PRELIMINARY ENGINEERING REPORT

WINESBURG AREA WASTEWATER FACILITIES

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Prepared for:

Holmes County Commissioners

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EXECUTIVE SUMMARY

W.E. Quicksall and Associates, Inc. has completed a Preliminary Engineering Report to examine alternatives to upgrading the wastewater collection and treatment system in the Winesburg area, which is an irregularly-shaped area that includes the unincorporated area of Paint Township along a portion of the US Highway 62 corridor running east and west through the area. Three alternatives were considered for both collection and treatment systems.

Three alternatives have been considered for the collection system. Alternative One explores expanding the wastewater collection system to collect sanitary sewage from the Village of Winesburg and expand to the west of the village to Peabody Kent Rd with a conventional gravity collection system and pump stations. Alternative Two examines a low-pressure sanitary sewer collection system within those same bounds. The third option considered a combination of gravity and low-pressure sewer. A conventional gravity-sewer collection system with pump stations is the recommended alternative.

The three alternatives evaluated for the treatment facilities are rebuilding and expanding the existing conventional extended aeration treatment plant, a packaged aeration treatment plant and using an existing treatment facility located at the Berean Community Church that has been abandoned. The County evaluated pumping the waste water to an existing treatment facility in another community, but determined costs and the distances to pump would not be a feasible alternative to a treatment facility located nearer to Winesburg. This option was ruled out for the reason stated and will not be evaluated any further in this report. All three alternatives considered the design criteria, environmental impacts, land requirements, sustainability considerations, and the estimated costs. A packaged plant alternative has been determined to best serve the needs of the community and is the recommended alternative. Winesburg residents and businesses located in close proximity to the existing system (but not currently in the system) are recommended to be added to the collection system.

1.0 PROJECT PLANNING

1.1 Location

The project planning area, delineated in Figure A-1 of Appendix A, is located in the northeastern corner of Holmes County, Ohio. The project planning area includes a small portion of Paint Township. As shown on the map, it is an irregularly-shaped area that includes the unincorporated area of Paint Township (near Winesburg and along a portion of the US Highway 62 corridor running east and west through the area). The Winesburg area sits atop a hill (approximately 1,300 feet above sea level).

1.2 Environmental Resources Present

The area in and around Winesburg is not encumbered by the flowage easement as delineated by the U.S. Army Corps of Engineers (USACE). The flood hazard zone, as designated on the Federal Flood Insurance

Rate Maps (FIRM) for this particular stream is indicated as Zone X on Figure A-2 of Appendix A. Isolated pockets of wetlands exist in the region. As shown on National Wetland Inventory map (see Figure A-3 of Appendix A), these small pockets are designated as either "Freshwater Forested/Shrub" or "Freshwater Pond" wetlands. However, none of these wetland locations are within the planning area and will not affect the overall design of the project.

1.3 Population Trends and Estimated Sewage Flows

Since Winesburg is not an incorporated village, there is no distinct census data for the area. Historical population records for Paint Township were used to project population trends in the project planning area. Records for the entire county were also utilized for this analysis. Please refer to Table 1 for a summary of records from 2000 and 2010.

Table 1 - County and Township Population Data

Political Subdivision	2000 Population	2010 Population	Rate of Change per Decade
Paint Township	3,547	4,134	+ 16.6%
Holmes County	38,940	42,366	+ 8.8%

There has been a population increase in both of the townships and the county overall since 2000. However, it cannot be concluded with any certainty that these increases are exactly congruent with the population increase in the defined project planning area. To gain a more historical perspective of population growth in Holmes County overall, please review Table 2.

Table 2 - Rate of Population Change Per Decade

Year	Population	Rate of Change per Decade
1960	21,591	--------
1970	23,024	+ 6.6%
1980	29,416	+ 27.8%
1990	32,849	+ 11.7%
2000	38,940	+ 18.5%
2010	42,366	+8.8%

The County has experienced population growth every decade beginning with 1960. There was a significant increase during the 1980s. During the past 50 years, the average rate of change per decade was about 14.5%. This figure is reduced to 13% when omitting the highest and lowest data points. When considering the two townships along with the County as a whole, the average growth rate for the 2000 to 2010 period calculates out to about 11.2%. Based on the information at hand, the assumption of a 12.5% increase in population per decade is reasonable to assume. This figure will be used for the infrastructure planning outlined in this document. The planning period is 20 years.

1.4 Community Engagement

Holmes County held a public meeting to discuss this project. Local businesses, industry, and the community have been utilized to come up with the best solution for the area. Further meetings will occur once the design process has begun to continue to take account of the input from the community. As the process continues meetings will be held to explain not only the design but also the funding requirements, and other factors that affect the community.

2.0 EXISTING FACILITIES

2.1 Location Map

Holmes County currently owns and operates a wastewater collection and treatment system in the Winesburg area. Water service is provided by the Winesburg Area Developmental Corporation (WADC), a private company. A layout of the existing water and sewer utilities is shown on Figure A-4 of Appendix A. The existing Wastewater Treatment Plant (WWTP) is located on the south side of the Village (access off County Road 160). Please refer to Figure A-5 of Appendix A for a layout of the Winesburg WWTP.

2.2 History

The Winesburg wastewater collection and treatment system was originally constructed in the early 1980s under local ownership and operation with small portions added to the system later. There are no official detailed records of construction activities for any part of the system. Holmes County took ownership of the Winesburg WWTP and collection system in the mid-1990s. The system serves a total of 79 residential and commercial customers in the Winesburg area. The existing treatment plant has a capacity of 15,000 gallons per day (gpd). Please see Appendix F for a copy of the NDPES permit. The treatment plant underwent some minor improvements in the early 2000s when ultraviolet disinfection was added along with two equalization basins. A pumping station was also added to convey the equalized flow back into the main stream.

2.3 Condition of Existing Facilities

The conditions of the existing facilities are outlined here based on information obtained from the facility operators in Holmes County and a field visit to the area on December 4, 2013 and field visits in July, 2018.

2.4 Collection System

Major portions of the sanitary sewer collection system are at least 30 years old and the overall condition of the system has not been formally or systematically evaluated. However, the Holmes County Sanitary Engineer has indicated that no problems have been associated with the collection system to date. The system has not been inspected but again, no reason has been presented at this time to perform any additional work on the Winesburg collection system, and no reported I/I issues exist within the collection system itself; the only I/I issue the facility experiences is from a small wetland area near the head of the WWTP. The county has no knowledge of overflows in the past.

The Winesburg collection system is not very old in terms of accepted useful life standards. However, since there are no records of construction, condition or capacity, additional assessment is recommended for a future phase.

2.5 WWTP

The Winesburg WWTP discharges into an un-named tributary of Indian Trail Creek and constitutes the major portion of flow in this tributary, especially in the drier months of late summer and early autumn. The NPDES permit establishes effluent loadings (summarized in Table 3 below) based on an average design flow of 15,000 gallons per day (gpd). A process flow diagram of the existing plant is highlighted in Figure A-10 of Appendix A.

Table 3 -Winesburg WWTP Monthly Effluent Limitations

Effluent Parameter	Discharge Limitation
Dissolved Oxygen (DO)	6 mg/L
pH range	6.5 to 9.0
Total Suspended Solids (TSS)	12.0 mg/L
Nitrogen, Ammonia (NH3)	1.5 mg/L (summer); 3.3 mg/L (winter)
Phosphorous	1.0 mg/L
CBOD, 5-day	10.0 mg/L
E. coli (#/100 ml)	126

Currently, the most significant operational problems for the Winesburg WWTP are keeping the sand filters on line and the ineffective trash trap at the head of the plant. Larger solids are escaping into the plant and equalization basins resulting in frequent problems with solids causing break downs in the equalization station pumps. There is currently no means to measure and record the influent and effluent flow through the plant. The timers on dosing pumps are being used to obtain a rough estimate of flow. By using Sodium Aluminate, the operations staff is meeting a 1mg/L effluent limitation for total phosphorous. Current dosage is about one gallon per day to get the effluent levels down to 0.2 to 0.4 mg/L. The blower motors have been rebuilt but the blowers are very close to reaching the end of their useful lives. There are large cracks in the concrete structures containing the sand filters. The ground surface around the head works of the plant was very “mushy” and appeared to be very poorly drained at the time of the last site visit. The plant currently operates on single-phase electric power. However, three phase power is available close to the site (along County Road 160). The WWTP does not currently have potable water on site, but the upgraded Winesburg water system has a pipe available approximately 180 feet away (also on County Road 160).

The Winesburg WWTP is near the end of its useful life and has been receiving flows in excess of 15,000 gallons per day (gpd). Please refer to Tables 4 & 4.1.

Tables 4 & 4.1- Winesburg WWTP Average Monthly Flows for 2013 and 2017-2018

Month	**Average Flow for the Period (gallons per day)**
January 2013	16,550
February 2013	15,390
March 2013	16,740
April 2013	18,170
May 2013	No data
June 2013	12,600
July 2013	15,680
August 2013	9,550
September 2013	8,710
October 2013	10,060
November 2013	11,270
December 2013	16,060
Annual Average	14,954

Month	**Average Flow for the Period (gallons per day)**
August 2017	15,000
September 2017	18,000
October 2017	13,000
November 2017	22,000
December 2017	14,000
January 2018	33,000
February 2018	26,000
March 2018	20,000
April 2018	29,000
May 2018	19,000
June 2018	29,000
July 2018	13,000
August 2018	14,000
Monthly Average	**20,000**

As noted, the major concern is inadequate plant capacity to serve the expected needs of those living and working in the project planning area. A larger treatment plant will increase the volume of discharge and will require an Anti-Degradation permit through OEPA to continuing to discharge at the same location.

2.6 Financial Status of any Existing Facilities

Revenues from the County's wastewater billing in 2018 was $1,672,407.38. Please refer to Appendix E for financial data. The 2018 operating expenses and debt service obligations for the Holmes County wastewater system were $1,693,779.76.

The reserves of the Winesburg WWTP are tied together with the Holmes County reserve funds since Holmes County owns and operates the system. Individually the Winesburg WWTP does not have any reserve funds.

A table of Short-Lived Assets for the Winesburg WWTP is included in Appendix H.

2.7 Current User Rates

The current residential user rate for the sewer system is approximately $50 per month per user. This rate includes the base rate, the usage rate, a debt retirement rate and allowances for depreciation and capital improvement projects. Commercial rates are slightly higher at $55 per month.

2.8 Water, Energy and Waste Audits

No water, energy, or waste audits have been conducted for this project. There are water, energy, and waste issues that are being addressed in this design. The amount of waste that is currently being brought into the Winesburg WWTP is reaching the limit it was designed for on a regular basis as shown in Table 3. Based on visual inspection of some portions of the intake section for the treatment plant there are signs of I/I which could be causing some of the capacity issues.

CWA Environmental Consulting did identify several commercial facilities that have waste streams tributary to septic systems or holding tanks that should not be permitted to be discharged to the Winesburg sanitary sewers without pretreatment prior to discharge. In addition, one commercial facility was identified as discharging a characteristic hazardous waste for pH (pH<2 standard units) to the septic system that serves the facility. The waste was also very high in heavy metals and should not be permitted to be discharged to the Winesburg sanitary sewer without significant pretreatment. These findings were included in a spreadsheet provided to Holmes County in a November 5, 2019 email.

3.0 NEED FOR PROJECT

3.1 Reasonable Growth

Table 5 - Rate of Population Change Per Decade

Year	Population	Rate of Change per Decade
1960	21,591	--------
1970	23,024	+ 6.6%
1980	29,416	+ 27.8%
1990	32,849	+ 11.7%
2000	38,940	+ 18.5%
2010	42,366	+8.8%

The County has experienced population growth every decade beginning with 1960. There was a significant increase during the 1980s, however the last census year indicated a much lower growth rate. During the past 50 years, the average rate of change per decade was about 14.5%. This figure is reduced to 13% when omitting the highest and lowest data points. When considering the two townships along with the County as a whole, the average growth rate for the 2000 to 2010 period is 11.2%. Based on the information at hand, the assumption of a 12.5% increase in population per decade is reasonable to assume. This figure will be used for the infrastructure planning outlined in this document. The planning period is 20 years.

Existing aerial photography was used to estimate the number of residential units within the planning area. In addition, WEQA conducted a field visit in July 2018 in order to evaluate the number of business and commercial units in the region and the types of wastewater being generated. This information is summarized in Table 6.

Table 6 - Summary of Residential and Commercial Units

	Individual Dwelling Units	Commercial/Industrial Units
Winesburg Area	113	27

An estimate of sewage flows for the existing commercial and industrial operations in the planning area was developed based on information received from the Winesburg Area Development Corporation (WADC), owner and operator of the local water treatment and distribution system. For commercial/industrial operations having a valid NPDES (National Pollution Discharge Elimination System) permit, flow information was obtained from the Ohio Environmental Protection Agency (OEPA). Please refer to Table 7 for an estimate of flows for the commercial and business operations in the planning area. Water use records were utilized to develop a gross estimate for commercial and industrial entities not on the water system. Entities denoted in bold are not currently connected to the Winesburg public sewer system. Many of these commercial operations are located west of Winesburg along U.S. Highway 62.

Table 7 - Flow Estimates for Commercial and Business Operations

Name of Business/Organization	Typical Activities	Quarterly Water Usage (gal)	Estimated Sewage Flow (gpd)	Equivalent Dwelling Units (EDUs)
EXISTING COMMERCIAL CONNECTIONS				
Winesburg Carriage	Buggy fabricator	1,000	10	0.05
Zion Reformed Church	Worship and fellowship activities	3,000	35	0.15
Zion Reformed Church – Annex	Worship and fellowship activities	8,000	90	0.44
Volunteer Fire Department	Not regularly staffed	Free 10,000	110	0.54
Whitmer's Store	Grocery, deli, pizza 3-table café	50,000	560	2.76
Paula's Headquarters	Beauty salon	5,000	55	0.27
Serenity Massage Therapy	Residential apartment in Post office building	6,000	70	0.35
Winesburg Elementary School	K thru 6 public education	45,000	500	2.47
Winesburg Post Office	Post Office	1,000	10	0.05
Winesburg Meats	Meat processing and retail sales	40,000	450	2.22
East Holmes Family Care	Doctor's office	2,000	25	0.12
Grapevine House B & B	Small lodging facility	25,000	280	1.38
Beacon Café	Coffee Shop	9,000	100	0.49
Plain Target Marketing	Printing Company	7,000	80	0.39
Stone Cottage Inn	Lodging	15,000	170	0.84
Honey Ridge School	Parochial School	800	10	0.05
Mossor Trucking	Trucking Company	12,000	130	0.64
PROPOSED COMMERCIAL CONNECTIONS				
Commercial & Savings Bank	**Small banking center**	**2,000**	**25**	**0.12**
W & W Trucking	**Trucking, dispatching, food processing**	**8,000**	**90**	**0.44**
Beechy's Garage	**Auto and truck repair service**	**36,000**	**400**	**1.97**
Alpine Structures	**Custom sheds and out-buildings including a residence**	**35,000**	**390**	**1.92**
Sauder's Eggs	**Egg washing facility**	**165,000**	**1,800**	**8.88**
Santmyer Retail	**2 gas pumps, retail store**	**18,000**	**200**	**0.99**
Mast Tractor Sales	**Implement dealer**	**40,000**	**450**	**2.22**
B & L Transport	**Trucking, woodworking**	**167,000**	**1,850**	**9.13**
Dutch Legacy		**5,000**	**55**	**0.27**
Winesburg Dariette	**Ice cream stand**	**65,000**	**720**	**1.33**
Ruby's Country Store	**Retail (no bathroom)**			**0**
Kent Elastomer	**Manufacturing**	**60,000**	**670**	**3.31**
Galion Godwin	**Manufacturing**	**50,000**	**560**	**2.76**
Winesburg Car Wash	**Car wash**	**200,000**	**2200**	**10.85**
Township Garage	**Municipal Garage**	**3,000**	**35**	**0.15**
Winesburg Lawn and Garden	**Retail/Repair**	**8,000**	**90**	**0.44**
Total		**1,306,800**	**14,500**	**71.53**

Average Daily flow addition= 14500 Gallons

The average daily flow was determined by assuming all water usage will equate to sewage flow and averaged into a daily amount.

The estimated sewage flow for each commercial/industrial user is converted to an Equivalent Dwelling Unit (EDU), based on the assumption that each residential dwelling unit in the area generates approximately 225 gallons per day of wastewater (2.3 persons per household as reported by the United States Census Bureau for the region multiplied by 100 gallons per day per person). A summary of the current number of EDU's and the projected number of EDU's (out to 2035) is indicated in Table 8.

Table 8 - Summary of Current EDU's and Projected EDU's for 2035

	Residential		**Commercial/Industrial**		**Total EDU's**	
	Current	*Projected*	*Current*	*Projected*	*Current*	*Projected*
Winesburg	113	143	72	90	185	233

Based on the projected growth rate of 12.5% per decade, the total number of EDU's projected for the planning area by 2035 would be approximately 233 as shown in Table 8. This indicates a total design flow of approximately 50,000 gallons per day (gpd) for the Winesburg system. This is indicated in Table 9, along with a breakdown of current and projected sewage flows for the Winesburg area. It should be noted that Tables 8 and 9 assume that current flows include all possible system users identified in the project area (i.e.: not just those currently connected to the existing system).

Table 9 - Breakdown of Current and Projected Sewage Flows

	Residential		**Commercial/Industrial**		**Total**	
	Current	*Projected*	*Current*	*Projected*	*Current*	*Projected*
Winesburg	25,425	32,175	16,200	20,250	41,625	52,425

3.2 Health and Sanitation

The Winesburg WWTP is currently over capacity and undersized for the sewage flows expected in the project planning area (Table 9). There are several local businesses (located within the project planning area) that are not currently tied into the Winesburg sewage collection and treatment system. These businesses, along with several residences not currently served, are indicated on Figure A-4 of Appendix A as these locations have water service but no sanitary service. Some of these businesses own and operate septic systems or small, on-site package treatment systems for sewage disposal. Many of these private septic systems are failing and have been reported by the County Health Department. A letter supporting the proposed sewer extension from the County Health Department is attached in Figure A-11 of Appendix A.

3.3 Aging Infrastructure

Though the WWTP does not meter the amount of flow that comes into the system, the treatment quantity used in the plant can be used to determine the approximate amount of flow coming into the system. This estimate of the amount treated compared to the metered amount of water that is expected to be serviced to this area shows that there might be ground water infiltration or collection of rainwater into the system. County Personnel believe the infiltration may be from saturated/soggy ground conditions at the head of the plant. This issue will need to be investigated while looking into upgrading the system as a whole, as well as replacing the sand filters, which is now an obsolete method of filtration.

Based on a discussion between CWA Environmental Consulting and the Holmes County Health Department on November 6, 2019, it was reported that a total of 34 residential septic systems were surveyed and that 17 were documented as failed systems, 7 were identified as operational systems, and 10 were listed systems of unknown condition. This is an important issue to clarify since CWA Environmental Consulting included the 17 failing septic systems in the loading analysis provided to Ohio EPA. If there is additional documentation that the remaining septic systems are failing, or if there are no plans at this time to connect the 17 failing systems to sanitary sewers when available, CWA Environmental will need to revise the loading analysis to be consistent with the PER and submit the revised spreadsheet to Ohio EPA for review and discussion. Due to of the importance of this information for the NPDES Permit modification, it is suggested that a meeting or conference call with the health department to clarify this issue.

4.0 WWTP ALTERNATIVES CONSIDERED

Three main alternatives have been analyzed for improving the sanitary sewerage system in the Winesburg planning area:

- **Alternative One**: Expand and Improve the treatment system with a conventional aeration plant. This option would include demolishing or rehabilitation existing dilapidated structures, expanding the existing treatment process to handle additional flow from the collection system and replacing major components and yard piping of the existing facility. Construction would be complicated with maintaining existing treatment while constructing the new facilities. This option would likely need additional real estate to accommodate the new equipment and construction activities.
- **Alternative Two**: Demolish the existing treatment works and replace with a packaged extended aeration treatment works sized to accept existing plus additional flow from the proposed expanded collection system. This option would allow construction of the new facility while maintaining operations of the existing during construction. Future expansion of the treatment works is possible for this option without acquiring additional real-estate. Room for additional process equipment would be made available with the demolition of the existing plant.
- **Alternative Three**: Expand/improve/replace the existing wastewater collection and treatment system located at the Berean Community Church which is approximately 1.5mi. north of the village. This would include extending the existing sanitary sewer system outward from the Village of Winesburg along US 62 toward SR 515 and toward the Berean Community Church. Winesburg residents and businesses located in close proximity to the existing system (but not currently in the system) will be included. The existing Winesburg wastewater plant would be replaced with a pump station. In this scenario, the waste from the WADC would also be collected. The Berean Community Church treatment plant is not currently being used. Due to the lack of use of the system, maintenance of portions of the system is required. The only portion of collection that exists at this plant is the connection to the church. Drawings for this facility are currently filed at the County Engineer's office. The Berean Community Church WWTP discharge location may not be adequate to receive the amount of expected flow of the Winesburg Area. This may require the upgrade to have a different discharge location, similar to the discharge location of the Alpine Cheese Factory's WWTP discharge location.

- As previously mentioned, but not included in the final alternatives considered, Holmes County evaluated the possibility of pumping waste water to a treatment facility in another community instead of building a new facility locally. However, the distances necessary to pump the waste, accompanied by the cost of pump station and installing miles of force-main ruled this option out early on in the consideration process.

The proposed alternative, which is Alternative Two, is described in detail below. The proposed layouts are defined and the preliminary cost estimates appear in Appendix B.

4.1 Description

A new extended aeration package treatment plant, rated for a design flow of 75,000 gallons per day would be constructed on the site. However, if the need for future expansion is anticipated, the plant should be constructed to handle 150,000 gpd with split treatment trains to allow for the increase treatment requirements. Some of the existing tankage could be re-used/repurposed as sludge storage capacity or as equalization tanks if and as necessary. The new plant would be very similar to the existing plant in overall footprint but larger in capacity. The proposed improvements to the facility include:

1. Replace trash trap with new head works for screening out the larger solids
2. Expand aeration capacity to handle additional flow
3. New secondary clarifiers
4. New sludge storage basin
5. Expand equalization capacity
6. Replace sand filters with new disk filtration
7. Rehabilitate or replace ultraviolet disinfection system
8. Utilize existing structures for additional sludge storage on the site or as equalization basins
9. Demolish the existing equipment along with upgrade the single phase electric utility service to 3-phase.
10. The WWTP design intent is similar to the recently completed Mt. Hope WWTP. The similar design would utilize common components in both facilities, thus reducing the amount of spare parts that the county would be required to inventory for maintenance issues at either of the plants.

