EXHIBIT 5

Legend

- PumpStations
- Existing Treatment Plant
- Sanitary Manhole
- Sanitary Sewer Pipe
- Stream
- Paved Road
- Unpaved Road
- Building Footprint
- Tax Parcel
- Municipal Boundary

KISKIMINETAS TOWNSHIP ACT 537 PLAN STUDY

ALTERNATIVE 3 W/ FEMA FIRM OVERLAY

MAP DATE: 6/22/20

SANITARY LAYERS CURRENT TO: 10/25/17

SENATE # 12,147

0 1,000 2,000

Scale in Feet

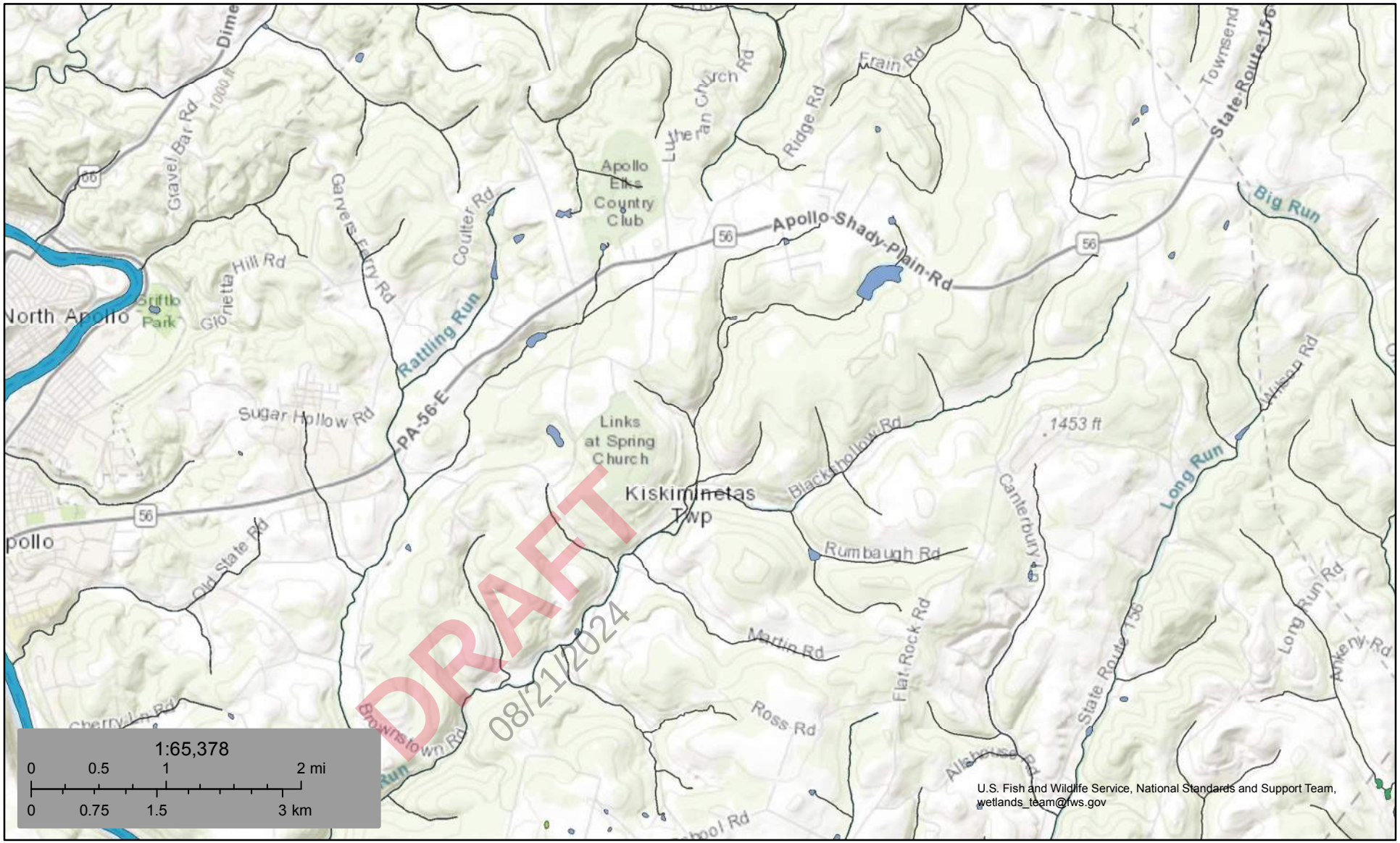
SENATE ENGINEERING
Geographic Information Systems
U-PARC, 420 William Pitt Way
Pittsburgh, PA 15238-1330
P (412) 825-5454 · F (412) 826-5458
senate@senateengineering.com
www.senateengineering.com