4.2 Schematic Layout

A diagram for the proposed WWTP improvement is shown in Figure A-9 of Appendix A.

4.3 Cost Estimates

The Engineer's Estimate for total project costs for two alternatives is highlighted in Appendix B-4 and B-5. The cost estimate for the expansion and upgrade for the Berean Church WWTP is in Appendix B-6, but was not studied further due to the high cost of this option. Both Construction and Non-construction costs are considered. Construction costs are for the actual labor, material and installation of the specified equipment only. The Non-construction costs include engineering, survey, legal, administrative, permitting, and funding application costs, as well as accounting for unforeseen soil conditions or drainage issues that must be addressed.

4.4 Life Cycle Cost Analysis

Life cycle costs and present worth values are shown for each of the alternatives and sub-alternatives in Table 10.

Table 10 - Life Cycle Cost Analysis Summary for WWTP Alternatives

Winesburg WWTP Improvement Alternatives	Total Construction Cost	Annual O & M Cost	20-Year Total Present Worth
Alternative One – Conventional Extended Aeration Treatment Plant	$1,494,000 (Table B-4)	$30,530 (Table C-4)	$2,064,700 (Table D-4)
Alternative Two – Packaged Extended Aeration Treatment Plant	$1,126,000 (Table B-3)	$41,730 (Table C-3)	$1,817,400 (Table D-3)
Alternative Three – Utilize an existing, but idled WWTP at Berean Community Church	$6,116,000 (Table B-6)	Not evaluated given high up-front costs	(no Table)

The numbers presented in Table 10 were derived from the present worth analysis outlined in Appendix D. The periodic replacement costs of specific items are included in the present worth and life cycle cost analysis of the various options.

5.0 COLLECTION SYSTEM ALTERNATIVES CONSIDERED

The community intends to expand the collection system to include more of the area to the west of Winesburg along U.S 62. The proposed collection system west of Winesburg will flow into the existing treatment location to be pumped to the proposed treatment plant location. Repairs to the existing sewer system are not necessary at this time. Three alternatives for the design of the collection system were considered. These alternatives are discussed in the following paragraphs

5.1 Conventional Gravity System

As the name implies, this type of system utilizes the force of gravity to convey sewage downhill to a treatment plant or pumping station. A conventional gravity system involves the installation of 8-inch diameter sanitary sewers at a minimum slope of 0.40% with manholes being located at a maximum spacing of 400 feet or at changes in slope, direction, and/or intersections of additional sewers.

The existing topography around the Winesburg area is hilly and unforested. The area is rural, but with many residential and commercial improvements, especially along the S.R. 62 corridor. The relatively close proximity of the population in the area and adequate right-of-way along the roadways makes a gravity system feasible given that the system will not have low flow issues due to long stretches between taps or will require the acquisition of right-of-way/easements. But, due to the terrain, the project will require either several pump stations to convey the sewage from the low areas or sewers to be installed at very deep (30'+) depths to traverse the high points along the sewer route. Force mains from each pump station would discharge into the nearest down-stream manhole to gravity flow to the WWTP from that point. This process would continue until the flow reaches the WWTP.

In addition to the work for the WWTP, two existing pump station will be rehabilitated on the project: One, at 7730 Twp. Rd. 671 and the second at 2040 E. Old Main Street. Existing pump stations are to be rehabilitated with new pumps, guide rails, level sensors and electrical wiring and controls. New telemetry and a generator will also be added.

The existing sewer collection system will not be studied at this time. The County Sanitation Engineer has indicated the sewer lines in Winesburg are in good working order and do not need tested as part of this project phase. Any un-sewered business or residence located within the immediate vicinity of Winesburg will be tied into the existing system. These areas are delineated on Figure A-4 of Appendix A.

5.2 Low Pressure Sewer System

A low-pressure sewer system involves the installation of small diameter sanitary sewers connected to individual grinder pumps for every user prior to a collection tap. The entire system remains under low pressure until the system discharges to the WWTP. This type of system utilizes shallow installation depths (generally just below frost line or conflicting utilities). The downside, however, is installing individual grinder pumps at each user. These systems often place the units on private property and rely on the user for power to the grinder pumps. Easements would need to be obtained from every user prior to installing the grinder pump units. Depending on the location of the grinder pumps, problems can occur when accessing private property for pump maintenance and servicing.

5.3 Other sewer options

A combination of gravity sewer and grinder pumps was considered, but all of the areas under consideration for collection can best be served by gravity sewers with a couple of pump stations at this time. The areas where pump stations will be required to lessen the depth of the gravity system, will be smaller stations, but will receive sufficient flow to justify their use over several dozen small individual grinder units considering the right-of-way / easements that would need obtained plus the electrical costs, maintenance issues and entering private property to perform the maintenance. Any dedicated pump stations designed for this project will be installed in the Public Right-of-Way. Still, if the collection area is to be expanded further in the future, small individual grinder pumps may be necessary to pump to a nearby manhole.

5.4 Description

The existing sanitary sewer system in the Winesburg area would be expanded to serve businesses and residences located south-west of the Village along US Highway 62 between Beechy's Inc. of Winesburg (auto & Fleet Maintenance and Repair) and would connect to the existing sewer in Winesburg. Both alternate systems, a conventional gravity sewer as well as a low-pressure sewer, would be constructed within the public right-of-way. The sanitary sewer system would also be extended toward Darling Ingredients (with Darling Ingredients not to be included) on CR 160. Any un-sewered business or residence located within the immediate vicinity of Winesburg will be connected to the system.

5.5 Map

Figure A-7 of Appendix A shows Alternative Two – Low-pressure Sewer service area. Figure A-8 of Appendix A shows the proposed Alternative One – Gravity Sewer service area.

5.6 Cost Estimates

The Engineer's Estimate for total project costs for all three alternatives is highlighted in Appendix B. Both Construction and Non-construction costs are considered, as well as a 20% contingency to account for any previously unknown soil conditions and drainage issues. Construction costs are for the actual labor, material and installation of the specified equipment only. The Non-construction costs include engineering, survey, legal, administrative, permitting, and funding application costs.

5.7 Life Cycle Cost Analysis

Life cycle costs and present worth values are shown for each of the alternatives and sub-alternatives in Table 11.

Table 11 - Life Cycle Cost Analysis Summary for Collection System Alternatives

Winesburg Collection System Expansion Alternatives	Total Construction Cost	Annual O & M Cost	20-Year Total Present Worth
Alternative One – Gravity Sewer	$1,725,000 (Table B-2)	$7,910 (Table C-2)	$1,901,900 (Table D-2)
Alternative Two – Low-pressure Sewer	$1,762,000 (Table B-1)	$17,850 (Table C-1)	$2,076,400 (Table D-1)
Alternative Three – Combination Gravity/Low-pressure Sewer	$1,537,000 (Table B-3)	$15,710 (Table C-3)	$1,820,400 (Table D-3)

The numbers presented in Table 11 were derived from the present worth analysis outlined in Appendix D. The periodic replacement costs of specific items are included in the present worth and life cycle cost analysis of the various options.

6.0 IMPACTS

6.1 Design Criteria

The design flow will be calculated based expected values of water usage. Any special manufacturer's recommendations would also be considered. All attempts will be made to construct the collection system outside of paved areas and will utilize approved fill. No additional easements are anticipated, as the design intent is to contain the construction to existing public right-of-way.

6.2 Map

Figure A-8 of Appendix A shows the proposed sewer main and service area.

6.3 Environmental Impacts

This design will help mitigate environmental impacts of failing septic systems, and collected sewage will be directed to a location that can adequately handle and monitor the discharge from the system. However, adding more capacity to this plant will increase the percentage of receiving stream flow from the plant effluent. As such, any proposed plant upgrade will to consider any limitations that may be imposed after

once the Anti-Degradation process (as outlined by the National Pollution Discharge Elimination System) has been completed.

A meeting was held with representatives from Ohio EPA Northeast District Office on August 5, 2019 to discussed details of the Winesburg project and the permitting requirements associated with the proposed increased flow from the Winesburg treatment plant. In particular, the requirements associated with the antidegradation review of the increased pollutant loadings were also discussed. It was agreed that Holmes County would conduct a survey of the existing commercial and domestic septic systems in the proposed expanded service area to document the number of discharging systems that could be eliminated by the project, and to determine if a mitigation project would be required for the proposed wastewater treatment plant expansion project.

The analytical results from the survey of commercial facilities, and findings provided by the Holmes County Health Department for discharging residential systems, were entered into a loading analysis to estimate the pollutant load to area streams that could be eliminated with the Winesburg project. The final analysis showed that the anticipated loadings for BOD5, TSS and ammonia associated with the increased flow from the Winesburg project could be more than offset by connecting discharging septic systems into the new sanitary sewers of the expanded service area. This demonstrated that connecting failed septic systems to the new sanitary sewers may be considered the mitigation measure required by Ohio EPA to offset increased pollutant loads from the Winesburg project.

Ohio EPA was provided a copy of the loading analysis on November 19, 2019. On November 27, 2019, a call was held with Ohio EPA Northeast District Office to discuss the analysis. It was concluded that, pending a final antidegradation review of the project, the proposal to connect discharging septic systems to the Winesburg sanitary sewers may be included in the NPDES Permit Antidegradation Addendum for consideration by Ohio EPA as a mitigative measure for the Winesburg project. As a result of this discussion with Ohio EPA Northeast District Office, Holmes County will submit the NPDES Permit modification request and a completed Antidegradation Addendum to Ohio EPA for processing.

6.4 Land Requirements

Due to the size and construction methods for a conventional aerated treatment plant, Holmes County would need to acquire some of the surrounding land to facilitate the construction of the treatment plant. Once additional land obtained for construction, no other easements would be required as a permanent easement exists for the access drive. An Easement Deed and Map of the access road is included in Appendix G. However, a packaged extended aeration plant (the preferred alternative) would not require additional space, even for a possible expansion. However, the permanent easement that is in place for the access drive would remain.

6.5 Potential Construction Problems

Soil conditions for the areas of potential construction are mostly unknown. Based on the USDA Natural Resources Conservation Service Web Soil Survey (see Appendix I), soil types in this area may pose construction limitations for WWTP facilities. A detailed sub-surface soil investigation will be necessary prior to the design of any facilities to determine any special construction techniques that will overcome any limitations.

6.6 Sustainability Considerations

These changes are being considered with an overall look at sustainability. Though the individual treatment system may not be a sustainable development, it helps deal with potentially failing septic systems, treatment of larger business and industrial wastewater, and helps treat the water treatment plant discharge.

6.7 Green Infrastructure

The treatment will be designed in accordance to the Recommended Standards for Wastewater Facilities as published by the Great Lakes-Upper Mississippi River Board of State and Provincial Health and Environmental Managers (10- States Standards).

6.8 Project Schedule

The project schedule will be dictated by the various sources of funding that is being sought for this project. Applications for various funding sources have unique application requirements and due dates. Funding applications and nominations can be applied for in 2020. The expected project design period could begin as early as spring 2020. Construction would most likely not break ground until early 2021. The design and construction of the system would begin when those funds become available.

6.9 Other

The new treatment system will help the Holmes County operators better provide for service area. The operator currently has to facilitate the operation of 2 public systems for this area, while the new system will serve the whole service area with a single facility.

7.0 PROJECT RECOMMENDATIONS

7.1 Recommended Collection System Alternative

Extend, improve, and replace the existing wastewater collection system with a conventional gravity sewer collection system. This would include extending the existing sanitary sewer system outward from the Village of Winesburg along US 62 toward SR 515 to the Beechy's Inc. site. Winesburg residents and businesses located in close proximity to the new system (but not currently in the system) will be connected to the collection system.

7.2 Recommended WWTP Improvements

The recommended alternative for the upgrade of the WWTP is to abandon the existing equipment and install a Pre-engineered Extended Aeration Package Treatment Plant. As mentioned earlier, this plant would use the same package treatment system as was used on the Mt. Hope WWTP. Utilizing this type of treatment process will allow construction to take place while keeping the existing treatment plant in operation; save parts inventory costs by using like-designs in the district; and would not require new or additional real-estate space and would fit on the existing WWTP site.

7.3 Recommended Funding Sources

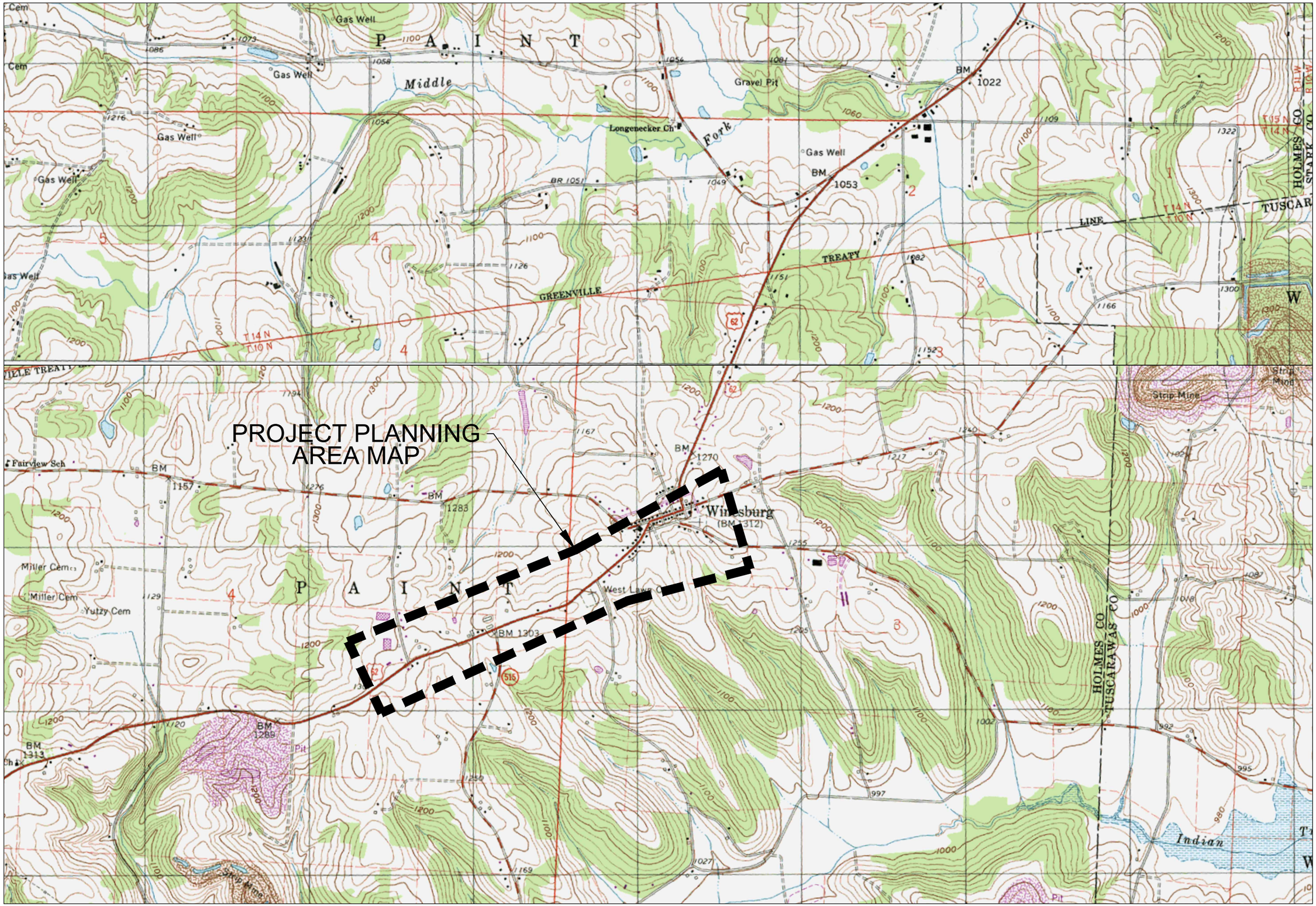
Funding a project of this size will likely require multiple sources to relieve the county of the sole financial burden for the construction of the recommended alternatives. Sources to be considered for supplemental funding are as follows:

1. Ohio Public Works Commission (OPWC) – OPWC offers loans and grants which are typically used in combination to meet target amounts. A competitive funding source with no maximum grant ceilings, OPWC is available to Counties, cities, Villages, townships and Water and Sewer Districts and uses a points based funding application process that ranks the project based criteria selected by OPWC methodology. Grants for projects of this size typically request up to $500,000 and are used in combination with loan requests for an equal amount. Loan are 0% loans with payment terms for up to 30 years (not to exceed the useful life of the project).
2. Appalachian Regional Commission (ARC) – ARC offers grants for critical infrastructure projects for local governments within the Appalachian Region. The Region consists of portions of the 13 Appalachian States. Grants from ARC typically require a "local match" of funds from an eligible community or a third-party source. Grant thresholds are limited to 50% of project costs (30% in counties that are approaching national economic norms).
3. Ohio Environmental Protection Agency (OEPA) – Offers loan assistance to fund critical infrastructure improvements throughout the state. OEPA administrates the WPCLF (Water Pollution Control Loan Fund) which is tasked with financing waste water/sewage projects. Loan terms vary based on community criteria and specific need of the improvements.
4. United States Department of Agriculture Rural Development (USDA-RD) – Provides affordable funding to develop essential community facilities in rural areas. USDA-RD provides grants and low interest loans for eligible projects for small rural communities

(populations less than 5500) or low-income communities having a median household income of less than 80% of the state non-metropolitan median household income.

Many funding sources consider the income levels of the community to benefit from infrastructure improvements. Winesburg has an approximately 38% low to moderate income level (LMI).

APPENDIX-A



(SOURCE- HOLMES COUNTY GIS WEBSITE " gis.co.holmes.oh.us/holmess")

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New Philadelphia, Ohio

Drawn	Checked	Reviewed	Date
KBZ	BEN	BEN	11-13-19

HOLMES COUNTY COMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A – FIGURE 1
PROJECT AREA MAP
WINESBURG, HOLMES COUNTY, OHIO

NO.	DATE	DESCRIPTION	BY

Prepared under the Responsible Charge of : BEN

File No. 1821

Sheet No. A–1

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National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet 1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/19/2019 at 11:44:44 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Resource-
FEMA MAP SERVICE CENTER

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HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A – FIGURE 2
FEMA FIRMETTE MAP
WINESBURG, HOLMES COUNTY, OHIO

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Sheet No. A–2

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U.S. Fish and Wildlife Service

National Wetlands Inventory

Winesburg

August 14, 2018

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

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HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A – FIGURE 3
WETLANDS DELINEATION MAP
WINESBURG, HOLMES COUNTY, OHIO

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Sheet No. A–3

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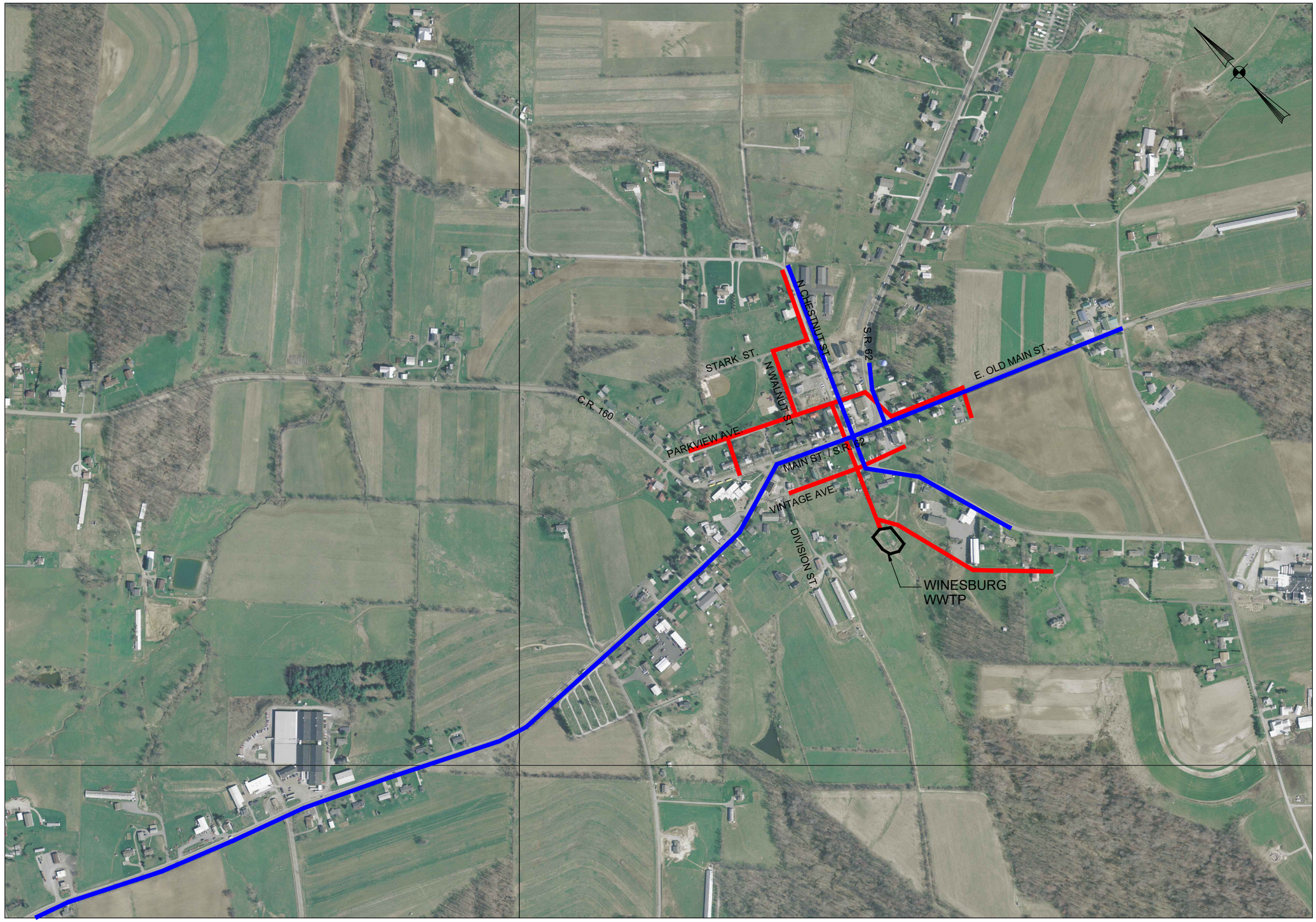

EX. SANITARY SEWER

EX. WATERLINE

(SOURCE- HOLMES COUNTY GIS WEBSITE " gis.co.holmes.oh.us/holmess")

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HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A – FIGURE 4
EXISTING UTILITIES AND FACILITIES MAP
WINESBURG, HOLMES COUNTY, OHIO

NO.	DATE	DESCRIPTION	BY

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Sheet No. A–4

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SOURCE OF THE DIAGRAM:-

EXISTING DRAWING WINESBURG WWTP

UNIT NO.	DESCRIPTION
1	TRASH TRAP
2	AERATION TANK
3	AERATION TANK
4	CLARIFIER
5	DOSING TANK
6	SAND FILTERS
7	DISINFECTION CHAMBER
8	SLUDGE HOLDING TANK
9	SLUDGE DRYING BEDS
10	SPILTER BOX
11	SANITARY MANHOLE
12	EQUALIZATION TANKS
13	WET WELL
14	VALVE VAULT

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HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A – FIGURE 5
LAYOUT OF EXISTING WWTP
WINESBURG, HOLMES COUNTY, OHIO

NO.	DATE	DESCRIPTION	BY

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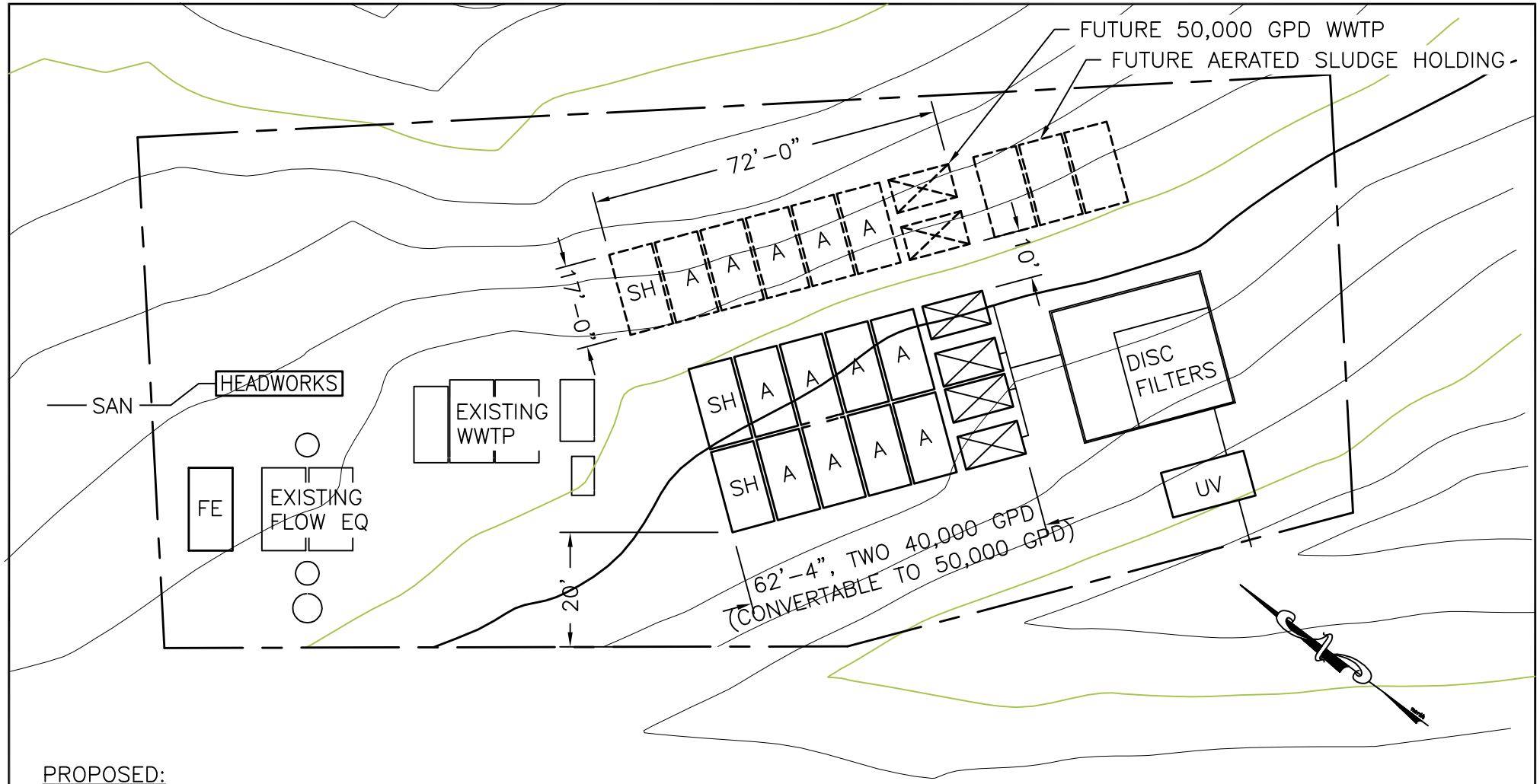
File No. 1821

Sheet No. A–5



PROPOSED:
PHASE 1– TWO 40,000 GPD WWTP, 80,000 GPD TOTAL
PHASE 2– ONE 50,000 GPD WWTP AND CONVERT EXISTING SLUDGE HOLDINGS TO AERATION TO MAKE THE EXISTING TRAINS 50,000 GPD EACH FOR A TOTAL OF 150,000 GPD TOTAL CAPACITY

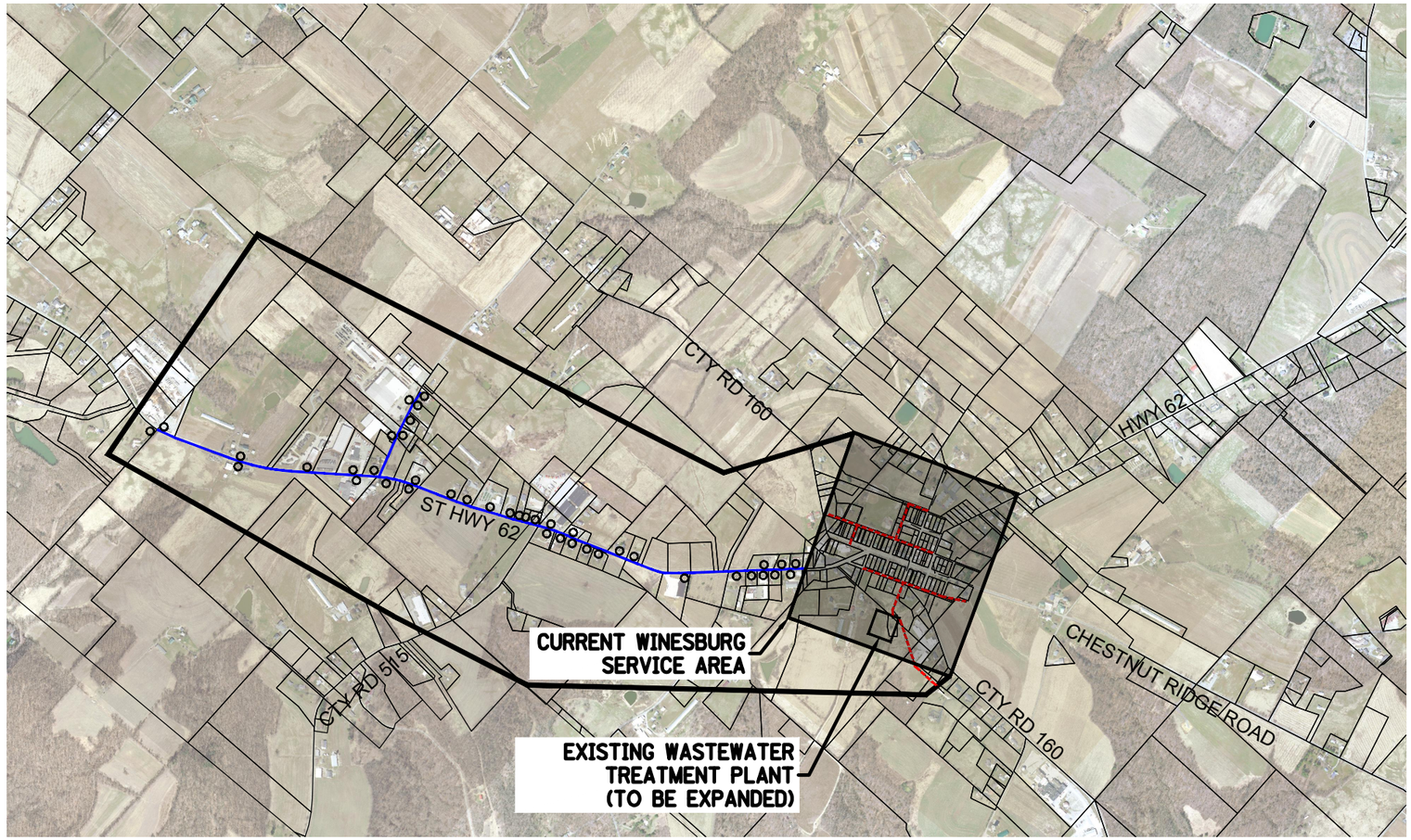
SEQUENCE:
1. CONSTRUCT DISC FILTER BUILDING AND UV DISINFECTION, PUT IN OPERATION
2. DEMO EXISTING SAND FILTERS
3. CONSTRUCT NEW 80,000 GPD WWTP
4. DEMO EXISTING WWTP

PRELIMINARY SITE LAYOUT

WINESBURG

DRAWN BY: ADM	SCALE: 1"=30'	DRAWING NO.:
DATE: 9/8/19	REV: 11/25/19 ADM	WINESBURGLO

MACK INDUSTRIES, INC.
201 COLUMBIA ROAD, VALLEY CITY, OHIO 44280 (330) 483-3111



EXISTING LINE

PROPOSED LINE

PROPOSED GRINDER PUMP

0 800
400 1600
SCALE IN FEET

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CIVIL ENGINEERS
New Philadelphia, Ohio

Drawn	Checked	Reviewed	Date
KBZ	BEN	BEN	11-14-19

HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A – FIGURE 7
LOW PRESSURE COLLECTION SYSTEM
WINESBURG, HOLMES COUNTY, OHIO

NO.	DATE	DESCRIPTION	BY

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File No. 1821

Sheet No. A–7

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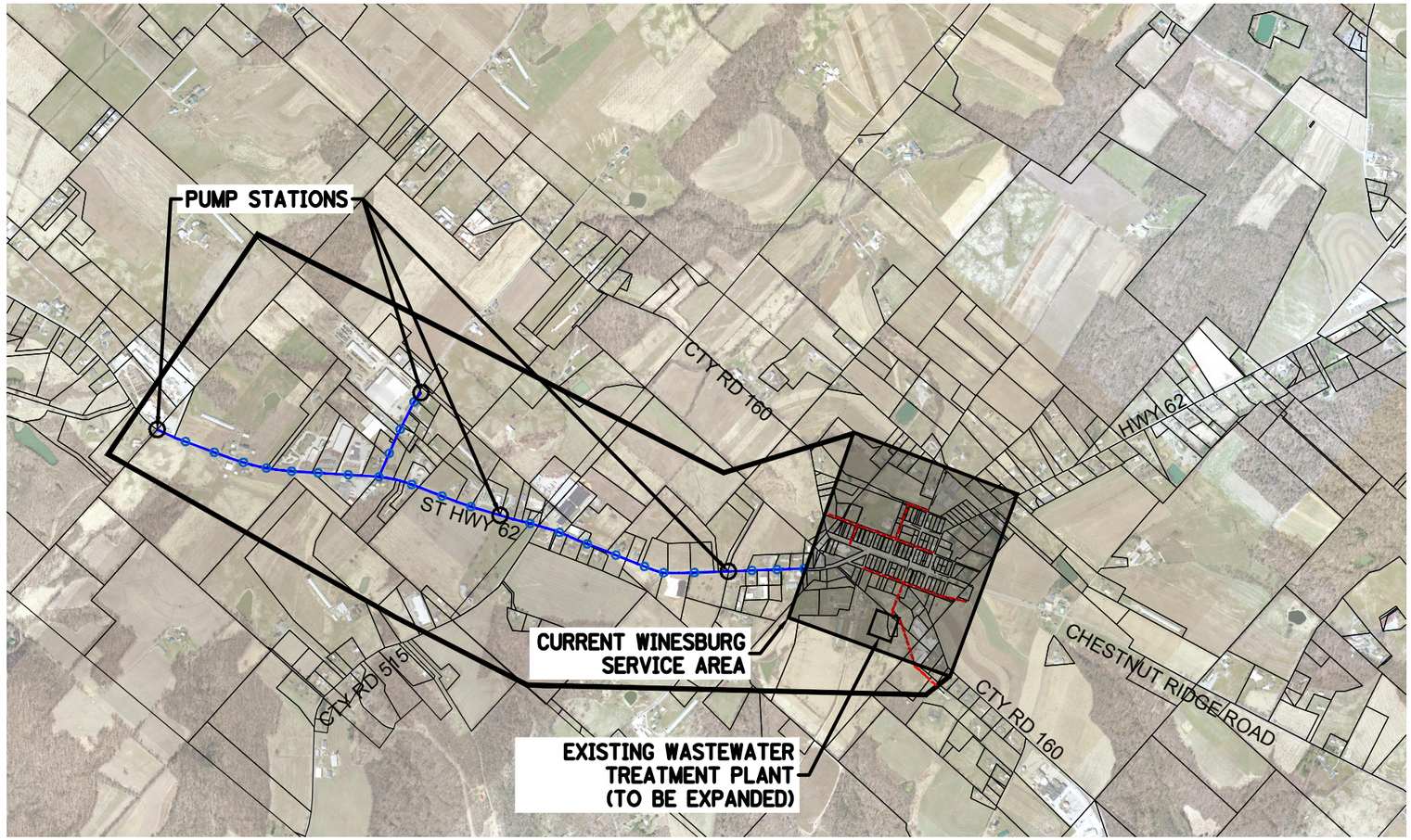

EXISTING LINE

PROPOSED LINE

PROPOSED PUMP STATION

PROPOSED MANHOLE

0 400 800 1600
SCALE IN FEET

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New Philadelphia, Ohio

Drawn	Checked	Reviewed	Date
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HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN
APPENDIX A – FIGURE 8
GRAVITY COLLECTION SYSTEM
WINESBURG, HOLMES COUNTY, OHIO

NO.	DATE	DESCRIPTION	BY

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File No. 1821

Sheet No. A–8

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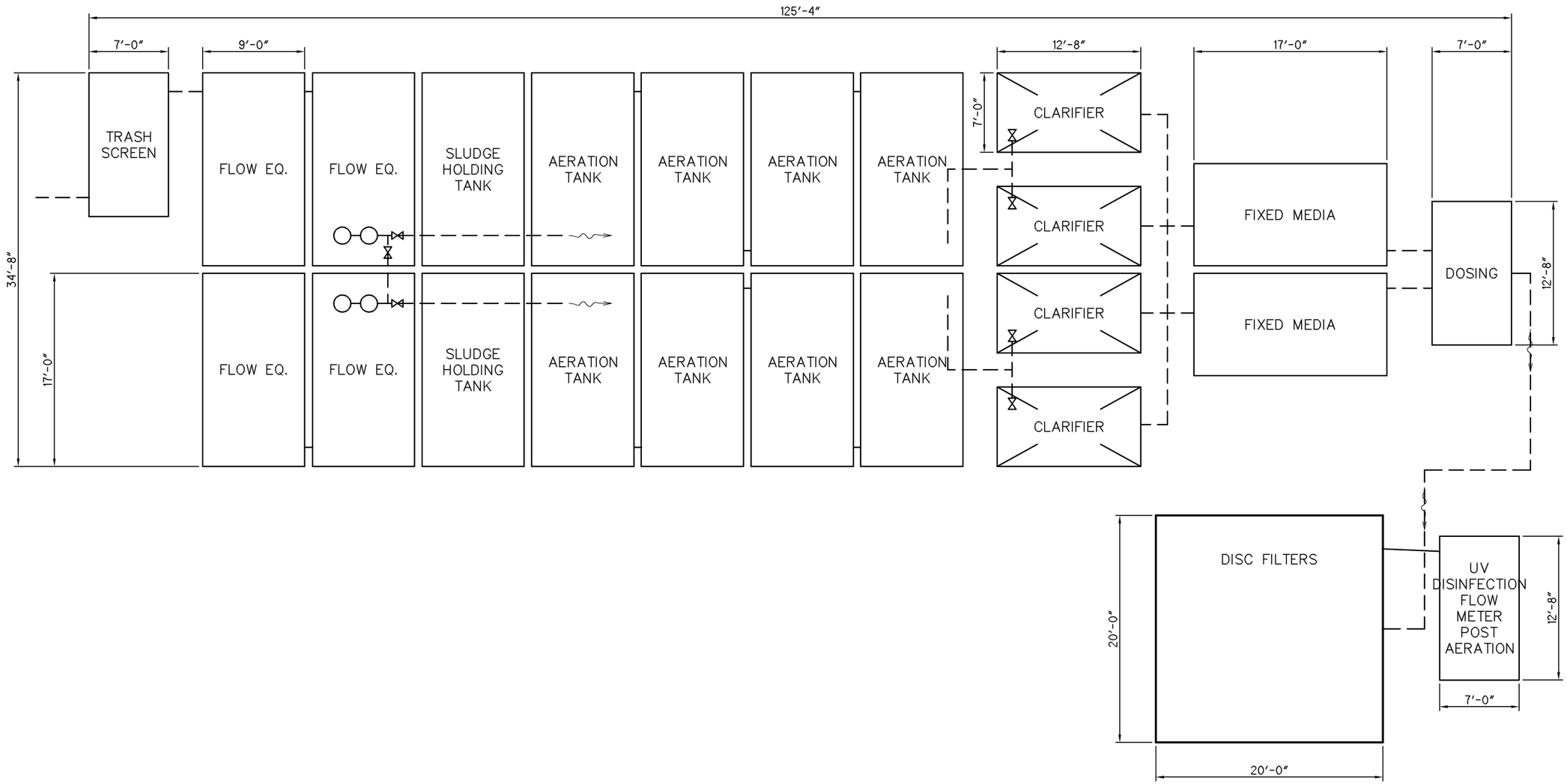

75,000 G.P.D. HYDRAULIC FLOW, 220M/L BOD LOADING

3,800 GALLON	TRASH TRAP
33,000 GALLON	FLOW EQUILIZATION CAPACITY
84,000 GALLON	AERATION CAPACITY
13,548 GALLON	CLARIFIER CAPACITY
4.3 HOURS	DETENTION AT AVERAGE DAILY FLOW
264 SQ.	EFFECTIVE SURFACE SETTLING AREA
282 GPD/SFT	SURFACE SETTLING AREA
21,000 GALLON	AERATED SLUDGE HOLDING CAPACITY
192 SFT	FIXED MEDIA FILTRATION TANK
2,805 GALLON	DOSING TANK
400 SFT	DISC FILTERS
1,870 GALLON	UV DISINFECTION, FLOW METERING AND POST AERATION TANK

SOURCE OF THE LAYOUT-

LAYOUT OF PROPOSED WWTP AT WINESBURG IS BASED ON THE INFORMATION AND DIAGRAM RECEIVED FROM " MACK INDUSTRIES,INC.

W.E. QUICKSALL AND ASSOCIATES, INC.
CIVIL ENGINEERS
New Philadelphia, Ohio

Drawn	Checked	Reviewed	Date
KBZ	BEN	BEN	11-14-18

HOLMES COUNTY COMMISSIONERS
WINESBURG WASTEWATER TREATMENT PLANT
FACILITIES PLAN

APPENDIX A - FIGURE 9
PROPOSED WWTP FACILITIES
WINESBURG, HOLMES COUNTY, OHIO

NO.	DATE	DESCRIPTION	BY

Prepared under the Responsible Charge of : BEN

File No. 1821

Sheet No. A-9

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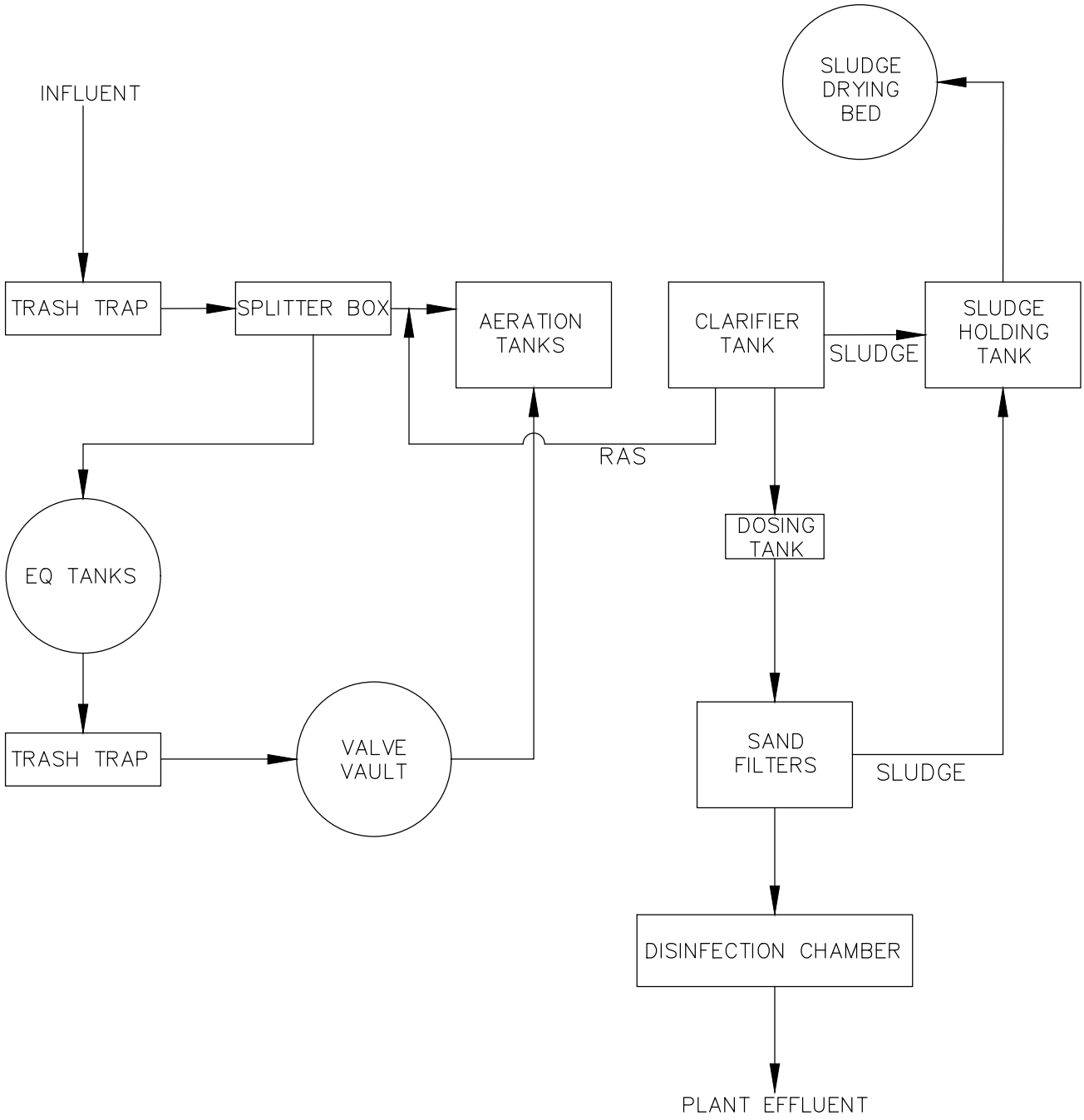

SOURCE OF THE DIAGRAM:—

EXISTING DRAWING OF WINESBURG WWTP

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CIVIL ENGINEERS
New Philadelphia, Ohio
Date: 08/2018 Drawn by: BEL

APPENDIX A - FIGURE 10
SCHEMATIC OF EXISTING WINESBURG WASTEWATER TREATMENT PLANT
WINESBURG, PAINT TOWNSHIP, HOLMES COUNTY, OH

A-10

Holmes County
General Health District

Health Commissioner
Michael Derr, MBA
mderr@holmeshealth.org

Board of Health

President
Kurt Rodhe
Millersburg Village

Pro-tem President
Carol Miller
Hardy Twp.