Exhibit 6

National Wetland Inventory Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

KISKIMINETAS EXHIBIT 6



December 10, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Exhibit 7

PHMC Response Letter

Pennsylvania Historical & Museum Commission

PROJECT REVIEW FORM

Request to Initiate SHPO Consultation on State and Federal Undertakings

SHPO USE ONLY	Reviewers: ____/____
DATE RECEIVED:	DATE DUE:
ER NUMBER:	HRSF: _____

REV: 06/2018

SECTION A: PROJECT NAME & LOCATION

Is this a new submittal? (•) YES ( ) NO **OR** ( ) **This is additional information for ER Number:**

Project Name: Orchard Hills Area Sanitary System | County: Armstrong | Municipality: Kiskiminetas Twp.

Project Address: Orchard Hills Area around Old State Road | City/State/ Zip: Apollo | Pa

SECTION B: CONTACT INFORMATION & MAILING ADDRESS

Name: Bob Roach | Phone: (412) 826-5454

Company: Senate Engineering | Fax: (412) 826-5458

Street/PO Box: 420 William Pitt Way | Email: Rjroach@senateengineering.com

City/State/Zip: Pittsburgh PA 15238

SECTION C: PROJECT DESCRIPTION

This project is located on: (check all that apply) ☐ Federal property ☑ State property ☑ Municipal property ☑ Private property

List all federal and state agencies and programs providing funds, permits, licenses.

Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
State	PADEP	Part II Permit, General Permit, Joint Permit
State	PENNVEST	Potential loan

Proposed Work – Attach project description, scope of work, site plans, and/or drawings

Project includes (check all that apply): ☑ Construction ☐ Demolition ☐ Rehabilitation ☐ Disposition

Total acres of project area: 2,093 | Total acres of earth disturbance: 10

Are there any buildings or structures within the project area? (•) Yes ( ) No | Approximate age of buildings: 1-100+ yrs old

Does this project involve properties listed in or eligible for the National Register of Historic Places, or designated as historic by a local government?	Yes	No	Unsure	Name of historic property or historic districts
	( )	(•)	( )	

Please print and mail completed form and all attachments to:

PHMC
State Historic Preservation Office
400 North St.
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093

Attachments – Please include the following information with this form

- ☑ **Map –** 7.5' USGS quad showing project boundary and Area of Potential Effect
- ☑ **Description/Scope –** Describe the project, including any ground disturbance and previous land use
- ☑ **Site Plans/Drawings –** Indicate past and present land use, location and dates of buildings, and proposed improvements
- ☐ **Photographs –** Attach prints or digital photographs showing the project site, including images of all buildings and structures keyed to a site plan

SHPO DETERMINATION (SHPO USE ONLY)

- ☐ There are **NO HISTORIC PROPERTIES** in the Area of Potential Effect
- ☐ The project will have **NO EFFECT** on historic properties
- ☐ The project will have **NO ADVERSE EFFECTS** on historic properties:
- ☐ The project will have **NO ADVERSE EFFECTS WITH CONDITIONS** (see attached)
- ☐ **SHPO REQUESTS ADDITIONAL INFORMATION** (see attached)

SHPO REVIEWER: _____ **DATE:** _____

Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

11 October 2018

Bob Roach
Senate Engineering
420 William Pitt Way
Pittsburgh, PA 15238

Re: ER 2018-2290-005-A
PennVest: Orchard Hills Area Sanitary System, Kiskiminetas Township, Armstrong County, Pennsylvania

Dear Mr. Roach:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Archaeological Resources

Based on an evaluation by our staff, including a review of the Statewide Pre-Contact Predictive Model, there is a high probability that National Register significant archaeological sites are present within this project area. These resources could be adversely affected by project activities. Our review considers the locations of known archaeological resources, soil type, topographic setting, slope direction and distance to water, among other regionally specific predictive factors for archaeological site locations. It is our opinion that a Phase I archaeological survey should be conducted to locate potentially significant resources. Guidelines and instructions for conducting all phases of archaeological survey in Pennsylvania are available on our website http://www.phmc.pa.gov/Preservation/About/Documents/SHPO-Guidelines-Archaeological-Investigation.pdf.

The PASHPO will keep the information you provided for this submission and any subsequent submission on file. Please provide a copy of this letter and any other project-related correspondence to your state or federal permitting or funding agency.

Above Ground Resources

There may be above ground historic properties within the project area of potential effect. However, in our opinion the project as proposed will have no effect on historic properties, should they exist. Should the scope and/or nature of the project change the PA SHPO should be contacted immediately.

If you need further information regarding archaeological resources, please contact Steven McDougal at smcdougal@pa.gov or (717) 772-0923. If you need further information regarding above ground resources, please contact Cheryl Nagle at chnagle@pa.gov or (717) 772-4519.