Members
J. Eric Miller, MD
Walnut Creek Twp.

Paul Miller
Berlin Twp.

Kris Pipes-Perone
Washington Twp.

September 25, 2019

Attn: Mr. Chris Young, PE, PS
Holmes County Sewer District
7191 SR 39
PO Box 90
Millersburg, OH 44654

Dear Mr. Young:

I am writing to share support, as a privilege as Health Commissioner, to the proposed extension of the sewer system at Winesburg and any grant project that can be gained to make this possible. This region of Holmes County is a destination for many Ohioans and other visitors.

The project in question is designed to address the current inadequate means of handling household sewage and the significant evidence of failure of systems that would be serviced by expansion. The proposed project will address the multiple sites where household sewage is not being properly treated. There are a number of holding tanks that do not have adequate components to treat sewages. These holding tanks as well as failing and suspected failing onsite septic systems in that area will be addressed by this new project. This project will result in adequate treatment and disposal of household sewage and prevent numerous infections and illness that untreated sewage causes.

I wholeheartedly support the proposed project, as I see that it has the potential for protecting a large segment of the public from infectious disease. I will do all that I am able to do as Health Commissioner to support this project, please do not hesitate to call if there are questions.

Sincerely,

Michael E. Derr, MBA
Health Commissioner

APPENDIX-B

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-1
PROJECT COST ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE
IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA
LOW PRESSURE COLLECTION SYSTEM

ITEM	DESCRIPTION	QTY.	UNITS	UNIT COST	TOTAL
1	3" Force Main	8,800	FT	$ 90.00	$ 792,000.00
2	6" Service Lateral	1,100	LF	$ 40.00	$ 44,000.00
3	Service Wye	42	EA	$ 150.00	$ 6,300.00
4	Simplex Grinder Pump, Installed, Complete	32	LS	$ 10,000.00	$ 320,000.00
5	Duplex Grinder Pump, Installed, Complete	10	EA	$ 20,000.00	$ 200,000.00
6	Connection to Existing Manhole	2	EA	$ 2,500.00	$ 5,000.00
7	Rehabilitate Existing Pump Stations w/ Telemetry	2	EA	$ 50,000.00	$ 100,000.00
Construction Cost Subtotal					$ 1,468,000.00
Contingency		**20%**			$ 294,000.00
Total Construction Cost					$ 1,762,000.00
Engineering		**20%**			$ 353,000.00
TOTAL PROJECT COST					**$ 2,115,000.00**

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-2
PROJECT COST ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE
IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA
GRAVITY SEWER SYSTEM

ITEM	DESCRIPTION	QTY.	UNITS	UNIT COST	TOTAL
1	8" Gravity Sanitary Sewer	8,800	LF	$ 65.00	$ 572,000.00
2	6" Service Lateral	1,100	LF	$ 40.00	$ 44,000.00
3	Service Wye	42	EA	$ 150.00	$ 6,300.00
4	Pump Station	4	EA	$ 138,000.00	$ 552,000.00
5	48" Manhole	30	EA	$ 5,250.00	$ 157,500.00
6	Connection to Existing Manhole	2	EA	$ 2,500.00	$ 5,000.00
7	Rrehabilitate Existing Pump Stations w/ Telemetry	2	EA	$ 50,000.00	$ 100,000.00
Construction Cost Subtotal					$ 1,437,000.00
Contingency		**20%**			$ 288,000.00
Total Construction Cost					$ 1,725,000.00
Engineering		**20%**			$ 345,000.00
TOTAL PROJECT COST					**$ 2,070,000.00**

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-3
PROJECT COST ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE
IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA
COMBINATION LOW PRESSURE/GRAVITY COLLECTION SYSTEM

ITEM	DESCRIPTION	QTY.	UNITS	UNIT COST	TOTAL
1	3" Force Main	5,800	LF	$ 90.00	$ 522,000.00
2	2" Service Lateral (Low Pressure)	800	LF	$ 40.00	$ 32,000.00
3	8" Gravity Sewer	3,000	LF	$ 65.00	$ 195,000.00
4	6" Service Lateral (Gravity)	300	LF	$ 40.00	$ 12,000.00
5	Service Wye	33	EA	$ 150.00	$ 4,950.00
6	Simplex Grinder Pump, Installed, Complete	25	LS	$ 10,000.00	$ 250,000.00
7	Duplex Grinder Pump, Installed, Complete	8	EA	$ 20,000.00	$ 160,000.00
8	Connection to Existing Manhole	2	EA	$ 2,500.00	$ 5,000.00
9	Rehabilitate Existing Pump Stations w/ Telemetry	2	EA	$ 50,000.00	$ 100,000.00
Construction Cost Subtotal					$ 1,281,000.00
Contingency		**20%**			$ 256,000.00
Total Construction Cost					$ 1,537,000.00
Engineering		**20%**			$ 308,000.00
TOTAL PROJECT COST					**$ 1,845,000.00**

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-4
PROJECT COST ESTIMATE FOR WASTERWATER TREATMENT PLANT IMPROVEMENT
REPLACE WASTEWATER TREATMENT SYSTEM FOR WINESBURG AREA
EXTENDED AERATION PACKAGE PLANT

ITEM	DESCRIPTION	QTY.	UNITS	UNIT COST	TOTAL
1	Demolition of Existing Equipment	1	L.S.	$ 10,000.00	$ 10,000.00
2	Package Extended Aeration System (75,000 GPD)	1	L.S.	$ 475,000.00	$ 475,000.00
3	Convert Existing Tankage to Sludge Storage	1	L.S.	$ 35,000.00	$ 35,000.00
4	Pump Station	1	L.S.	$ 138,000.00	$ 138,000.00
5	Access Drive Improvements	1	L.S.	$ 5,000.00	$ 5,000.00
6	Electrical Upgrades (3-Phase)	1	L.S.	$ 150,000.00	$ 150,000.00
7	Generator	1	L.S.	$ 75,000.00	$ 75,000.00
8	Site Work	1	L.S.	$ 50,000.00	$ 50,000.00
Construction Cost Subtotal					$ 938,000.00
Contingency		**20%**			$ 188,000.00
Total Construction Cost					$ 1,126,000.00
Engineering		**20%**			$ 226,000.00
TOTAL PROJECT COST					**$ 1,352,000.00**

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-5
PROJECT COST ESTIMATE FOR WASTERWATER TREATMENT PLANT IMPROVEMENT
REPLACE WASTEWATER TREATMENT SYSTEM FOR WINESBURG AREA
CONVENTIONAL TREATMENT PLANT

ITEM	DESCRIPTION	QTY.	UNITS	UNIT COST	TOTAL
1	Demolition of Existing Equipment	1	L.S.	$ 10,000.00	$ 10,000.00
2	Headworks	1	L.S.	$ 375,000.00	$ 375,000.00
3	Cast-In-Place Concrete	100	CY	$ 120.00	$ 12,000.00
4	Clairfiers and Equipment	1	L.S.	$ 180,000.00	$ 180,000.00
5	Aeration Tank and Equipment	1	L.S.	$ 85,000.00	$ 85,000.00
6	Convert Existing Tankage to Sludge Storage	1	L.S.	$ 35,000.00	$ 35,000.00
7	Sludge Press Equipment	1	L.S.	$ 130,000.00	$ 130,000.00
8	Pump Station	1	L.S.	$ 138,000.00	$ 138,000.00
9	Access Drive Improvements	1	L.S.	$ 5,000.00	$ 5,000.00
10	Electrical Upgrades (3-Phase)	1	L.S.	$ 150,000.00	$ 150,000.00
11	Generator	1	L.S.	$ 75,000.00	$ 75,000.00
12	Site Work	1	L.S.	$ 50,000.00	$ 50,000.00
Construction Cost Subtotal					$ 1,245,000.00
Contingency		**20%**			$ 249,000.00
Total Construction Cost					$ 1,494,000.00
Engineering		**20%**			$ 299,000.00
*This estimate **DOES NOT** include Land Acquisition necessary for this alternative*					
TOTAL PROJECT COST					**$ 1,793,000.00**

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-6
PROJECT COST ESTIMATE FOR ALTERNATIVE 2
WINESBURG WASTEWATER COLLECTION EXPANSION AND UPGRADE WITH
BEREAN CHURCH WASTEWATER TREATMENT PLANT EXPANSION AND UPGRADE

ITEM	DESCRIPTION	QTY.	UNITS	UNIT COST	TOTAL
1	Force Main 6"	10,668	FT	$ 90.00	$ 960,120.00
2	Gravity Sewer 8"	11,926	FT	$ 116.00	$ 1,383,416.00
3	Pump Station	3	LS	$ 137,000.00	$ 411,000.00
4	48" Manhole	65	EA	$ 5,250.00	$ 341,250.00
5	Wastewater Treatment Plant	1	EA	$ 2,000,000.00	$ 2,000,000.00
Construction Cost Subtotal					$ 5,096,000.00
Contingency		**20%**			$1,020,000.00
Total Construction Cost					$6,116,000.00
Engineering		**20%**			$ 1,224,000.00
*This estimate **DOES NOT** include Land Acquisition necessary for this alternative*					
TOTAL PROJECT COST					**$7,340,000.00**

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE B-7
FINANCIAL STRATEGY
IMPROVE WASTEWATER COLLECTION SYSTEM (GRAVITY SYSTEM) AND WASTERWATER TREATMENT PLANT IMPROVEMENT (EXTENDED AERATION PACKAGE PLANT) FOR WINESBURG AREA

Capital Cost	**$2,375,000**
Project Costs	**$2,851,000**
Total Financed Cost	**$3,422,000**
Number of Users	**140**
Median Household Income (MHI)	**$43,533.00**
Annual O&M	**$49,640.00**

	Source	Option 1	Option 2	Option 3	Option 4	Option 5
Grants						
	ARC		$250,000.00	$250,000.00		$250,000.00
	CDBG - RPIG		$500,000.00	$500,000.00	$500,000.00	$500,000.00
	OPWC	$500,000.00	$500,000.00	$500,000.00	$500,000.00	$500,000.00
	USDA - RD			$997,850.00		
	MWCD PIWM					$500,000.00
Total Grants		**$500,000.00**	**$1,250,000.00**	**$2,247,850.00**	**$1,000,000.00**	**$1,750,000.00**
Tap-In Fees	New Users (60)	$270,000.00	$270,000.00	$270,000.00	$270,000.00	$270,000.00
GrantS + Fees		**$770,000.00**	**$1,520,000.00**	**$2,517,850.00**	**$1,270,000.00**	**$2,020,000.00**
Loans		**$2,652,000.00**	**$1,902,000.00**	**$904,150.00**	**$2,152,000.00**	**$1,402,000.00**
	OWDA					
	Term, years					
	Interest Rate, %					
	Annual Payment					
	WPCLF	$2,152,000.00	$1,402,000.00		$1,652,000.00	$1,345,100.00
	Term, years	20	20		20	20
	Interest Rate, % *	0.00%	0.00%		0.00%	0.00%
	Principal Forgivness	$1,076,000.00	$701,000.00		$0.00	$672,550.00
	Total Financed	$1,076,000.00	$701,000.00		$1,652,000.00	$672,550.00
	Annual Payment	$53,800.00	$35,050.00		$82,600.00	$33,627.50
	USDA RD			$904,150.00		
	Term, years			40		
	Interest Rate, %			2.750%		
	Annual Payment			$37,550.72		
	Reserve			$3,755.07		
	Total Annual Payment			$41,305.79		
	OPWC	$500,000	$500,000	$0	$500,000	$56,900
	Term, years	30	30	30	30	30
	Interest Rate, % *	0.00%	0.00%	0.00%	0.00%	0.00%
	Annual Payment	$16,666.67	$16,666.67	$0.00	$16,666.67	$1,896.67
Annual Debt Retirement		$70,466.67	$51,716.67	$41,305.79	$99,266.67	$35,524.17
Annual O&M		$49,640.00	$49,640.00	$49,640.00	$49,640.00	$49,640.00
Total Annual Cost		**$120,106.67**	**$101,356.67**	**$90,945.79**	**$148,906.67**	**$85,164.17**
Annual Cost Per User		$857.90	$723.98	$649.61	$1,063.62	$608.32
Existing Monthly Rate Per User		$50.00	$50.00	$50.00	$50.00	$50.00
Monthly Cost Per User		$121.49	$110.33	$104.13	$138.63	$100.69
Percent of MHI		1.97%	1.66%	1.49%	2.44%	1.40%

GRANTS SUMMARY	
ARC	Max $250,000
CDBG-RPIG	Max $500,000
OPWC	up to 50% of project cost; max $500,000
USDA-RD	up to 75% of project cost- typically limited to 35%
MWCD PIWM	Max $500,000 available annually; competitive application

* Assumed Interest Rate of 0.00%
Assumed maximum amount of money obtained from grants and loans

APPENDIX-C

TABLE C-1

PROJECT OPERATION & MAINTENANCE COST ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE

IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA

LOW PRESSURE COLLECTION SYSTEM

No.	Item	Description / Assumptions	Estimated Annual Cost
1	Sanitary Sewer Cleaning	Clean Lines every 10 years	$ 3,000.00
2	Force Main Pigging	Pig out Forcemains every 20 yrs	$ -
3	Force Main Directional Bore (under SR)	N/A	$ -
4	Grinder Pump Replacement	2 HP Grinder Pumps	$ 7,800.00
5	Air Release Valve	Replace, repair work, maintenance	$ 50.00
6	Electric Work	Repair work	$ 5,000.00
7	I/I Investigation of Existing Collection System		$ -
8	Rehabilitate Existing Pump Stations w/ Telemetry	Replace, repair work, maintenance	$ 2,000.00
		Total Estimated Annual Cost	**$ 17,850.00**

TABLE C-2

PROJECT OPERATION & MAINTENANCE COST ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE

IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA

GRAVITY SEWER SYSTEM

No.	Item	Description / Assumptions	Estimated Annual Cost
1	Sanitary Sewer Cleaning	Jet / Vac / Clean Lines every 10 years	$ 3,000.00
2	Force Main Pigging	Pig out Forcemains every 20 yrs	$ -
3	Force Main Directional Bore (under SR)	N/A	$ -
4	Pump Station Electrical Cost	2 HP Grinder Pumps	$ 1,260.00
5	Air Release Valve	Replace, repair work, maintenance	$ 50.00
6	Electric Work	Repair work	$ 1,600.00
7	I/I Investigation of Existing Collection System		
8	Rehabilitate Existing Pump Stations w/ Telemetry	Replace, repair work, maintenance	$ 2,000.00
		Total Estimated Annual Cost	**$ 7,910.00**

TABLE C-3

PROJECT OPERATION & MAINTENANCE COST ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE

IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA

COMBINATION LOW-PRESSURE/GRAVITY COLLECTION SYSTEM

No.	Item	Description / Assumptions	Estimated Annual Cost
1	Sanitary Sewer Cleaning	Jet / Vac / Clean Lines every 10 years	$ 3,000.00
2	Force Main Pigging	Pig out Forcemains every 20 yrs	$ -
3	Grinder Pump Replacement	2 HP Grinder Pumps	$ 7,800.00
4	Force Main Directional Bore (under SR)	N/A	$ -
5	Pump Station Electrical Cost	2 HP Grinder Pumps	$ 1,260.00
6	Air Release Valve	Replace, repair work, maintenance	$ 50.00
7	Electric Work	Repair work	$ 1,600.00
8	Rehabilitate Existing Pump Stations w/ Telemetry	Replace, repair work, maintenance	$ 2,000.00
		Total Estimated Annual Cost	**$ 15,710.00**

TABLE C-4

PROJECT OPERATION & MAINTENANCE COST ESTIMATE FOR WASTERWATER TREATMENT PLANT IMPROVEMENT

REPLACE WASTEWATER TREATMENT SYSTEM FOR WINESBURG AREA

EXTENDED AERATION PACKAGE PLANT

No.	Item	Description / Assumptions	Estimated Annual Cost
1	Demolition of Existing Equipment	N/A	$ -
2	Package Extended Aeration System	Repair work, maintenance, Sludge disposal	$ 11,200.00
3	Convert Existing Tankage into Sludge Storage	Repair work, maintenance	$ 2,100.00
4	Pump Station	Repair work, maintenance	$ 630.00
5	Access Drive Improvements	Repair work, maintenance	$ 1,200.00
6	Generator	Repair Work, maintenance	$ 7,500.00
7	Site Work	Maintenance	$ 200.00
8	Electric Utility Costs	N/A	$ 18,900.00
		Total Estimated Annual Cost	**$ 41,730.00**

TABLE C-5

PROJECT OPERATION & MAINTENANCE COST ESTIMATE FOR WASTERWATER TREATMENT PLANT IMPROVEMENT

REPLACE WASTEWATER TREATMENT SYSTEM FOR WINESBURG AREA

CONVENTIONAL TREATMENT PLANT

No.	Item	Description / Assumptions	Estimated Annual Cost
1	Demolition of Existing Equipment	N/A	$ -
2	Headworks	Repair work, maintenance	$ 3,750.00
3	Cast-In-Place Concrete	N/A	$ -
4	Clairfiers and Equipment	Repair work, maintenance	$ 1,800.00
5	Aeration Tank and Equipment	Repair work, maintenance	$ 850.00
6	Convert Existing Tankage to Sludge Storage	Repair work, maintenance	$ -
7	Pump Station	Repair work, maintenance	$ 630.00
8	Access Drive Improvements	Maintenance	$ 1,200.00
9	Generator	Maintenance	$ 7,500.00
10	Site Work	N/A	$ -
11	Electric Utility Costs	N/A	$ 18,900.00
		Total Estimated Annual Cost	**$ 34,630.00**

APPENDIX-D

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE D-1
PROJECT WORTH ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE
IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA
LOW PRESSURE COLLECTION SYSTEM

Real Interest Rate	3.50%
Planning Period	20 years
Initial Year of Planning	2018
Construction Period	1 year

Replacement Cost and Salvage Cost Summary

	Description	Initial Cost	Useful Life (In Years)	Replacement Cost, Year 5	Replacement Cost, Year 10	Replacement Cost, Year 15	Salvage Value, Year 20
1	3" Force Main	$ 792,000.00	30	$ -	$ -	$ -	$ -
2	6" Service Lateral	$ 44,000.00	30	$ -	$ -	$ -	$ -
3	Service Wye	$ 6,300.00	30	$ -	$ -	$ -	$ -
4	Simplex Grinder Pump, Installed, Complete	$ 320,000.00	25	$ -	$ 64,000.00	$ -	$ 16,000.00
5	Duplex Grinder Pump, Installed, Complete	$ 200,000.00	25	$ -	$ 40,000.00	$ -	$ 10,000.00
6	Connection to Existing Manhole	$ 5,000.00	0	$ -	$ -	$ -	$ -
7	Rehabilitate Existing Pump Stations w/ Telemetry	$ 100,000.00	0	$ -	$ -	$ -	$ -
8	0	$ -	25	$ -	$ -	$ -	$ -
	Total Replacement Cost			**$ -**	**$ 104,000.00**	**$ -**	
	Total Salvage Value						**$ 26,000.00**

$ 1,468,000.00	**Const. Cost Subtotal**
$ 294,000.00	**Contingency**
$ 1,762,000.00	**Total Construction Cost**

Estimated Annual Operating and Maintenance Costs

Description		Annual Cost
O&M	$	17,850.00
Total O & M Costs	**$**	**17,850.00**

Total Present Worth and Average Equivalent Annual Cost Determination

	Present Worth Factor		Present Worth
Present Worth of O&M Cost	14.212	$	253,700.00
Present Worth of Replacement Cost Year 5	1.188	$	-
Present Worth of Replacement Cost Year 10	1.411	$	73,800.00
Present Worth of Replacement Cost Year 15	1.675	$	-
Present Worth of Salvage Value	1.990	$	(13,100.00)
20-Year Total Present Worth		**$**	**2,076,400.00**
Average Equivalent Annual Cost	0.070	**$**	**146,100.00**

Present Worth Annual O &M Cost	=	*Annual O & M Cost x* $[(1 - (1 + i)^{-n}]/i$
Present Worth of Replacement Cost Year 5	=	*Replacement Cost*$/(1 + i)^{5}$
Present Worth of Replacement Cost Year 10	=	*Replacement Cost*$/(1 + i)^{10}$
Present Worth of Replacement Cost Year 15	=	*Replacement Cost*$/(1 + i)^{15}$
Present Worth of Salvage Value	=	*Salvage Value*$/(1 + i)^{n}$
Equivalent Annual Cost	=	*Initial Cost x* $i/[1-(1 + i)^{-n}]$

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE D-2
PROJECT WORTH ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE
IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA
GRAVITY SEWER SYSTEM

Real Interest Rate	3.50%
Planning Period	20 years
Initial Year of Planning	2018
Construction Period	1 year

Replacement Cost and Salvage Cost Summary

	Description	Initial Cost	Useful Life (In Years)	Replacement Cost, Year 5	Replacement Cost, Year 10	Replacement Cost, Year 15	Salvage Value, Year 20
1	8" Gravity Sanitary Sewer	$ 572,000.00	30	$ -	$ -	$ -	$ -
2	6" Service Lateral	$ 44,000.00	25	$ -	$ -	$ -	$ -
3	Service Wye	$ 6,300.00	30	$ -	$ -	$ -	$ -
4	Pump Station	$ 552,000.00	30	$ -	$ 110,400.00	$ -	$ 27,600.00
5	48" Manhole	$ 157,500.00	0	$ -	$ -	$ -	$ -
6	Connection to Existing Manhole	$ 5,000.00	0	$ -	$ -	$ -	$ -
7	Rrehabilitate Existing Pump Stations w/ Telemetry	$ 100,000.00	0	$ -	$ -	$ -	$ -
	Total Replacement Cost			**$ -**	**$ 110,400.00**	**$ -**	
	Total Salvage Value						**$ 27,600.00**

$ 1,437,000.00	**Const. Cost Subtotal**
$ 288,000.00	**Contingency**
$ 1,725,000.00	**Total Construction Cost**

Estimated Annual Operating and Maintenance Costs

Description		Annual Cost
O&M	$	7,910.00
Total O & M Costs	**$**	**7,910.00**

Total Present Worth and Average Equivalent Annual Cost Determination

	Present Worth Factor		Present Worth
Present Worth of O&M Cost	14.212	$	112,500.00
Present Worth of Replacement Cost Year 5	1.188	$	-
Present Worth of Replacement Cost Year 10	1.411	$	78,300.00
Present Worth of Replacement Cost Year 15	1.675	$	-
Present Worth of Salvage Value	1.990	$	(13,900.00)
20-Year Total Present Worth		**$**	**1,901,900.00**
Average Equivalent Annual Cost	0.070	**$**	**1,901,900.00**

Present Worth Annual O &M Cost	=	*Annual O & M Cost x* $[(1 - (1 + i)^{-n}]/i$
Present Worth of Replacement Cost Year 5	=	*Replacement Cost/*$(1 + i)^{5}$
Present Worth of Replacement Cost Year 10	=	*Replacement Cost/*$(1 + i)^{10}$
Present Worth of Replacement Cost Year 15	=	*Replacement Cost/*$(1 + i)^{15}$
Present Worth of Salvage Value	=	*Salvage Value/*$(1 + i)^{n}$
Equivalent Annual Cost	=	*Initial Cost x* $i/[1-(1 + i)^{-n}]$

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE D-3
PROJECT WORTH ESTIMATE FOR COLLECTION SYSTEM ALTERNATIVE
IMPROVE WASTEWATER COLLECTION SYSTEM FOR WINESBURG AREA
COMBINATION LOW-PRESSURE/GRAVITY COLLECTION SYSTEM

Real Interest Rate	3.50%
Planning Period	20 years
Initial Year of Planning	2018
Construction Period	1 year

Replacement Cost and Salvage Cost Summary

	Description	Initial Cost	Useful Life (In Years)	Replacement Cost, Year 5	Replacement Cost, Year 10	Replacement Cost, Year 15	Salvage Value, Year 20
1	3" Force Main	$ 522,000.00	30	$ -	$ -	$ -	$ -
2	2" Service Lateral (Low Pressure)	$ 32,000.00	25	$ -	$ -	$ -	$ -
3	8" Gravity Sewer	$ 195,000.00	30	$ -	$ -	$ -	$ -
4	6" Service Lateral (Gravity)	$ 12,000.00	30	$ -	$ -	$ -	$ -
5	Service Wye	$ 4,950.00	0	$ -	$ -	$ -	$ -
6	Simplex Grinder Pump, Installed, Complete	$ 250,000.00	0	$ -	$ 50,000.00	$ -	$ 12,500.00
7	Duplex Grinder Pump, Installed, Complete	$ 160,000.00	0	$ -	$ 32,000.00	$ -	$ 8,000.00
8	Connection to Existing Manhole	$ 5,000.00	25	$ -	$ 1,000.00	$ -	$ 300.00
9	#REF!	$ -	0	$ -	$ -	$ -	$ -
10	Rehabilitate Existing Pump Stations w/ Telemetry	$ 100,000.00	25	$ -	$ 20,000.00	$ -	$ 5,000.00
	Total Replacement Cost			**$ -**	**$ 103,000.00**	**$ -**	
	Total Salvage Value						**$ 25,800.00**

$ 1,537,000.00	**Const. Cost Subtotal**
$ 308,000.00	**Contingency**
$ -	**Total Construction Cost**

Estimated Annual Operating and Maintenance Costs

Description		Annual Cost
O&M	$	15,710.00
Total O & M Costs	**$**	**15,710.00**

Total Present Worth and Average Equivalent Annual Cost Determination

	Present Worth Factor		Present Worth
Present Worth of O&M Cost	14.212	$	223,300.00
Present Worth of Replacement Cost Year 5	1.188	$	-
Present Worth of Replacement Cost Year 10	1.411	$	73,100.00
Present Worth of Replacement Cost Year 15	1.675	$	-
Present Worth of Salvage Value	1.990	$	(13,000.00)
20-Year Total Present Worth		**$**	**283,400.00**
Average Equivalent Annual Cost	0.070	**$**	**20,000.00**

Present Worth Annual O &M Cost	=	*Annual O & M Cost x* $[(1 - (1 + i)^{-n}]/i$
Present Worth of Replacement Cost Year 5	=	*Replacement Cost/*$(1 + i)^{5}$
Present Worth of Replacement Cost Year 10	=	*Replacement Cost/*$(1 + i)^{10}$
Present Worth of Replacement Cost Year 15	=	*Replacement Cost/*$(1 + i)^{15}$
Present Worth of Salvage Value	=	*Salvage Value/*$(1 + i)^{n}$
Equivalent Annual Cost	=	*Initial Cost x* $i/[1-(1 + i)^{-n}]$

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE D-4
PROJECT WORTH ESTIMATE FOR WASTERWATER TREATMENT PLANT IMPROVEMENT
REPLACE WASTEWATER TREATMENT SYSTEM FOR WINESBURG AREA
EXTENDED AERATION PACKAGE PLANT

Real Interest Rate	3.50%
Planning Period	20 years
Initial Year of Planning	2018
Construction Period	1 year

Replacement Cost and Salvage Cost Summary

	Description	Initial Cost	Useful Life (In Years)	Replacement Cost, Year 5	Replacement Cost, Year 10	Replacement Cost, Year 15	Salvage Value, Year 20
1	Demolition of Existing Equipment	$ 10,000.00	0	$ -	$ -	$ -	$ -
2	Package Extended Aeration System (75,000 GPD)	$ 475,000.00	50	$ -	$ 95,000.00	$ -	$ 23,800.00
3	Convert Existing Tankage to Sludge Storage	$ 35,000.00	50	$ -	$ -	$ -	$ -
4	Pump Station	$ 138,000.00	10	$ -	$ 27,600.00	$ -	$ 6,900.00
5	Access Drive Improvements	$ 5,000.00	35	$ -	$ 1,000.00	$ -	$ 300.00
6	Electrical Upgrades (3-Phase)	$ 150,000.00	10	$ -	$ 30,000.00	$ -	$ 7,500.00
7	Generator	$ 75,000.00	20	$ -	$ 15,000.00	$ -	$ 3,800.00
8	Site Work	$ 50,000.00	0	$ -	$ -	$ -	$ -
Total Replacement Cost				**$ -**	**$ 168,600**	**$ -**	
Total Salvage Value							**$ 42,300**

$ 938,000.00	**Const. Cost Subtotal**
$ 188,000.00	**Contingency**
$ 1,126,000.00	**Total Construction Cost**

Estimated Annual Operating and Maintenance Costs

Description		Annual Cost
O&M	$	41,730.00
Total O & M Costs	**$**	**41,730.00**

Total Present Worth and Average Equivalent Annual Cost Determination

	Present Worth Factor		Present Worth
Present Worth of O&M Cost	14.212	$	593,100.00
Present Worth of Replacement Cost Year 5	1.188	$	-
Present Worth of Replacement Cost Year 10	1.411	$	119,600.00
Present Worth of Replacement Cost Year 15	1.675	$	-
Present Worth of Salvage Value	1.990	$	(21,300.00)
20-Year Total Present Worth		**$**	**1,817,400.00**
Average Equivalent Annual Cost	0.070	**$**	**1,817,900.00**

Present Worth Annual O &M Cost	=	*Annual O & M Cost x* $[(1 - (1 + i)^{-n}]/i$
Present Worth of Replacement Cost Year 5	=	*Replacement Cost/*$(1 + i)^{5}$
Present Worth of Replacement Cost Year 10	=	*Replacement Cost/*$(1 + i)^{10}$
Present Worth of Replacement Cost Year 15	=	*Replacement Cost/*$(1 + i)^{15}$
Present Worth of Salvage Value	=	*Salvage Value/*$(1 + i)^{n}$
Equivalent Annual Cost	=	*Initial Cost x* $i/[1-(1 + i)^{-n}]$

W.E. Quicksall and Associates, Inc
Civil Engineers

TABLE D-5
PROJECT WORTH ESTIMATE FOR WASTERWATER TREATMENT PLANT IMPROVEMENT
REPLACE WASTEWATER TREATMENT SYSTEM FOR WINESBURG AREA
CONVENTIONAL TREATMENT PLANT

Real Interest Rate	3.50%
Planning Period	20 years
Initial Year of Planning	2018
Construction Period	1 year

Replacement Cost and Salvage Cost Summary

	Description	Initial Cost	Useful Life (In Years)	Replacement Cost, Year 5	Replacement Cost, Year 10	Replacement Cost, Year 15	Salvage Value, Year 20
1	Demolition of Existing Equipment	$ 10,000.00	0	$ -	$ -	$ -	$ -
2	Headworks	$ 375,000.00	50	$ -	$ 75,000.00	$ -	$ 18,800.00
3	Cast-In-Place Concrete	$ 12,000.00	25	$ -	$ -	$ -	$ -
4	Clairfiers and Equipment	$ 180,000.00	25	$ -	$ 36,000.00	$ -	$ 9,000.00
5	Aeration Tank and Equipment	$ 85,000.00	25	$ -	$ 17,000.00	$ -	$ 4,300.00
6	Convert Existing Tankage to Sludge Storage	$ 35,000.00	25	$ -	$ 1,800.00	$ -	$ 400.00
7	Sludge Press Equipment	$ 130,000.00	25	$ -	$ 26,000.00	$ -	$ 6,500.00
8	Pump Station	$ 138,000.00	25	$ -	$ 27,600.00	$ -	$ 6,900.00
9	Access Drive Improvements	$ 5,000.00	50	$ -	$ 1,000.00	$ -	$ -
10	Electrical Upgrades (3-Phase)	$ 150,000.00	50	$ -	$ -	$ -	$ -
11	Generator	$ 75,000.00	25	$ -	$ 15,000.00	$ -	$ 3,800.00
12	Site Work	$ 50,000.00	50	$ -	$ -	$ -	$ -
Total Replacement Cost				**$ -**	**$ 199,400**	**$ -**	
Total Salvage Value							**$ 49,700**

$ 1,245,000.00	**Const. Cost Subtotal**
$ 249,000.00	**Contingency**
$ 1,494,000.00	**Total Construction Cost**

Estimated Annual Operating and Maintenance Costs

Description		Annual Cost
O&M	$	34,630.00
Total O & M Costs	**$**	**34,630.00**

Total Present Worth and Average Equivalent Annual Cost Determination

	Present Worth Factor		Present Worth
Present Worth of O&M Cost	14.212	$	492,200.00
Present Worth of Replacement Cost Year 5	1.188	$	-
Present Worth of Replacement Cost Year 10	1.411	$	141,400.00
Present Worth of Replacement Cost Year 15	1.675	$	-
Present Worth of Salvage Value	1.990	$	(25,000.00)
20-Year Total Present Worth		**$**	**2,102,600.00**
Average Equivalent Annual Cost	0.070	**$**	**148,000.00**

Present Worth Annual O &M Cost	=	*Annual O & M Cost x* $[(1 - (1 + i)^{-n}]/i$
Present Worth of Replacement Cost Year 5	=	*Replacement Cost/*$(1 + i)^{5}$
Present Worth of Replacement Cost Year 10	=	*Replacement Cost/*$(1 + i)^{10}$
Present Worth of Replacement Cost Year 15	=	*Replacement Cost/*$(1 + i)^{15}$
Present Worth of Salvage Value	=	*Salvage Value/*$(1 + i)^{n}$
Equivalent Annual Cost	=	*Initial Cost x* $i/[1-(1 + i)^{-n}]$

APPENDIX-E

BUDGET REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund P40 WASTEWATER OPERATING FUND
Department 00805 WASTEWATER OPERATING FUND

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Fund P40 WASTEWATER OPERATING FUND								
Fiscal Year 2018								
Department 00805 WASTEWATER OPERATING FUND								
Expenses								
00805-E1011 SALARIES-EMPLOYEES	75,000.00	14,500.00	89,500.00	6,140.24		83,255.90	0.00	6,244.10
00805-E1016 P.E.R.S. - EMPLOYER SHARE	11,000.00	1,010.00	12,010.00	859.62		11,655.67	0.00	354.33
00805-E1017 MEDICARE-EMPLOYER SHARE	1,200.00	45.00	1,245.00	91.20		1,209.36	0.00	35.64
00805-E1018 HEALTH INSURANCE	6,000.00	0.00	6,000.00	430.00		5,160.00	0.00	840.00
00805-E1019 WORKER'S COMPENSATION	800.00	0.00	800.00	0.00		43.56	0.00	756.44
00805-E2001 CONTRACT SERVICES	180,000.00	0.00	180,000.00	12,647.57		171,816.20	0.00	8,183.80
00805-E2002 UTILITIES	200,000.00	0.00	200,000.00	16,290.21		186,324.25	0.00	13,675.75
00805-E2021 LICENSING & FEES	3,700.00	3,000.00	6,700.00	3,107.60		6,523.97	0.00	176.03
00805-E3001 INSURANCE	1,300.00	0.00	1,300.00	0.00		0.00	0.00	1,300.00
00805-E4001 OFFICE & GENERAL SUPPLIES	6,500.00	0.00	6,500.00	300.00		5,738.53	0.00	761.47
00805-E4012 LAB & FIELD SUPPLIES	70,000.00	30,000.00	100,000.00	10,618.33		94,554.17	0.00	5,445.83
00805-E6002 EDUCATIONAL SEMINARS	1,000.00	0.00	1,000.00	0.00		0.00	0.00	1,000.00
00805-E7001 MAINTENANCE & REPAIRS	150,000.00	30,000.00	180,000.00	13,970.83		149,830.59	0.00	30,169.41
00805-E7002 VEHICLE MAINTENANCE	15,000.00	0.00	15,000.00	2,143.12		8,344.25	0.00	6,655.75
00805-E8001 OTHER EXPENSES	1,000.00	0.00	1,000.00	0.00		437.42	0.00	562.58
Expenses Total	**722,500.00**	**78,555.00**	**801,055.00**	**66,598.72**		**724,893.87**	**0.00**	**76,161.13**
WASTEWATER OPERATING FUND Dep Total	**722,500.00**	**78,555.00**	**801,055.00**	**66,598.72**		**724,893.87**	**0.00**	**76,161.13**
Expenses Fund Total	**722,500.00**	**78,555.00**	**801,055.00**	**66,598.72**		**724,893.87**	**0.00**	**76,161.13**
Net (Rev/Exp)	**722,500.00**	**78,555.00**	**801,055.00**	**66,598.72**		**724,893.87**	**0.00**	**76,161.13**

Beginning/Adjusted Balance		YTD Revenues		YTD Expenses		Current Fund Balance
466,220.60	+	767,721.16	-	724,893.87	=	509,047.89

BUDGET REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund N70 WASTEWATER CAPITAL IMPROVEMENT

Department 00506 WASTEWATER CAPITAL IMPROVEMENT

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Fund N70 WASTEWATER CAPITAL IMPROVEMENT								
Fiscal Year 2018								
Department 00506 WASTEWATER CAPITAL IMPROVEMENT								
Expenses								
00506-E2001 CONTRACT SERVICES	0.00	200,000.00	200,000.00	0.00		200,000.00	0.00	0.00
00506-E2009 WASTEWATER SYSTEM IMPROVEM	100,000.00	355,001.65	455,001.65	206,149.14		426,522.83	0.00	28,478.82
Expenses Total	**100,000.00**	**555,001.65**	**655,001.65**	**206,149.14**		**626,522.83**	**0.00**	**28,478.82**
WASTEWATER CAPITAL IMPROVEMENT Dept Total	**100,000.00**	**555,001.65**	**655,001.65**	**206,149.14**		**626,522.83**	**0.00**	**28,478.82**
Expenses Fund Total	**100,000.00**	**555,001.65**	**655,001.65**	**206,149.14**		**626,522.83**	**0.00**	**28,478.82**
Net (Rev/Exp)	**100,000.00**	**555,001.65**	**655,001.65**	**206,149.14**		**626,522.83**	**0.00**	**28,478.82**

Beginning/Adjusted Balance		YTD Revenues		YTD Expenses		Current Fund Balance
303,212.02	+	547,526.19	-	626,522.83	=	224,215.38

BUDGET REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM
Department 08030 BERLIN SYSTEM DEBT RETIREMENT

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Fund O30 WASTEWATER SYSTEM DEBT RETIREM								
Fiscal Year 2018								
Department 08030 BERLIN SYSTEM DEBT RETIREMENT								
Expenses								
08030-E3004 BERLIN SYSTEM BOND	141,252.50	0.00	141,252.50	0.00		141,252.50	0.00	0.00
Expenses Total	**141,252.50**	**0.00**	**141,252.50**	**0.00**		**141,252.50**	**0.00**	
BERLIN SYSTEM DEBT RETIREMENT Dept Total	**141,252.50**	**0.00**	**141,252.50**	**0.00**		**141,252.50**	**0.00**	**0.00**

BUDGET REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM

Department 08031 MT HOPE SYSTEM DEBT RETIREMENT

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Department 08031 MT HOPE SYSTEM DEBT RETIREMENT								
Expenses								
08031-E3003 MT HOPE SYSTEM COUNTY LOAN	3,900.90	0.00	3,900.90	0.00		3,900.90	0.00	0.00
Expenses Total	**3,900.90**	**0.00**	**3,900.90**	**0.00**		**3,900.90**	**0.00**	
MT HOPE SYSTEM DEBT RETIREMENT Dept Total	**3,900.90**	**0.00**	**3,900.90**	**0.00**		**3,900.90**	**0.00**	**0.00**

BUDGET EPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM

Department 08032 WALNUT CREEK SYSTEM DEBT RETIR

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Department 08032 WALNUT CREEK SYSTEM DEBT RETIR								
Expenses								
08032-E3003 WALNUT CREEK SYSTEM COUNTY	41,696.04	0.00	41,696.04	0.00		41,696.04	0.00	0.00
08032-E3004 BOND SERIES 2010 WALNUT CREEK	120,000.00	0.00	120,000.00	0.00		117,960.00	0.00	2,040.00
08032-E9002 WALNUT CREEK SYSTEM TRANSFE	4,000.00	0.00	4,000.00	0.00		4,000.00	0.00	0.00
Expenses Total	**165,696.04**	**0.00**	**165,696.04**	**0.00**		**163,656.04**	**0.00**	**2,040.00**
WALNUT CREEK SYSTEM DEBT RETIR Dept Total	**165,696.04**	**0.00**	**165,696.04**	**0.00**		**163,656.04**	**0.00**	**2,040.00**

BUDGET REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM

Department 08033 WINESBURG SYSTEM DEBT RETIREME

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Department 08033 WINESBURG SYSTEM DEBT RETIREME								
Expenses								
08033-E3003 WINESBURG SYSTEM COUNTY LOA	2,911.30	0.00	2,911.30	0.00		2,911.30	0.00	0.00
Expenses Total	**2,911.30**	**0.00**	**2,911.30**	**0.00**		**2,911.30**	**0.00**	
WINESBURG SYSTEM DEBT RETIREMI Dept Total	**2,911.30**	**0.00**	**2,911.30**	**0.00**		**2,911.30**	**0.00**	**0.00**

BUDGET REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM

Department 08034 OCTOBER HILLS SYSTEM DEBT RET

Account Number / Account Name	Orginal Budget	Supplementals	Year to date Budget	Month-to-Date Expenditures	YTD Exp. v. Prior Yr. Bud.	YTD Exp. v. Cur. Yr. Bud.	Current Year Total Encumbrances	Free Balance
Department 08034 OCTOBER HILLS SYSTEM DEBT RET								
Expenses								
08034-E3003 OCTOBER HILLS SYSTEM COUNTY	30,642.34	0.00	30,642.34	0.00		30,642.32	0.00	0.02
Expenses Total	**30,642.34**	**0.00**	**30,642.34**	**0.00**		**30,642.32**	**0.00**	**0.02**
OCTOBER HILLS SYSTEM DEBT RET Dept Total	**30,642.34**	**0.00**	**30,642.34**	**0.00**		**30,642.32**	**0.00**	**0.02**
Expenses Fund Total	**344,403.08**	**0.00**	**344,403.08**	**0.00**		**342,363.06**	**0.00**	**2,040.02**
Net (Rev/Exp)	**344,403.08**	**0.00**	**344,403.08**	**0.00**		**342,363.06**	**0.00**	**2,040.02**

Beginning/Adjusted Balance		YTD Revenues		YTD Expenses		Current Fund Balance
244,715.72	+	357,160.03	-	342,363.06	=	259,512.69

RECEIP EPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund P40 WASTEWATER OPERATING FUND
Department 00805 WASTEWATER OPERATING FUND