Sincerely,

Douglas C. McLearen, Chief
Division of Environmental Review

DCM/srm

Exhibit 8

PNDI Search & Response Letters

1. PROJECT INFORMATION

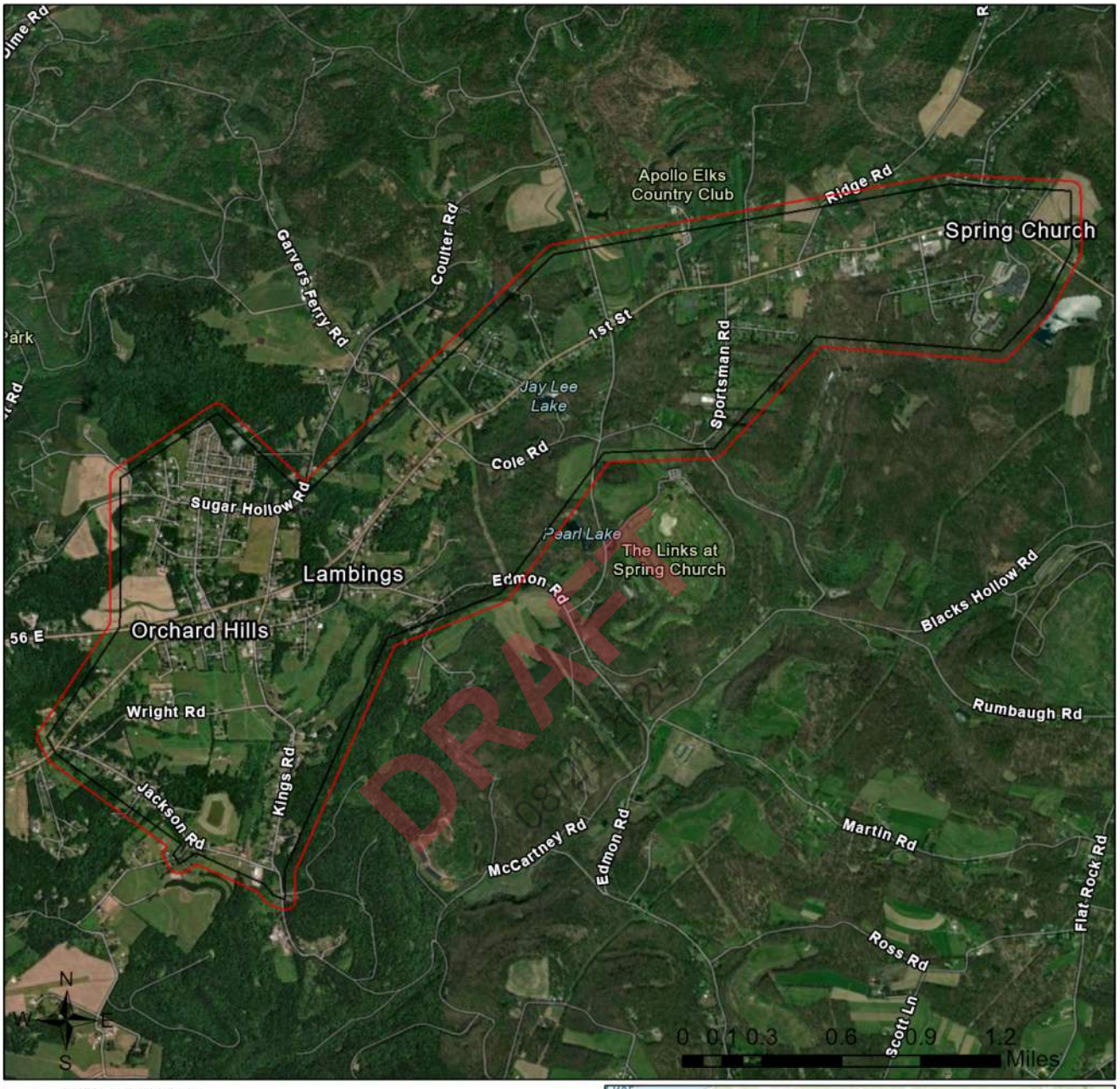
Project Name: **Kiskiminetas Township Act 537 Plan Revision**
Date of Review: **8/6/2024 09:25:31 AM**
Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**
Project Area: **2,225.98 acres**
County(s): **Armstrong**
Township/Municipality(s): **KISKIMINETAS TOWNSHIP**
ZIP Code:
Quadrangle Name(s): **AVONMORE; VANDERGRIFT**
Watersheds HUC 8: **Kiskiminetas; Middle Allegheny-Redbank**
Watersheds HUC 12: **Crooked Creek-Allegheny River; Kiskiminetas River-Allegheny River; Roaring Run-Kiskiminetas River**
Decimal Degrees: **40.593746, -79.512010**
Degrees Minutes Seconds: **40° 35' 37.4849" N, 79° 30' 43.2355" 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	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Kiskiminetas Township Act 537 Plan Revision