Account Number / Account Name	Orginal Estimated Revenue	Changes to Estimated Revenue	Total Estimated Revenue	Month-to-Date Receipts	Year-to-Date Receipts	Uncollected Revenue	Percentage Remaining
Fund P40 WASTEWATER OPERATING FUND							
Fiscal Year 2018							
Department 00805 WASTEWATER OPERATING FUND							
Revenues							
00805-R3503 FEES	750,000.00	0.00	750,000.00	66,066.50	758,979.74	-8,979.74	1.20%
00805-R7502 OTHER RECEIPTS	4,000.00	0.00	4,000.00	0.00	8,741.42	-4,741.42	118.54%
00805-R9999 UNENCUMBERED BALANCE	466,220.60	0.00	466,220.60	0.00	0.00	466,220.60	100.00%
Revenues Total	**1,220,220.60**	**0.00**	**1,220,220.60**	**66,066.50**	**767,721.16**	**452,499.44**	**37.08%**
WASTEWATER OPERATING FUND Dep Total	**1,220,220.60**	**0.00**	**1,220,220.60**	**66,066.50**	**767,721.16**	**452,499.44**	**37.08%**
Revenues Total	**1,220,220.60**	**0.00**	**1,220,220.60**	**66,066.50**	**767,721.16**	**452,499.44**	**37.08%**
Net (Rev/Exp)	**1,220,220.60**	**0.00**	**1,220,220.60**	**66,066.50**	**767,721.16**	**452,499.44**	

Beginning/Adjusted Balance		YTD Revenues		YTD Expenses		Current Fund Balance
466,220.60	+	767,721.16	-	724,893.87	=	509,047.89

RECEIPT REPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund N70 WASTEWATER CAPITAL IMPROVEMENT

Department 00506 WASTEWATER CAPITAL IMPROVEMENT

Account Number / Account Name	Orginal Estimated Revenue	Changes to Estimated Revenue	Total Estimated Revenue	Month-to-Date Receipts	Year-to-Date Receipts	Uncollected Revenue	Percentage Remaining
Fund N70 WASTEWATER CAPITAL IMPROVEMENT							
Fiscal Year 2018							
Department 00506 WASTEWATER CAPITAL IMPROVEMENT							
Revenues							
00506-R3500 CAPITAL IMPROVEMENT FEES	0.00	106,434.09	106,434.09	12,370.55	177,305.80	-70,871.71	66.59%
00506-R7502 OTHER RECEIPTS	0.00	370,220.39	370,220.39	0.00	370,220.39	0.00	0.00%
00506-R9999 UNENCUMBERED BALANCE	303,212.02	0.00	303,212.02	0.00	0.00	303,212.02	100.00%
Revenues Total	**303,212.02**	**476,654.48**	**779,866.50**	**12,370.55**	**547,526.19**	**232,340.31**	**29.79%**
WASTEWATER CAPITAL IMPROVEMENT Dept Total	**303,212.02**	**476,654.48**	**779,866.50**	**12,370.55**	**547,526.19**	**232,340.31**	**29.79%**
Revenues Total	**303,212.02**	**476,654.48**	**779,866.50**	**12,370.55**	**547,526.19**	**232,340.31**	**29.79%**
Net (Rev/Exp)	**303,212.02**	**476,654.48**	**779,866.50**	**12,370.55**	**547,526.19**	**232,340.31**	

Beginning/Adjusted Balance		YTD Revenues		YTD Expenses		Current Fund Balance
303,212.02	+	547,526.19	-	626,522.83	=	224,215.38

RECEIP EPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM
Department 08035 JAIL SYSTEM DEBT RETIREMENT

Account Number / Account Name	Orginal Estimated Revenue	Changes to Estimated Revenue	Total Estimated Revenue	Month-to-Date Receipts	Year-to-Date Receipts	Uncollected Revenue	Percentage Remaining
Fund O30 WASTEWATER SYSTEM DEBT RETIREM							
Fiscal Year 2018							
Department 08035 JAIL SYSTEM DEBT RETIREMENT							
Revenues							
08035-R9999 UNENCUMBERED BALANCE	244,715.72	0.00	244,715.72	0.00	0.00	244,715.72	100.00%
Revenues Total	**244,715.72**	**0.00**	**244,715.72**	**0.00**	**0.00**	**244,715.72**	**100.00%**
JAIL SYSTEM DEBT RETIREMENT Dept Total	**244,715.72**	**0.00**	**244,715.72**	**0.00**	**0.00**	**244,715.72**	**100.00%**

RECEIP EPORT

Holmes County Auditor

Period Ending Date: December 31, 2018

Fund O30 WASTEWATER SYSTEM DEBT RETIREM

Department 08036 DEBT RETIREMENT

Account Number / Account Name	Orginal Estimated Revenue	Changes to Estimated Revenue	Total Estimated Revenue	Month-to-Date Receipts	Year-to-Date Receipts	Uncollected Revenue	Percentage Remaining
Department 08036 DEBT RETIREMENT							
Revenues							
08036-R3503 USERS FEES	350,000.00	0.00	350,000.00	31,007.55	357,160.03	-7,160.03	2.05%
Revenues Total	**350,000.00**	**0.00**	**350,000.00**	**31,007.55**	**357,160.03**	**-7,160.03**	**-2.05%**
DEBT RETIREMENT Dept Total	**350,000.00**	**0.00**	**350,000.00**	**31,007.55**	**357,160.03**	**-7,160.03**	**-2.05%**
Revenues Total	**594,715.72**	**0.00**	**594,715.72**	**31,007.55**	**357,160.03**	**237,555.69**	**39.94%**
Net (Rev/Exp)	**594,715.72**	**0.00**	**594,715.72**	**31,007.55**	**357,160.03**	**237,555.69**	

Beginning/Adjusted Balance		YTD Revenues		YTD Expenses		Current Fund Balance
244,715.72	+	357,160.03	-	342,363.06	=	259,512.69

APPENDIX-F

Application No. OH0048691

Issue Date: March 6, 2017

Effective Date: April 1, 2017

Expiration Date: March 31, 2022

Ohio Environmental Protection Agency
Authorization to Discharge Under the
National Pollutant Discharge Elimination System

In compliance with the provisions of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et. seq., hereinafter referred to as the "Act"), and the Ohio Water Pollution Control Act (Ohio Revised Code Section 6111),

Holmes County Commissioners

is authorized by the Ohio Environmental Protection Agency, hereinafter referred to as "Ohio EPA," to discharge from the Winesburg wastewater treatment works located on County Road 160, Winesburg, Ohio, Holmes County and discharging to an unnamed tributary of Indian Trail Creek in accordance with the conditions specified in Parts I, II, and III of this permit.

This permit is conditioned upon payment of applicable fees as required by Section 3745.11 of the Ohio Revised Code.

This permit and the authorization to discharge shall expire at midnight on the expiration date shown above. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information and forms as are required by the Ohio EPA no later than 180 days prior to the above date of expiration.

_____
Craig W. Butler
Director

Total Pages: 25

Part I, A. - INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the 18th month, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 3PG00138001. See Part II, OTHER REQUIREMENTS, for locations of effluent sampling.

Table - Final Outfall - 001 - Interim

Effluent Characteristic	Discharge Limitations							Monitoring Requirements		
	Concentration Specified Units				Loading* kg/day					
Parameter	Maximum	Minimum	Weekly	Monthly	Daily	Weekly	Monthly	Measuring Frequency	Sampling Type	Monitoring Months
00010 - Water Temperature - C	-	-	-	-	-	-	-	1/Week	Grab	All
00300 - Dissolved Oxygen - mg/l	-	6.0	-	-	-	-	-	1/Week	Grab	All
00400 - pH - S.U.	9.0	6.5	-	-	-	-	-	1 / 2 Weeks	Grab	All
00530 - Total Suspended Solids - mg/l	-	-	18.0	12.0	-	1.03	0.682	1/Month	Grab	All
00610 - Nitrogen, Ammonia (NH3) - mg/l	-	-	2.25	1.5	-	0.128	0.0852	1/Month	Grab	Summer
00610 - Nitrogen, Ammonia (NH3) - mg/l	-	-	5.6	3.75	-	0.318	0.213	1/Month	Grab	Winter
00630 - Nitrite Plus Nitrate, Total - mg/l	-	-	-	-	-	-	-	1/Quarter	Grab	Quarterly
00665 - Phosphorus, Total (P) - mg/l	-	-	1.5	1.0	-	0.0852	0.0568	1/Month	Grab	All
01350 - Turbidity, Severity - Units	-	-	-	-	-	-	-	1/Day	Estimate	All
31648 - E. coli - #/100 ml	-	-	362	161	-	-	-	1/Month	Grab	Summer
50050 - Flow Rate - MGD	-	-	-	-	-	-	-	1/Day	24hr Total Estimate	All
80082 - CBOD 5 day - mg/l	-	-	15.0	10.0	-	0.852	0.568	1/Month	Grab	All

NOTES for station 3PG00138001:

a. Effluent loadings based on average design flow of 0.015 MGD.
b. Turbidity - See Part II, Item F.

Part I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the 19th of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 3PG00138001. See Part II, OTHER REQUIREMENTS, for locations of effluent sampling.

Table - Final Outfall - 001 - Final

Effluent Characteristic	Discharge Limitations							Monitoring Requirements		
	Concentration Specified Units				Loading* kg/day					
Parameter	Maximum	Minimum	Weekly	Monthly	Daily	Weekly	Monthly	Measuring Frequency	Sampling Type	Monitoring Months
00010 - Water Temperature - C	-	-	-	-	-	-	-	1/Week	Grab	All
00300 - Dissolved Oxygen - mg/l	-	6.0	-	-	-	-	-	1/Week	Grab	All
00400 - pH - S.U.	9.0	6.5	-	-	-	-	-	1 / 2 Weeks	Grab	All
00530 - Total Suspended Solids - mg/l	-	-	18.0	12.0	-	1.03	0.682	1/Month	Grab	All
00610 - Nitrogen, Ammonia (NH3) - mg/l	-	-	4.93	3.3	-	0.28	0.188	1/Month	Grab	Winter
00610 - Nitrogen, Ammonia (NH3) - mg/l	-	-	2.25	1.5	-	0.128	0.0852	1/Month	Grab	Summer
00630 - Nitrite Plus Nitrate, Total - mg/l	-	-	-	-	-	-	-	1/Quarter	Grab	Quarterly
00665 - Phosphorus, Total (P) - mg/l	-	-	1.5	1.0	-	0.0852	0.0568	1/Month	Grab	All
01350 - Turbidity, Severity - Units	-	-	-	-	-	-	-	1/Day	Estimate	All
31648 - E. coli - #/100 ml	-	-	284	126	-	-	-	1/Month	Grab	Summer
50050 - Flow Rate - MGD	-	-	-	-	-	-	-	1/Day	24hr Total Estimate	All
80082 - CBOD 5 day - mg/l	-	-	15.0	10.0	-	0.852	0.568	1/Month	Grab	All

NOTES for station 3PG00138001:

a. Effluent loadings based on average design flow of 0.015 MGD.
b. Turbidity - See Part II, Item F.

Part I, B. - SSO MONITORING EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. SSO Monitoring. During the period beginning on the effective date of this permit and lasting until the expiration date , the permittee shall monitor at Station Number 3PG00138300, and report to the Ohio EPA in accordance with the following table. See Part II, OTHER REQUIREMENTS, for location of sampling.

Table - SSO Monitoring - 300 - Final

Effluent Characteristic	Discharge Limitations							Monitoring Requirements		
	Concentration Specified Units				Loading* kg/day					
Parameter	Maximum	Minimum	Weekly	Monthly	Daily	Weekly	Monthly	Measuring Frequency	Sampling Type	Monitoring Months
74062 - Overflow Occurrence - No./Month	-	-	-	-	-	-	-	1/Month	Total	All

NOTES for Station Number 3PG00138300:

a. A sanitary sewer overflow is an overflow, spill, release, or diversion of wastewater from a sanitary sewer system. Although the above table indicates that the Measuring Frequency for Overflow Occurrence is 1/Month, the intent of that provision is to specify a reporting frequency for Overflow Occurrence, not a monitoring frequency. The monitoring requirement under this permit is that these overflows shall be monitored on each day when they discharge. Only sanitary sewer overflows that enter waters of the state, either directly or through a storm sewer or other conveyance, must be reported under this monitoring station.

b. For the purpose of counting occurrences, each location on the sanitary sewer system where there is an overflow, spill, release, or diversion of wastewater on a given day that enters waters of the state is counted as one occurrence. For example, if on a given day overflows occur from a manhole at one location and from a damaged pipe at another location and they both enter waters of the state, record two occurrences for that day. If overflows from both locations continue on the following day, record two occurrences for the following day. At the end of the month, total the daily occurrences and report this number on Day 1 of the DMR. If there are no overflows during the entire month, report "zero" (0).

c. All sanitary sewer overflows are prohibited.

d. See Part II, Items D and E.

Part I, B. - SLUDGE MONITORING REQUIREMENTS

1. Sludge Monitoring. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee shall monitor the treatment works' final sludge at Station Number 3PG00138588, and report to the Ohio EPA in accordance with the following table. See Part II, OTHER REQUIREMENTS, for location of sludge sampling.

Table - Sludge Monitoring - 588 - Final

Effluent Characteristic	Discharge Limitations							Monitoring Requirements		
	Concentration Specified Units				Loading* kg/day					
Parameter	Maximum	Minimum	Weekly	Monthly	Daily	Weekly	Monthly	Measuring Frequency	Sampling Type	Monitoring Months
80991 - Sludge Volume, Gallons - Gals	-	-	-	-	-	-	-	1/Year	Total	Yearly

NOTES for Station Number 3PG00138588:

a. Monitoring is required when sewage sludge is removed from the permittee's facility for transfer to another NPDES permit holder. The total sludge weight or sludge volume transferred to another NPDES permit holder for the entire year shall be reported on the December Discharge Monitoring Report (DMR).

b. If no sewage sludge is removed from the Permittee's facility for transfer to another NPDES permit holder during the year, select the "No Discharge" check box on the data entry form and PIN the eDMR.

c. Sludge weight is a calculated total for the year. To convert from gallons of liquid sewage sludge to dry tons of sewage sludge: dry tons= gallons x 8.34 (lbs/gallon) x 0.0005 (tons/lb) x decimal fraction total solids.

d. See Part II, Items J and K.

Part I, C - Schedule of Compliance

Ammonia Monitoring and Limits

1. The permittee shall evaluate the ability of its existing treatment facilities to meet the final effluent limit for Ammonia at outfall 3PG00138001.

2. If the permittee determines that its existing treatment facilities are not capable of meeting the final effluent limit for Ammonia, not later than 9 months from the effective date of this permit, the permittee shall submit an approvable Permit To Install application for plant improvements necessary to meet the final effluent limit for Ammonia.

3. Not later than 18 months from the effective date of this permit, the permittee shall achieve the final effluent limit for Ammonia at outfall 3PG00138001.

Part II, Other Requirements

A. Operator Certification Requirements

1. Classification

a. In accordance with Ohio Administrative Code 3745-7-04, the sewage treatment facility at this facility shall be classified as a Class A facility.

2. Operator of Record

a. The permittee shall designate one or more operator of record to oversee the technical operation of the treatment works and sewerage (collection) system in accordance with paragraph (A)(2) of rule 3745-7-02 of the Ohio Administrative Code.

b. Each operator of record shall have a valid certification of a class equal to or greater than the classification of the treatment works as defined in Part II, Item A.1 of this NPDES permit.

c. Within three days of a change in an operator of record, the permittee shall notify the Director of the Ohio EPA of any such change on a form acceptable to Ohio EPA. The appropriate form can be found at the following website:

http://epa.ohio.gov/dsw/opcert/opcert.aspx

d. Within 60 days of the effective date of this permit, the permittee shall notify the Director of Ohio EPA of the operators of record on a form acceptable to Ohio EPA.

3. Minimum Staffing Requirements

a. The permittee shall ensure that the treatment works operator of record is physically present at the facility in accordance with the minimum staffing requirements per paragraph (C)(1) of rule 3745-7-04 of the Ohio Administrative Code or the requirements from an approved 3745-7-04(C) minimum staffing hour reduction plan.

b. If Ohio EPA approves a reduction in minimum staffing requirements based upon a facility operating plan, any change in the criteria under which the operating plan was approved (such as enforcement status, history of noncompliance, or provisions included in the plan) will require that the treatment works immediately return to the minimum staffing requirements included in paragraph (C)(1) of rule 3745-7-04 of the Ohio Administrative Code.

B. Description of the location of the required sampling stations are as follows:

Sampling Station	Description of Location
3PG00138001	Final effluent (Lat: 40N 36' 54"; Long: 80W 41' 38")
3PG00138300	Sanitary Sewer Overflows
3PG00138588	Sludge hauled to POTW

C. All parameters, except flow, need not be monitored on days when the plant is not normally staffed (Saturdays, Sundays, and Holidays). On those days, report "AN" on the monthly report form.

D. Sanitary Sewer Overflow (SSO) Reporting Requirements

A sanitary sewer overflow is an overflow, spill, release, or diversion of wastewater from a sanitary sewer system. SSOs do not include wet weather discharges from combined sewer overflows specifically listed in Part II of this NPDES permit (if any). All SSOs are prohibited.

1. Reporting for SSOs That Imminently and Substantially Endanger Human Health

a) Immediate Notification

You must notify Ohio EPA (1-800-282-9378) and the appropriate Board of Health (i.e., city or county) within 24 hours of learning of any SSO from your sewers or from your maintenance contract areas that may imminently and substantially endanger human health. The telephone report must identify the location, estimated volume and receiving water, if any, of the overflow. An SSO that may imminently and substantially endanger human health includes dry weather overflows, major line breaks, overflow events that result in fish kills or other significant harm, overflows that expose the general public to contact with raw sewage, and overflow events that occur in sensitive waters and high exposure areas such as protection areas for public drinking water intakes and waters where primary contact recreation occurs.

b) Follow-Up Written Report

Within 5 days of the time you become aware of any SSO that may imminently and substantially endanger human health, you must provide the appropriate Ohio EPA district office a written report that includes:

(i) the estimated date and time when the overflow began and stopped or will be stopped (if known);
(ii) the location of the SSO including an identification number or designation if one exists;
(iii) the receiving water (if there is one);
(iv) an estimate of the volume of the SSO (if known);
(v) a description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);
(vi) the cause or suspected cause of the overflow;
(vii) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps; and
(viii) steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

An acceptable 5-day follow-up written report can be filled-in or downloaded from the Ohio EPA Division of Surface Water Permits Program Technical Assistance Web page at http://www.epa.ohio.gov/dsw/permits/technical_assistance.aspx .

2. Reporting for All SSOs, Including Those That Imminently and Substantially Endanger Human Health

a) Monthly Operating Reports

Sanitary sewer overflows that enter waters of the state, either directly or through a storm sewer or other conveyance, shall be reported on your monthly operating reports. You must report the system-wide number of occurrences for SSOs that enter waters of the state in accordance with the requirements for station number 300. A monitoring table for this station is included in Part I, B of this NPDES permit. For the purpose of counting occurrences, each location on the sanitary sewer system where there is an overflow, spill, release, or diversion of wastewater on a given day is counted as one occurrence. For example, if on a given day overflows occur from a manhole at one location and from a damaged pipe at another location and they both enter waters of the state, you should record two occurrences for that day. If overflows from both locations continue on the following day, you should record two occurrences for the following day. At the end of the month, total the daily occurrences from all locations on your system and report this number using reporting code 74062 (Overflow Occurrence, No./Month) on the 4500 form for station number 300.

b) Annual Report

You must prepare an annual report of all SSOs in your collection system, including those that do not enter waters of the state. The annual report must be in an acceptable format (see below) and must include:

(i) A table that lists an identification number, a location description, and the receiving water (if any) for each existing SSO. If an SSO previously included in the list has been eliminated, this shall be noted. Assign each SSO location a unique identification by numbering them consecutively, beginning with 301.

(ii) A table that lists the date that an overflow occurred, the unique ID of the overflow, the name of affected receiving waters (if any), and the estimated volume of the overflow (in millions of gallons). The annual report may summarize information regarding overflows of less than approximately 1,000 gallons.

(iii) A table that summarizes the occurrence of water in basements (WIBs) by total number and by sewershed. The report shall include a narrative analysis of WIB patterns by location, frequency and cause. Only WIBs caused by a problem in the publicly-owned collection system must be included.

Not later than March 31 of each year, you must submit one copy of the annual report for the previous calendar year to the appropriate Ohio EPA district office and one copy to: Ohio EPA; Division of Surface Water; NPDES Permit Unit; P.O. Box 1049; Columbus, OH 43216-1049. You also must provide adequate notice to the public of the availability of the report.

An acceptable annual SSO report can be filled-in or downloaded from the Ohio EPA Division of Surface Water Permits Program Technical Assistance Web page at http://www.epa.ohio.gov/dsw/permits/technical_assistance.aspx .

E. The permittee shall maintain in good working order and operate as efficiently as possible the "treatment works" and "sewerage system" as defined in ORC 6111.01 to achieve compliance with the terms and conditions of this permit and to prevent discharges to the waters of the state, surface of the ground, basements, homes, buildings, etc.

F. If Severity Units are required for Turbidity, use the following table to determine the value between 0 and 4 to report.

REPORTED VALUE*	SEVERITY DESCRIPTION	TURBIDITY
0	None	Clear
1	Mild	
2	Moderate	Light Solids
3	Serious	
4	Extreme	Heavy Solids

* Interpolate between the descriptive phrases.

G. Grab samples shall be collected at such times and locations, and in such fashion, as to be representative of the facility's performance.

H. If for any reason, the facility must use chlorine for disinfection, it must contact the Ohio EPA District Office, Division of Surface Water for the appropriate requirements and limitations. The permittee must state, at such time:

1.For what reason chlorine will be used for disinfection (i.e. equipment breakdown, maintenance, etc.).

2.For what length of time will it be used.

I. Water quality based permit limitations in this permit may be revised based on updated wasteload allocations or use designation rules. This permit may be modified, or revoked and reissued, to include new water quality based effluent limits or other conditions that are necessary to comply with a revised wasteload allocation, or an approved total maximum daily loads (TMDL) report as required under Section 303 (d) of the Clean Water Act.

J. All disposal, use, storage, or treatment of sewage sludge by the Permittee shall comply with Chapter 6111. of the Ohio Revised Code, Chapter 3745-40 of the Ohio Administrative Code, any further requirements specified in this NPDES permit, and any other actions of the Director that pertain to the disposal, use, storage, or treatment of sewage sludge by the Permittee.

K. No later than March 1 of each calendar year, the Permittee shall submit a report summarizing the sewage sludge disposal, use, storage, or treatment activities of the Permittee during the previous calendar year. The report shall be submitted through the Ohio EPA eBusiness Center, Division of Surface Water NPDES Permit Applications service.

L. Outfall Signage

The permittee shall maintain a permanent marker on the stream bank at each outfall that is regulated under this NPDES permit. If a marker does not currently exist, the permittee shall install one within 4 months of the effective date of this permit. This includes final outfalls, bypasses, and combined sewer overflows. The marker shall consist at a minimum of the name of the establishment to which the permit was issued, the Ohio EPA permit number, and the outfall number and a contact telephone number. The information shall be printed in letters not less than two inches in height. The marker shall be a minimum of 2 feet by 2 feet and shall be a minimum of 3 feet above ground level. The sign shall not be obstructed such that persons in boats or persons swimming on the river or someone fishing or walking along the shore cannot read the sign. Vegetation shall be periodically removed to keep the sign visible. If the outfall is normally submerged the sign shall indicate that. If the outfall is a combined sewer outfall, the sign shall indicate that untreated human sewage may be discharged from the outfall during wet weather and that harmful bacteria may be present in the water. When an existing marker is replaced or reset, the new marker shall comply with the requirements of this section.

PART III - GENERAL CONDITIONS

1. DEFINITIONS

"Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

"Average weekly" discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week. Each of the following 7-day periods is defined as a calendar week: Week 1 is Days 1 - 7 of the month; Week 2 is Days 8 - 14; Week 3 is Days 15 - 21; and Week 4 is Days 22 - 28. If the "daily discharge" on days 29, 30 or 31 exceeds the "average weekly" discharge limitation, Ohio EPA may elect to evaluate the last 7 days of the month as Week 4 instead of Days 22 - 28. Compliance with fecal coliform bacteria or E coli bacteria limitations shall be determined using the geometric mean.

"Average monthly" discharge limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. Compliance with fecal coliform bacteria or E coli bacteria limitations shall be determined using the geometric mean.

"85 percent removal" means the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

"Absolute Limitations" Compliance with limitations having descriptions of "shall not be less than," "nor greater than," "shall not exceed," "minimum," or "maximum" shall be determined from any single value for effluent samples and/or measurements collected.

"Net concentration" shall mean the difference between the concentration of a given substance in a sample taken of the discharge and the concentration of the same substances in a sample taken at the intake which supplies water to the given process. For the purpose of this definition, samples that are taken to determine the net concentration shall always be 24-hour composite samples made up of at least six increments taken at regular intervals throughout the plant day.

"Net Load" shall mean the difference between the load of a given substance as calculated from a sample taken of the discharge and the load of the same substance in a sample taken at the intake which supplies water to given process. For purposes of this definition, samples that are taken to determine the net loading shall always be 24-hour composite samples made up of at least six increments taken at regular intervals throughout the plant day.

"MGD" means million gallons per day.

"mg/l" means milligrams per liter.

"ug/l" means micrograms per liter.

"ng/l" means nanograms per liter.

"S.U." means standard pH unit.

"kg/day" means kilograms per day.

"Reporting Code" is a five digit number used by the Ohio EPA in processing reported data. The reporting code does not imply the type of analysis used nor the sampling techniques employed.

"Quarterly (1/Quarter) sampling frequency" means the sampling shall be done in the months of March, June, August, and December, unless specifically identified otherwise in the Effluent Limitations and Monitoring Requirements table.

"Yearly (1/Year) sampling frequency" means the sampling shall be done in the month of September, unless specifically identified otherwise in the effluent limitations and monitoring requirements table.

"Semi-annual (2/Year) sampling frequency" means the sampling shall be done during the months of June and December, unless specifically identified otherwise.

"Winter" shall be considered to be the period from November 1 through April 30.

"Bypass" means the intentional diversion of waste streams from any portion of the treatment facility.

"Summer" shall be considered to be the period from May 1 through October 31.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

"Sewage sludge" means a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works as defined in section 6111.01 of the Revised Code. "Sewage sludge" includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes. "Sewage sludge" does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator, grit and screenings generated during preliminary treatment of domestic sewage in a treatment works, animal manure, residue generated during treatment of animal manure, or domestic septage.

"Sewage sludge weight" means the weight of sewage sludge, in dry U.S. tons, including admixtures such as liming materials or bulking agents. Monitoring frequencies for sewage sludge parameters are based on the reported sludge weight generated in a calendar year (use the most recent calendar year data when the NPDES permit is up for renewal).

"Sewage sludge fee weight" means the weight of sewage sludge, in dry U.S. tons, excluding admixtures such as liming materials or bulking agents. Annual sewage sludge fees, as per section 3745.11(Y) of the Ohio Revised Code, are based on the reported sludge fee weight for the most recent calendar year.

2. GENERAL EFFLUENT LIMITATIONS

The effluent shall, at all times, be free of substances:

A. In amounts that will settle to form putrescent, or otherwise objectionable, sludge deposits; or that will adversely affect aquatic life or water fowl;

B. Of an oily, greasy, or surface-active nature, and of other floating debris, in amounts that will form noticeable accumulations of scum, foam or sheen;

C. In amounts that will alter the natural color or odor of the receiving water to such degree as to create a nuisance;

D. In amounts that either singly or in combination with other substances are toxic to human, animal, or aquatic life;

E. In amounts that are conducive to the growth of aquatic weeds or algae to the extent that such growths become inimical to more desirable forms of aquatic life, or create conditions that are unsightly, or constitute a nuisance in any other fashion;

F. In amounts that will impair designated instream or downstream water uses.

3. FACILITY OPERATION AND QUALITY CONTROL

All wastewater treatment works shall be operated in a manner consistent with the following:

A. At all times, the permittee shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee necessary to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with conditions of the permit.

B. The permittee shall effectively monitor the operation and efficiency of treatment and control facilities and the quantity and quality of the treated discharge.

C. Maintenance of wastewater treatment works that results in degradation of effluent quality shall be scheduled during non-critical water quality periods and shall be carried out in a manner approved by Ohio EPA as specified in the Paragraph in the PART III entitled, "UNAUTHORIZED DISCHARGES".

4. REPORTING

A. Monitoring data required by this permit shall be submitted monthly on Ohio EPA 4500 Discharge Monitoring Report (DMR) forms using the electronic DMR (e-DMR) internet application. e-DMR allows permitted facilities to enter, sign, and submit DMRs on the internet. e-DMR information is found on the following web page:

http://www.epa.ohio.gov/dsw/edmr/eDMR.aspx

Alternatively, if you are unable to use e-DMR due to a demonstrated hardship, monitoring data may be submitted on paper DMR forms provided by Ohio EPA. Monitoring data shall be typed on the forms. Please contact Ohio EPA, Division of Surface Water at (614) 644-2050 if you wish to receive paper DMR forms.

B. DMRs shall be signed by a facility's Responsible Official or a Delegated Responsible Official (i.e. a person delegated by the Responsible Official). The Responsible Official of a facility is defined as:

1. For corporations - a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

2. For partnerships - a general partner;

3. For a sole proprietorship - the proprietor; or,

4. For a municipality, state or other public facility - a principal executive officer, a ranking elected official or other duly authorized employee.

For e-DMR, the person signing and submitting the DMR will need to obtain an eBusiness Center account and Personal Identification Number (PIN). Additionally, Delegated Responsible Officials must be delegated by the Responsible Official, either on-line using the eBusiness Center's delegation function, or on a paper delegation form provided by Ohio EPA. For more information on the PIN and delegation processes, please view the following web page:

http://epa.ohio.gov/dsw/edmr/eDMR.aspx

C. DMRs submitted using e-DMR shall be submitted to Ohio EPA by the 20th day of the month following the month-of-interest. DMRs submitted on paper must include the original signed DMR form and shall be mailed to Ohio EPA at the following address so that they are received no later than the 15th day of the month following the month-of-interest:

Ohio Environmental Protection Agency
Lazarus Government Center
Division of Surface Water - PCU
P.O. Box 1049
Columbus, Ohio 43216-1049

D. Regardless of the submission method, a paper copy of the submitted Ohio EPA 4500 DMR shall be maintained onsite for records retention purposes (see Section 7. RECORDS RETENTION). For e-DMR users, view and print the DMR from the Submission Report Information page after each original or revised DMR is submitted. For submittals on paper, make a copy of the completed paper form after it is signed by a Responsible Official or a Delegated Responsible Official.

E. If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified in Section 5. SAMPLING AND ANALYTICAL METHODS, the results of such monitoring shall be included in the calculation and reporting of the values required in the reports specified above.

F. Analyses of pollutants not required by this permit, except as noted in the preceding paragraph, shall not be reported to the Ohio EPA, but records shall be retained as specified in Section 7. RECORDS RETENTION.

5. SAMPLING AND ANALYTICAL METHOD

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored flow. Test procedures for the analysis of pollutants shall conform to regulation 40 CFR 136, "Test Procedures For The Analysis of Pollutants" unless other test procedures have been specified in this permit. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to insure accuracy of measurements.

6. RECORDING OF RESULTS

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

A. The exact place and date of sampling; (time of sampling not required on EPA 4500)

B. The person(s) who performed the sampling or measurements;

C. The date the analyses were performed on those samples;

D. The person(s) who performed the analyses;

E. The analytical techniques or methods used; and

F. The results of all analyses and measurements.

7. RECORDS RETENTION

The permittee shall retain all of the following records for the wastewater treatment works for a minimum of three years except those records that pertain to sewage sludge disposal, use, storage, or treatment, which shall be kept for a minimum of five years, including:

A. All sampling and analytical records (including internal sampling data not reported);

B. All original recordings for any continuous monitoring instrumentation;

C. All instrumentation, calibration and maintenance records;

D. All plant operation and maintenance records;

E. All reports required by this permit; and

F. Records of all data used to complete the application for this permit for a period of at least three years, or five years for sewage sludge, from the date of the sample, measurement, report, or application.

These periods will be extended during the course of any unresolved litigation, or when requested by the Regional Administrator or the Ohio EPA. The three year period, or five year period for sewage sludge, for retention of records shall start from the date of sample, measurement, report, or application.

8. AVAILABILITY OF REPORTS

Except for data determined by the Ohio EPA to be entitled to confidential status, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the appropriate district offices of the Ohio EPA. Both the Clean Water Act and Section 6111.05 Ohio Revised Code state that effluent data and receiving water quality data shall not be considered confidential.

9. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking, and reissuing, or terminating the permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

10. RIGHT OF ENTRY

The permittee shall allow the Director or an authorized representative upon presentation of credentials and other documents as may be required by law to:

A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.

B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.

C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

D. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

11. UNAUTHORIZED DISCHARGES

A. Bypass Not Exceeding Limitations - The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 11.B and 11.C.

B. Notice

1. Anticipated Bypass - If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

2. Unanticipated Bypass - The permittee shall submit notice of an unanticipated bypass as required in paragraph 12.B (24 hour notice).

C. Prohibition of Bypass

1. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted notices as required under paragraph 11.B.

2. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 11.C.1.

12. NONCOMPLIANCE NOTIFICATION

A. Exceedance of a Daily Maximum Discharge Limit

1. The permittee shall report noncompliance that is the result of any violation of a daily maximum discharge limit for any of the pollutants listed by the Director in the permit by e-mail or telephone within twenty-four (24) hours of discovery.

The permittee may report to the appropriate Ohio EPA district office e-mail account as follows (this method is preferred):

Southeast District Office: sedo24hournpdes@epa.state.oh.us
Southwest District Office: swdo24hournpdes@epa.state.oh.us
Northwest District Office: nwdo24hournpdes@epa.state.oh.us
Northeast District Office: nedo24hournpdes@epa.state.oh.us
Central District Office: cdo24hournpdes@epa.state.oh.us
Central Office: co24hournpdes@epa.state.oh.us

The permittee shall attach a noncompliance report to the e-mail. A noncompliance report form is available on the following web site under the Monitoring and Reporting - Non-Compliance Notification section:

http://epa.ohio.gov/dsw/permits/individuals.aspx

Or, the permittee may report to the appropriate Ohio EPA district office by telephone toll-free between 8:00 AM and 5:00 PM as follows:

Southeast District Office: (800) 686-7330
Southwest District Office: (800) 686-8930
Northwest District Office: (800) 686-6930
Northeast District Office: (800) 686-6330
Central District Office: (800) 686-2330
Central Office: (614) 644-2001

The permittee shall include the following information in the telephone noncompliance report:

a. The name of the permittee, and a contact name and telephone number;

b. The limit(s) that has been exceeded;

c. The extent of the exceedance(s);

d. The cause of the exceedance(s);

e. The period of the exceedance(s) including exact dates and times;

f. If uncorrected, the anticipated time the exceedance(s) is expected to continue; and,

g. Steps taken to reduce, eliminate or prevent occurrence of the exceedance(s).

B. Other Permit Violations

1. The permittee shall report noncompliance that is the result of any unanticipated bypass resulting in an exceedance of any effluent limit in the permit or any upset resulting in an exceedance of any effluent limit in the permit by e-mail or telephone within twenty-four (24) hours of discovery.

The permittee may report to the appropriate Ohio EPA district office e-mail account as follows (this method is preferred):

Southeast District Office: sedo24hournpdes@epa.state.oh.us
Southwest District Office: swdo24hournpdes@epa.state.oh.us
Northwest District Office: nwdo24hournpdes@epa.state.oh.us
Northeast District Office: nedo24hournpdes@epa.state.oh.us
Central District Office: cdo24hournpdes@epa.state.oh.us
Central Office: co24hournpdes@epa.state.oh.us

The permittee shall attach a noncompliance report to the e-mail. A noncompliance report form is available on the following web site:

http://www.epa.ohio.gov/dsw/permits/permits.aspx

Or, the permittee may report to the appropriate Ohio EPA district office by telephone toll-free between 8:00 AM and 5:00 PM as follows:

Southeast District Office: (800) 686-7330
Southwest District Office: (800) 686-8930
Northwest District Office: (800) 686-6930
Northeast District Office: (800) 686-6330
Central District Office: (800) 686-2330
Central Office: (614) 644-2001

The permittee shall include the following information in the telephone noncompliance report:

a. The name of the permittee, and a contact name and telephone number;

b. The time(s) at which the discharge occurred, and was discovered;

c. The approximate amount and the characteristics of the discharge;

d. The stream(s) affected by the discharge;

e. The circumstances which created the discharge;

f. The name and telephone number of the person(s) who have knowledge of these circumstances;

g. What remedial steps are being taken; and,

h. The name and telephone number of the person(s) responsible for such remedial steps.

2. The permittee shall report noncompliance that is the result of any spill or discharge which may endanger human health or the environment within thirty (30) minutes of discovery by calling the 24-Hour Emergency Hotline toll-free at (800) 282-9378. The permittee shall also report the spill or discharge by e-mail or telephone within twenty-four (24) hours of discovery in accordance with B.1 above.

C. When the telephone option is used for the noncompliance reports required by A and B, the permittee shall submit to the appropriate Ohio EPA district office a confirmation letter and a completed noncompliance report within five (5) days of the discovery of the noncompliance. This follow up report is not necessary for the e-mail option which already includes a completed noncompliance report.

D. If the permittee is unable to meet any date for achieving an event, as specified in a schedule of compliance in their permit, the permittee shall submit a written report to the appropriate Ohio EPA district office within fourteen (14) days of becoming aware of such a situation. The report shall include the following:

1. The compliance event which has been or will be violated;

2. The cause of the violation;

3. The remedial action being taken;

4. The probable date by which compliance will occur; and,

5. The probability of complying with subsequent and final events as scheduled.

E. The permittee shall report all other instances of permit noncompliance not reported under paragraphs A or B of this section on their monthly DMR submission. The DMR shall contain comments that include the information listed in paragraphs A or B as appropriate.

F. If the permittee becomes aware that it failed to submit an application, or submitted incorrect information in an application or in any report to the director, it shall promptly submit such facts or information.

13. RESERVED

14. DUTY TO MITIGATE

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

15. AUTHORIZED DISCHARGES

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than, or at a level in excess of, that authorized by this permit shall constitute a violation of the terms and conditions of this permit. Such violations may result in the imposition of civil and/or criminal penalties as provided for in Section 309 of the Act and Ohio Revised Code Sections 6111.09 and 6111.99.

16. DISCHARGE CHANGES

The following changes must be reported to the appropriate Ohio EPA district office as soon as practicable:

A. For all treatment works, any significant change in character of the discharge which the permittee knows or has reason to believe has occurred or will occur which would constitute cause for modification or revocation and reissuance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Notification of permit changes or anticipated noncompliance does not stay any permit condition.

B. For publicly owned treatment works:

1. Any proposed plant modification, addition, and/or expansion that will change the capacity or efficiency of the plant;

2. The addition of any new significant industrial discharge; and

3. Changes in the quantity or quality of the wastes from existing tributary industrial discharges which will result in significant new or increased discharges of pollutants.

C. For non-publicly owned treatment works, any proposed facility expansions, production increases, or process modifications, which will result in new, different, or increased discharges of pollutants.

Following this notice, modifications to the permit may be made to reflect any necessary changes in permit conditions, including any necessary effluent limitations for any pollutants not identified and limited herein. A determination will also be made as to whether a National Environmental Policy Act (NEPA) review will be required. Sections 6111.44 and 6111.45, Ohio Revised Code, require that plans for treatment works or improvements to such works be approved by the Director of the Ohio EPA prior to initiation of construction.

D. In addition to the reporting requirements under 40 CFR 122.41(l) and per 40 CFR 122.42(a), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

1. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant which is not limited in the permit. If that discharge will exceed the highest of the "notification levels" specified in 40 CFR Sections 122.42(a)(1)(i) through 122.42(a)(1)(iv).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" specified in 122.42(a)(2)(i) through 122.42(a)(2)(iv).

17. TOXIC POLLUTANTS

The permittee shall comply with effluent standards or prohibitions established under Section 307 (a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement. Following establishment of such standards or prohibitions, the Director shall modify this permit and so notify the permittee.

18. PERMIT MODIFICATION OR REVOCATION

A. After notice and opportunity for a hearing, this permit may be modified or revoked, by the Ohio EPA, in whole or in part during its term for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this permit;

2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

3. Change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

B. Pursuant to rule 3745-33-04, Ohio Administrative Code, the permittee may at any time apply to the Ohio EPA for modification of any part of this permit. The filing of a request by the permittee for a permit modification or revocation does not stay any permit condition. The application for modification should be received by the appropriate Ohio EPA district office at least ninety days before the date on which it is desired that the modification become effective. The application shall be made only on forms approved by the Ohio EPA.

19. TRANSFER OF OWNERSHIP OR CONTROL

This permit may be transferred or assigned and a new owner or successor can be authorized to discharge from this facility, provided the following requirements are met:

A. The permittee shall notify the succeeding owner or successor of the existence of this permit by a letter, a copy of which shall be forwarded to the appropriate Ohio EPA district office. The copy of that letter will serve as the permittee's notice to the Director of the proposed transfer. The copy of that letter shall be received by the appropriate Ohio EPA district office sixty (60) days prior to the proposed date of transfer;

B. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) shall be submitted to the appropriate Ohio EPA district office within sixty days after receipt by the district office of the copy of the letter from the permittee to the succeeding owner;

At anytime during the sixty (60) day period between notification of the proposed transfer and the effective date of the transfer, the Director may prevent the transfer if he concludes that such transfer will jeopardize compliance with the terms and conditions of the permit. If the Director does not prevent transfer, he will modify the permit to reflect the new owner.

20. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

21. SOLIDS DISPOSAL

Collected grit and screenings, and other solids other than sewage sludge, shall be disposed of in such a manner as to prevent entry of those wastes into waters of the state, and in accordance with all applicable laws and rules.

22. CONSTRUCTION AFFECTING NAVIGABLE WATERS

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

23. CIVIL AND CRIMINAL LIABILITY

Except as exempted in the permit conditions on UNAUTHORIZED DISCHARGES or UPSETS, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

24. STATE LAWS AND REGULATIONS

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act.

25. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

26. UPSET

The provisions of 40 CFR Section 122.41(n), relating to "Upset," are specifically incorporated herein by reference in their entirety. For definition of "upset," see Part III, Paragraph 1, DEFINITIONS.

27. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

28. SIGNATORY REQUIREMENTS

All applications submitted to the Director shall be signed and certified in accordance with the requirements of 40 CFR 122.22.

All reports submitted to the Director shall be signed and certified in accordance with the requirements of 40 CFR Section 122.22.

29. OTHER INFORMATION

A. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

B. ORC 6111.99 provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $25,000 per violation.

C. ORC 6111.99 states that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $25,000 per violation.

D. ORC 6111.99 provides that any person who violates Sections 6111.04, 6111.042, 6111.05, or division (A) of Section 6111.07 of the Revised Code shall be fined not more than $25,000 or imprisoned not more than one year, or both.

30. NEED TO HALT OR REDUCE ACTIVITY

40 CFR 122.41(c) states that it shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with conditions of this permit.

31. APPLICABLE FEDERAL RULES

All references to 40 CFR in this permit mean the version of 40 CFR which is effective as of the effective date of this permit.

32. AVAILABILITY OF PUBLIC SEWERS

Not withstanding the issuance or non-issuance of an NPDES permit to a semi-public disposal system, whenever the sewage system of a publicly owned treatment works becomes available and accessible, the permittee operating any semi-public disposal system shall abandon the semi-public disposal system and connect it into the publicly owned treatment works.

APPENDIX-G

Vol 221 Pg 640

152041

Paid $10.00

EASEMENT

KNOW ALL MEN BY THESE PRESENTS:

That in consideration of One Dollar ($1.00) and other good and valuable consideration paid to Eli D.Hershberger and Mary Ann Hershberger hereinafter referred to as GRANTOR,by Winesburg Area Development Corporation,hereinafter referred to as GRANTEE,the receipt of which is hereby acknowledged,the GRANTOR does hereby grant,bargain,sell,transfer, and convey unto the GRANTEE,its successors and assigns,a perpetual easement with the right to construct,and thereafter use,inspect,repair, maintain,and replace a road over,across and through the land of the GRANTOR,said land being known as and being a part of Lot Number 38, Section 3,Township 10,Range 4,Third Quarter Township,Paint Township, Holmes County,Ohio.Deed recorded in Volume 206,page 507.

Said easement shall be 15 feet in width and run adjacent to the eastern boundary of the GRANTOR'S land from the South side of County Road No. 160 southerly to the Southeast corner of the GRANTOR'S land.

Description prepared by Karl G.Siedschlag.

The GRANTEE

FOR EASEMENT SEE VOL 279 PAGE 123
assignment

TRANSFER NOT NECESSARY
DATE July 1, 1986
AUDITOR Kevin E. Kyle

covenants to maintain the easement in good repair so that no unreasonable damage will result from its use to the adjacent land of the GRANTOR, his successors and assigns.