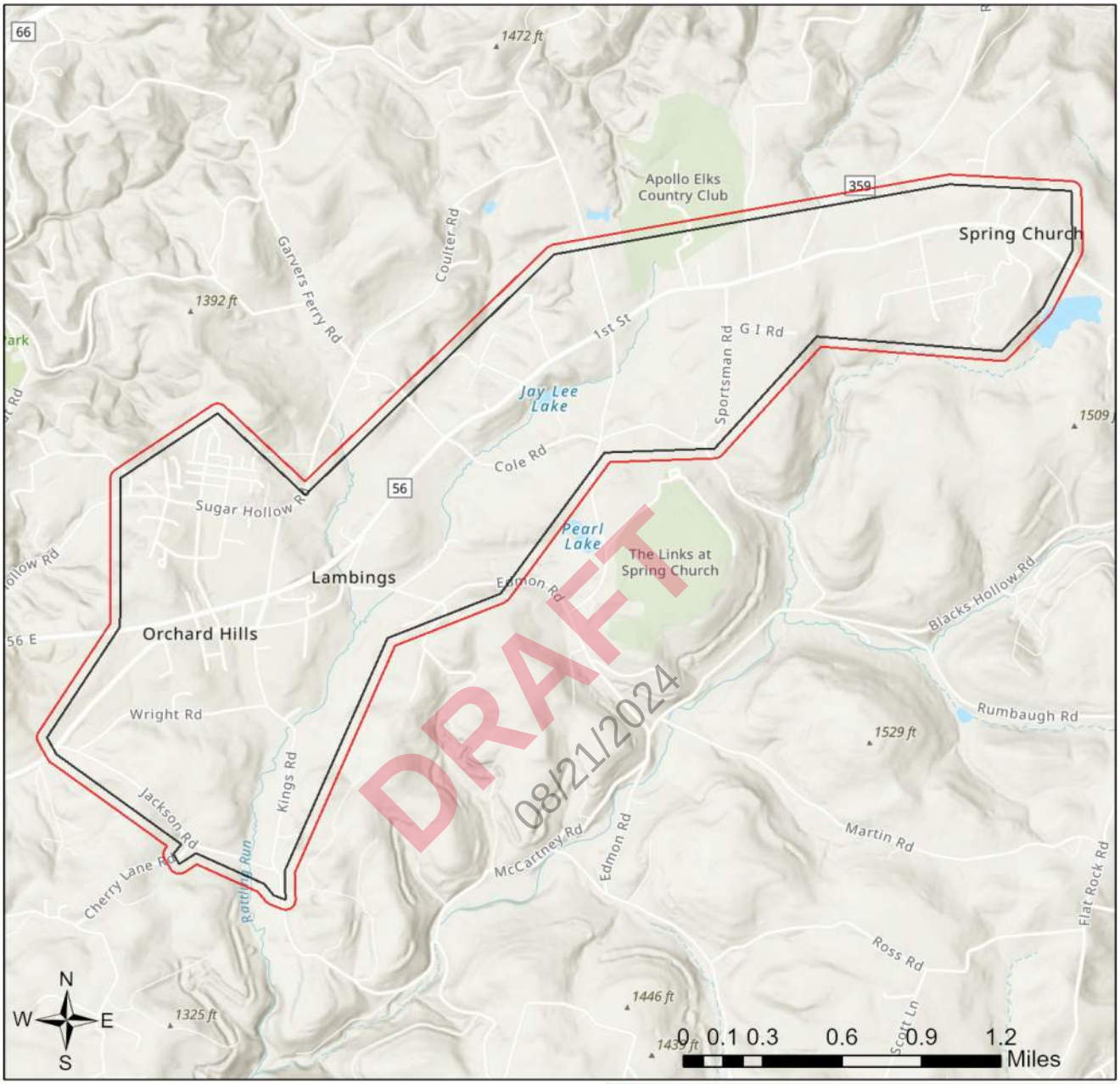


Buffered Project Boundary

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

Kiskiminetas Township Act 537 Plan Revision



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

RESPONSE TO QUESTION(S) ASKED

Q1: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?
Your answer is: Yes

Q2: Is tree removal, tree cutting or forest clearing necessary to implement all aspects of this project?
Your answer is: No

Q3: How many acres of woodland, forest, forested fencerows and trees will be cut, cleared, removed, disturbed or flooded (inundated) as a result of carrying out all aspects or phases of this project? [Round acreages UP to the nearest acre (e.g., 0.2 acres = 1 acre).]
Your answer is: zero acres

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:
No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

Richard Lenhart, Jr.