The grant and other provisions of this easement shall constitute a covenant running with the land for the benefit of the GRANTEE, its successors and assigns.

IN WITNESS WHEREOF, the GRANTORS have executed this instrument this 21st day of June, 1986.

Jane Whitmer (Witness)

Eli D Hershberger
Eli D.Hershberger

Linda Sigrist (Witness)

Mary Ann Hershberger
Mary Ann Hershberger

152041
Rec'd. JUL 1 1986 AT 10:12 O'CLOCK A.M.
Recorded July 1, 1986 Holmes Co. Ohio Fee:
Vol. 231 Pg. 640 Recorder Richard Graves
Pd. 10.00

STATE OF OHIO)
COUNTY OF HOLMES) SS.

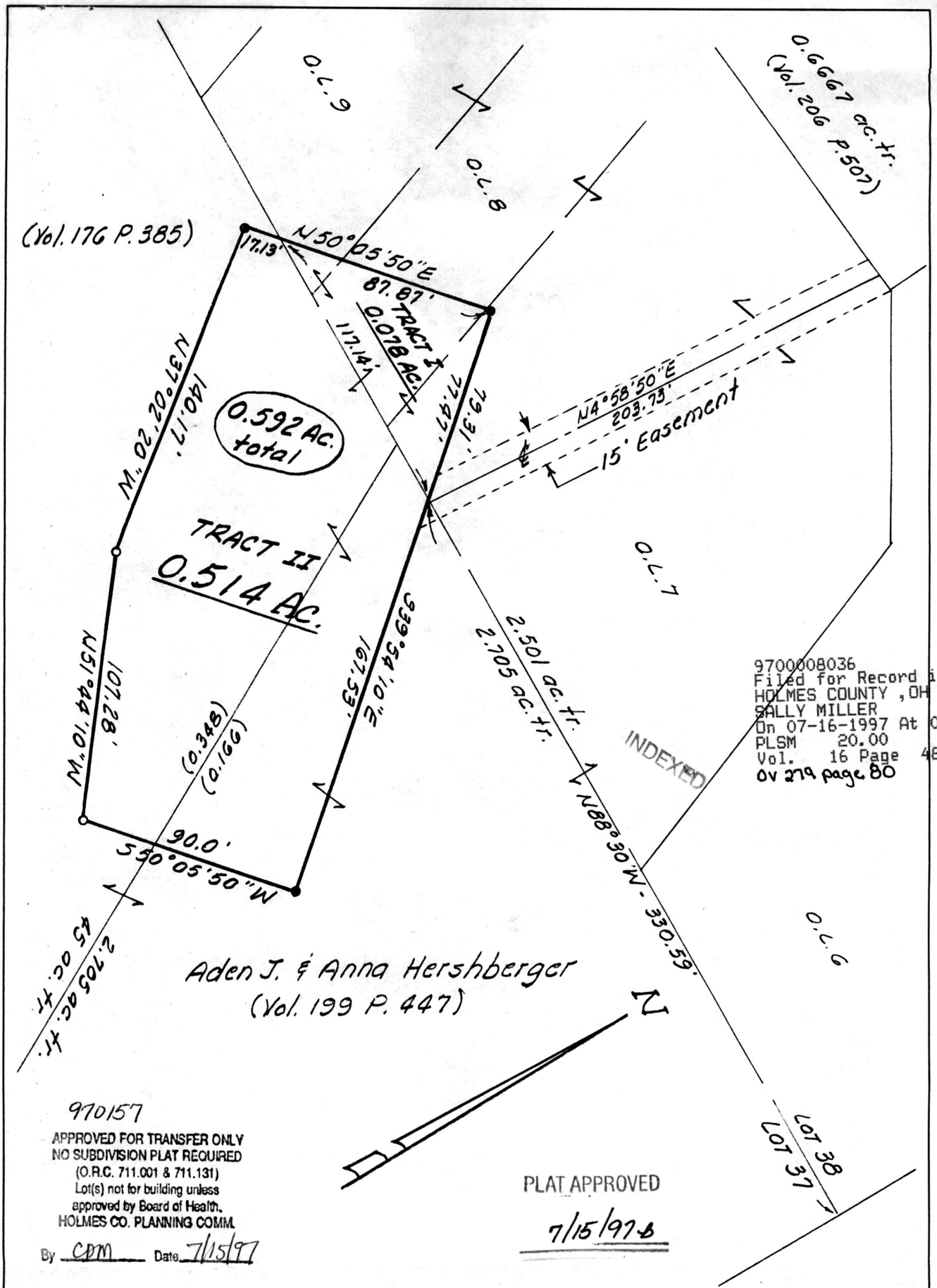
Before me, a Notary Public, in and for said County and State, personally appeared the above named Eli D.Hershberger and Mary Ann Hershberger who acknowledged that they did sign the foregoing instrument and that the same is their free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal, at Wooster, Ohio this 21st day of June, 19 86.

NOTARIAL SEAL STATE OF OHIO

Monica L. Yoder

MONICA L. YODER
Notary Public, State of Ohio
My Commission Expires Sept. 17, 1989



9700008036
Filed for Record in
HOLMES COUNTY ,OH
SALLY MILLER
On 07-16-1997 At 09:26 am
PLSM 20.00
Vol. 16 Page 482
OV 279 page 80

970157
APPROVED FOR TRANSFER ONLY
NO SUBDIVISION PLAT REQUIRED
(O.R.C. 711.001 & 711.131)
Lot(s) not for building unless
approved by Board of Health.
HOLMES CO. PLANNING COMM.
By CDM Date 7/15/97

PLAT APPROVED
7/15/97

Note: Bearings are oriented to the 2.705 acre tract. Iron pins indicated (set) are 5/8" iron bars with plastic cap stamped Bair & Goodie.

o- denotes Iron pin (found)
●- denotes Iron pin (set)

PLAT OF SURVEY FOR
WINESBURG AREA DEVELOPMENT CORPORATION

LOCATED IN Lot 37 & 38(OL 7,8 &9 in Winesburg) in the Third Quarter of Township 10, Range 4, Paint Township, Holmes County, Ohio

SCALE 1 in. = 50 ft. DATE 5/16/96

Revised 7/11/96

0 50 100

BAIR, GOODIE AND ASSOCIATES, INC.
153 NORTH BROADWAY • NEW PHILADELPHIA, OHIO
TELEPHONE (330) 343-8499

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECT

STATE OF OHIO CHARLES R. GOODIE 5521 REGISTERED SURVEYOR

Charles R. Goodie
REG. SURVEYOR NO. 5521

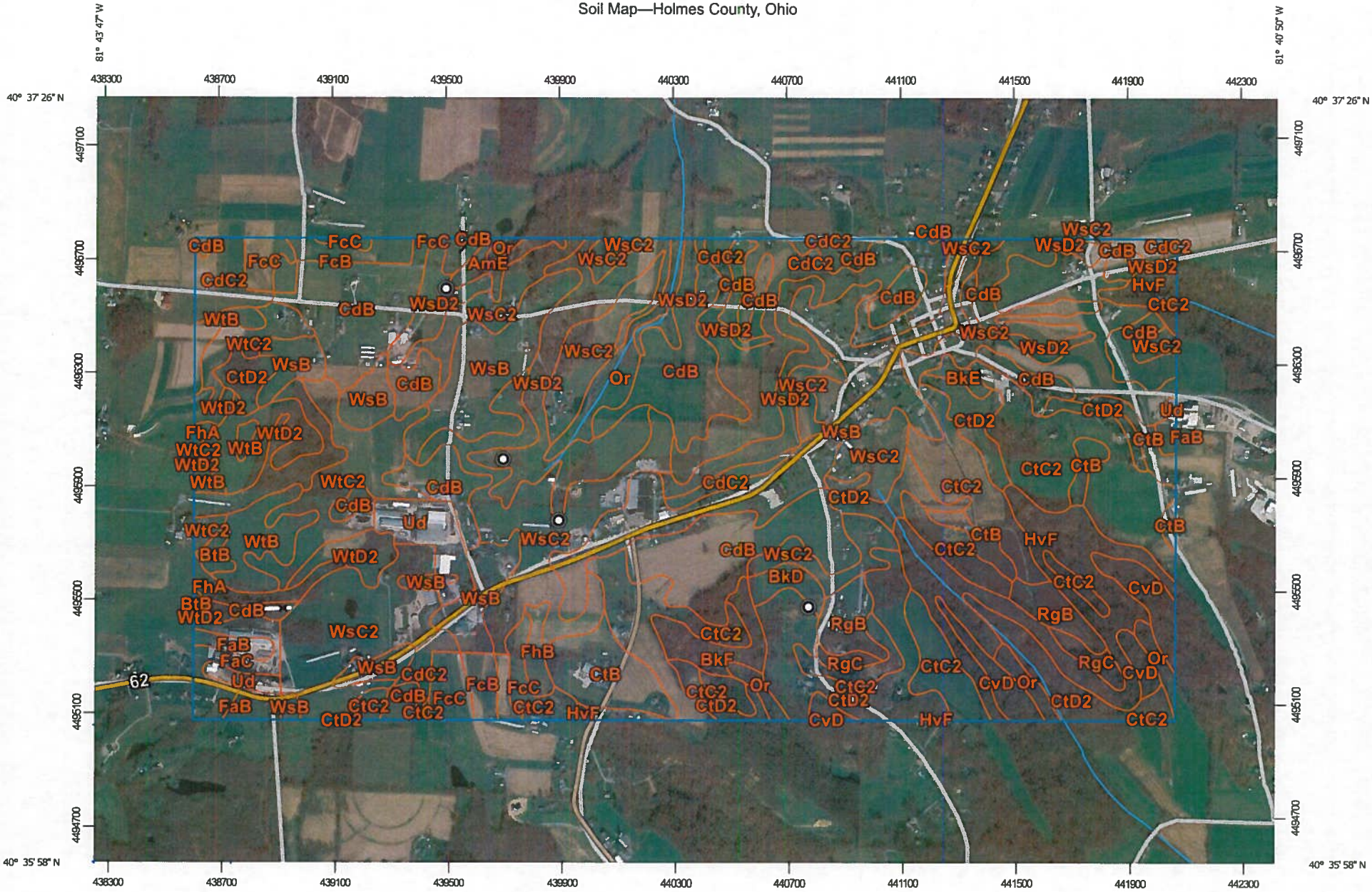
APPENDIX-H

2018 Short Lived Assets - Per USDA Bulletin 1780-2, Appendix A

Location	Estimated Value	Estimated Lifes	Description of Assets	Special Notes
Berlin WWTP	$1,200,000	6 to 10	Pumps, Pump Controls, Chemical Feed Pumps, Membrane Filters, Field and Lab Equipment, UV Lamps, Aeration Blowers, diffusers, Sludge Collection and Dewatering, Sensors and Transducers, SCADA, Generator	
Berlin Pump Sation #1	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Berlin Pump Sation #2	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Berlin Pump Sation #3	$80,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Berlin Pump Sation #4	$125,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Berlin Pump Sation #5	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Berlin Pump Sation #6	$125,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Berlin Pump Sation #7	$90,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Berlin Pump Sation #8	$60,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Walnut Creek WWTP	$2,200,000	6 to 10	Pumps, Pump Controls, Chemical Feed Pumps, Membrane Filters, Field and Lab Equipment, UV Lamps, Aeration Blowers, diffusers, Sludge Collection and Dewatering, Sensors and Transducers, SCADA, Generator	Sludge press included
Walnut Creek Pump Station #1	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Walnut Creek Pump Station #2	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Walnut Creek Pump Station #3	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Walnut Creek Pump Station #4	$60,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Walnut Creek Pump Station #5	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator
Walnut Creek Pump Station #6	$75,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Walnut Creek Pump Station #7	$125,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Walnut Creek Pump Station #8	$75,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Walnut Creek Pump Station #9	$75,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Mt Hope WWTP	$500,000	6 to 10	Pumps, Pump Controls, Chemical Feed Pumps, Membrane Filters, Field and Lab Equipment, UV Lamps, Aeration Blowers, diffusers, Sludge Collection and Dewatering, Sensors and Transducers, SCADA, Generator	
Jail WWTP	$200,000	0 to 5	Pumps, Pump Controls, Chemical Feed Pumps, Membrane Filters, Field and Lab Equipment, UV Lamps, Aeration Blowers, diffusers, Sludge Collection and Dewatering, Sensors and Transducers, SCADA, Generator	no gererator
October Hills WWTP	$300,000	6 to 10	Pumps, Pump Controls, Chemical Feed Pumps, Membrane Filters, Field and Lab Equipment, UV Lamps, Aeration Blowers, diffusers, Sludge Collection and Dewatering, Sensors and Transducers, SCADA, Generator	
October Hills Pump Sation #1	$75,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
October Hills Pump Sation #2	$75,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
October Hills Pump Sation #3	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
October Hills Pump Sation #4	$50,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	
Winesburg WWTP	$100,000	0 to 5	Pumps, Pump Controls, Chemical Feed Pumps, Membrane Filters, Field and Lab Equipment, UV Lamps, Aeration Blowers, diffusers, Sludge Collection and Dewatering, Sensors and Transducers, SCADA, Generator	
Winesburg Pump Station #1	$60,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator, no SCADA
Winesburg Pump Station #2	$40,000	0 to 5	Pumps, Rails and Internal Piping, Pump Controls, Level Sensors, SCADA, Vaults, Lids, Access Hatches, Generator	no generator, no SCADA
Vac Truck	$250,000	6 to 10		
Sludge Press	$400,000	6 to 10		
Portable Generators	$125,000	6 to 10		
Misc Equip (samplers, blowers, etc)	$185,000	0 to 5		
	$7,050,000			

APPENDIX-I

Soil Map—Holmes County, Ohio



Map Scale: 1:19,000 if printed on A landscape (11" x 8.5") 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 1:15,800.

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: Holmes County, Ohio
Survey Area Data: Version 18, Sep 16, 2019

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

Date(s) aerial images were photographed: Apr 15, 2014—Sep 26, 2016

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
AmE	Amanda loam, 18 to 25 percent slopes	6.4	0.4%
BkD	Berks silt loam, 15 to 25 percent slopes, very stony	6.4	0.4%
BkE	Berks silt loam, 25 to 35 percent slopes, very stony	3.1	0.2%
BkF	Berks silt loam, 35 to 70 percent slopes, very stony	13.3	0.9%
BtB	Bogart silt loam, 2 to 6 percent slopes	3.1	0.2%
CdB	Canfield silt loam, 2 to 6 percent slopes	204.3	14.0%
CdC2	Canfield silt loam, 6 to 12 percent slopes, eroded	84.0	5.8%
CtB	Coshocton silt loam, 2 to 6 percent slopes	39.8	2.7%
CtC2	Coshocton silt loam, 6 to 15 percent slopes, eroded	155.8	10.7%
CtD2	Coshocton silt loam, 15 to 25 percent slopes, eroded	97.6	6.7%
CvD	Coshocton silt loam, 12 to 25 percent slopes, very stony	24.8	1.7%
FaB	Fairpoint silt loam, 0 to 8 percent slopes	10.5	0.7%
FaC	Fairpoint silt loam, 8 to 20 percent slopes	15.3	1.0%
FcB	Farmerstown silt loam, 0 to 8 percent slopes	16.0	1.1%
FcC	Farmerstown silt loam, 8 to 20 percent slopes	18.4	1.3%
FhA	Fitchville silt loam, 0 to 2 percent slopes	8.5	0.6%
FhB	Fitchville silt loam, 2 to 6 percent slopes	5.3	0.4%
HvF	Hazleton loam, 25 to 70 percent slopes, very bouldery	67.9	4.7%
Or	Orrville silt loam, 0 to 3 percent slopes, occasionally flooded	27.4	1.9%
RgB	Rigley sandy loam, 3 to 8 percent slopes	19.7	1.4%
RgC	Rigley sandy loam, 8 to 15 percent slopes	7.4	0.5%
Ud	Udorthents, loamy	20.4	1.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WsB	Wooster silt loam, 2 to 6 percent slopes	154.2	10.6%
WsC2	Wooster silt loam, 6 to 12 percent slopes, eroded	236.4	16.2%
WsD2	Wooster silt loam, 12 to 18 percent slopes, eroded	91.5	6.3%
WtB	Wooster-Chili complex, 2 to 6 percent slopes	25.9	1.8%
WtC2	Wooster-Chili complex, 6 to 12 percent slopes, eroded	65.2	4.5%
WtD2	Wooster-Chili complex, 12 to 18 percent slopes, eroded	29.5	2.0%
Totals for Area of Interest		**1,458.4**	**100.0%**

Dwellings and Small Commercial Buildings (OH)

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings with and without basements and small commercial buildings. The ratings in the table 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 building site development. *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. *Somewhat limited* indicates that the soil has features that are moderately 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 in the table 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).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Report—Dwellings and Small Commercial Buildings (OH)

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings (OH)–Holmes County, Ohio							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (OH)		Dwellings with basements (OH)		Small commercial buildings (OH)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AmE—Amanda loam, 18 to 25 percent slopes							
Amanda	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
				Shrink-swell	0.50		
BkD—Berks silt loam, 15 to 25 percent slopes, very stony							
Berks	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		
BkE—Berks silt loam, 25 to 35 percent slopes, very stony							
Berks	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slippage	1.00	Slippage	1.00	Slippage	1.00
				Depth to soft bedrock	0.95		

Dwellings and Small Commercial Buildings (OH)–Holmes County, Ohio							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (OH)		Dwellings with basements (OH)		Small commercial buildings (OH)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BkF—Berks silt loam, 35 to 70 percent slopes, very stony							
Berks	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slippage	1.00	Slippage	1.00	Slippage	1.00
				Depth to soft bedrock	0.95		
BtB—Bogart silt loam, 2 to 6 percent slopes							
Bogart	90	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.99	Slope	0.10
CdB—Canfield silt loam, 2 to 6 percent slopes							
Canfield	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.10
CdC2—Canfield silt loam, 6 to 12 percent slopes, eroded							
Canfield, eroded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
CtB—Coshocton silt loam, 2 to 6 percent slopes							
Coshocton	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.10	Depth to saturated zone	1.00	Depth to saturated zone	0.10
				Depth to hard bedrock	0.01	Slope	0.10

Dwellings and Small Commercial Buildings (OH)–Holmes County, Ohio							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (OH)		Dwellings with basements (OH)		Small commercial buildings (OH)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CtC2—Coshocton silt loam, 6 to 15 percent slopes, eroded							
Coshocton	85	Somewhat limited		Very limited		Very limited	
		Slippage	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.37	Slippage	0.50	Slippage	0.50
		Depth to saturated zone	0.10	Slope	0.37	Depth to saturated zone	0.10
		Shrink-swell	0.08	Shrink-swell	0.08	Shrink-swell	0.08
CtD2—Coshocton silt loam, 15 to 25 percent slopes, eroded							
Coshocton, eroded	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slippage	0.50	Depth to saturated zone	1.00	Slippage	0.50
		Depth to saturated zone	0.10	Slippage	0.50	Depth to saturated zone	0.10
		Shrink-swell	0.08	Shrink-swell	0.08	Shrink-swell	0.08
CvD—Coshocton silt loam, 12 to 25 percent slopes, very stony							
Coshocton	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	1.00	Shrink-swell	0.50
		Slippage	0.50	Shrink-swell	0.50	Slippage	0.50
		Depth to saturated zone	0.10	Slippage	0.50	Depth to saturated zone	0.10
FaB—Fairpoint silt loam, 0 to 8 percent slopes							
Fairpoint, unstable fill	100	Not limited		Not limited		Somewhat limited	
						Slope	0.10

Dwellings and Small Commercial Buildings (OH)–Holmes County, Ohio							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (OH)		Dwellings with basements (OH)		Small commercial buildings (OH)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FaC—Fairpoint silt loam, 8 to 20 percent slopes							
Fairpoint, unstable fill	100	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slippage	0.50	Slippage	0.50	Slippage	0.50
FcB—Farmerstown silt loam, 0 to 8 percent slopes							
Farmerstown	100	Not limited		Not limited		Somewhat limited	
						Slope	0.10
FcC—Farmerstown silt loam, 8 to 20 percent slopes							
Farmerstown	100	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Slippage	0.50	Slippage	0.50	Slippage	0.50
FhA—Fitchville silt loam, 0 to 2 percent slopes							
Fitchville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FhB—Fitchville silt loam, 2 to 6 percent slopes							
Fitchville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.10
HvF—Hazleton loam, 25 to 70 percent slopes, very bouldery							
Hazleton	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slippage	1.00	Slippage	1.00	Slippage	1.00
				Depth to hard bedrock	0.42		

Dwellings and Small Commercial Buildings (OH)–Holmes County, Ohio							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (OH)		Dwellings with basements (OH)		Small commercial buildings (OH)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Or—Orrville silt loam, 0 to 3 percent slopes, occasionally flooded							
Orrville	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RgB—Rigley sandy loam, 3 to 8 percent slopes							
Rigley	85	Not limited		Not limited		Somewhat limited	
						Slope	0.81
RgC—Rigley sandy loam, 8 to 15 percent slopes							
Rigley	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Ud—Udorthents, loamy							
Udorthents	100	Not limited		Not limited		Somewhat limited	
						Slope	0.81
WsB—Wooster silt loam, 2 to 6 percent slopes							
Wooster	90	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.90	Slope	0.10
WsC2—Wooster silt loam, 6 to 12 percent slopes, eroded							
Wooster	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to saturated zone	0.90	Slope	1.00
				Slope	0.04		

Dwellings and Small Commercial Buildings (OH)–Holmes County, Ohio							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (OH)		Dwellings with basements (OH)		Small commercial buildings (OH)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WsD2—Wooster silt loam, 12 to 18 percent slopes, eroded							
Wooster	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.90		
WtB—Wooster-Chili complex, 2 to 6 percent slopes							
Wooster	60	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.90	Slope	0.10
Chili	30	Not limited		Not limited		Somewhat limited	
						Slope	0.10
WtC2—Wooster-Chili complex, 6 to 12 percent slopes, eroded							
Wooster	60	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to saturated zone	0.90	Slope	1.00
				Slope	0.04		
Chili	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
WtD2—Wooster-Chili complex, 12 to 18 percent slopes, eroded							
Wooster	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.90		
Chili	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Data Source Information

Soil Survey Area: Holmes County, Ohio
Survey Area Data: Version 18, Sep 16, 2019