

**Application of Pennsylvania-American Water Company for Acquisition of
the Wastewater Assets of East Coventry Township
66 Pa. C.S. §1329
Application Filing Checklist – Water/Wastewater**

Docket No. A-2025-3053487

22. Other requirements. Demonstrate compliance with the following:
- b. For **wastewater** system acquisitions, provide a copy of the DEP-approved Act 537 Official Sewage Facilities Plans for the affected municipalities.

RESPONSE: b. An Act 537 Plan was prepared by East Coventry in 2003 to address sewage needs in the Township. Previous planning was performed but nothing was constructed. The 2003 plan supersedes previous planning and all existing sewer assets were constructed under this plan. A copy of this plan is attached as **Appendix A-22-b.1**.

East Coventry recently performed an update to the Act 537 plan (“Special Study”) to address sewer needs in the Parker Ford area. This plan was submitted to DEP and comments were received. East Coventry then paused the plan to explore ways to construct the plan alternative while mitigating costs to the Township customers. East Coventry decided to sell the system to a PUC regulated entity of sufficient size with experience in constructing large sewer projects. Once PAWC was selected as the entity to purchase the system, East Coventry restarted the Special Study process and completed the submission to DEP, which is attached as **Appendix A-22-b.2**.

**EAST COVENTRY TOWNSHIP
WASTEWATER COLLECTION
AND
TREATMENT SPECIAL STUDY**

JANUARY 2003

ARRO Project No. 5222.12

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APPENDIX

Appendix A	1997 Wastewater Facilities Planning Areas Figure I Cost Estimates for Service Areas Treatment Option 1; Schematic Diagram Treatment Option 2; Schematic Diagram Treatment Option 3; Schematic Diagram East Vincent Township Correspondence dated 3/12/01 March 18, 1999 Correspondence March 27, 1999 Correspondence September 28, 1999 Correspondence
Appendix B	5 and 10 year Planning Area Map
Appendix C	Figures 3 through 7
Appendix D	Chester County Planning Commission Comments and Responses 2001/2002
Appendix E	Chester County Health Department Comments and Responses 2001/2002
Appendix F	East Coventry Township Planning Commission Comments and Responses 2001/2002
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Appendix H	Draft Intermunicipal Agreement 2002 (Between East Coventry Township and North Coventry Township)
Appendix I	East Coventry Township Ordinance No. 105 -- OLDS Maintenance
Appendix J	Public Notice 2002
Appendix K	Proof of Publication 2002
Appendix L	Township Resolution of Plan Adoption
Appendix M	Public Comments and Responses
Appendix N	1997 Act 537 Sewage Facilities Plan

PREVIOUS WASTEWATER PLANNING

East Coventry Township adopted an updated Act 537 Sewage Facilities Plan in 1997. This Plan identifies two needs areas: The Earl Drive/East Cedarville Road Area (Study Area #4) and the Parkerford Area (Study Area #2). Refer to Figure 1 in Appendix A. The Plan proposed sewer service to Study Area #4 by connection to the planned expansion of the North Coventry WWTP and to Study Area #2 by connection to East Vincent Township should their plant be expanded in the future. The recommendations and Implementation Schedule contained in Chapter VII of the 1997 Plan recommends:

1. Cooperate with North Coventry Township to provide sewer service to Study Area #4.
2. Continue to cooperate with East Vincent Township to provide sewer service to Study Area #2.
3. Continue to investigate alternatives to provide sewer service to the needs areas should the North Coventry and East Vincent options not move forward.

Subsequent to the adoption of the 1997 Plan, the following subdivision proposals have been brought before the Township:

Orchard Ridge (High Associates Tract)	276 units
Coventry Meadows	380 units
Heather Glen (Domin-Allison/Miller)	30 units
Coventry Business Park (Colon Tract)	27 lots
Strutynski, Jr.	22 lots
Soltys/Strutynski, Sr.	61 lots

The developments of Orchard Ridge, Strutynski, Jr., and Soltys/Strutynski, Sr. are located in the NORCO South service area. Coventry Meadows, Heather Glen, and Coventry Business Park are located in the NORCO North service area. Refer to page 3 of this Plan for further definition of these service areas.

In correspondence, dated January 24, 1996, North Coventry indicated costs for the East Coventry Collection System would need to be borne by East Coventry. This would result in a revised annual user cost estimate of \$1,319.00 per EDU for East Coventry Township.

Taking into consideration the proposed development and updated annual user fees, the East Coventry Township Board of Supervisors authorized a Special Study to investigate additional alternatives for the needs areas and to provide for future growth within the Township.

This Study re-evaluates the five study areas in the Plan with regard to potential for future growth and feasibility for providing a cost effective collection system for the needs areas identified in the 1997 Plan. Also evaluated are the following three treatment alternatives, which were not evaluated in the 1997 Plan.

1. Treat all or a portion of the Study Area at the North Coventry WWTP.
2. Treat all or a portion of the Study Area at a treatment facility located in East Vincent Township.
3. Treat all or a portion of the Study Area at a treatment facility located in East Coventry Township.

The background demographic studies, geological evaluations and testing contained in the 1997 Plan and previous studies were not re-evaluated and should be referenced for background information.

STUDY AREA

The 1997 Plan divides the Township into five Planning areas shown on Figure 1.

Areas #2 and #4 are identified needs areas and public sewer is proposed. Areas #1 and #3 directly adjoin Areas #2 and #4, respectively. As no potential development was proposed and no immediate need for wastewater facilities was identified in Areas #1 and #3, wastewater systems are selected on a case-by-case basis. The Plan recommends community wastewater disposal systems and provides a hierarchy of treatment methodology for the selection of these systems to service individual developments.

This approach could result in multiple small treatment systems located throughout the Township. Furthermore, these systems would be located in close proximity to areas of proposed public sewer and would most likely preclude the potential to provide sewer to existing lots of less than one acre in area.

Additionally, a portion of Study Area #5 extends between Study Areas #1 and #3. The preferred method of treatment for this Study Area is individual on-lot disposal systems, which precludes the potential for combining the northeastern and northwestern portions of the township for treatment at a single location.

Figure 2 indicates the area of the Township to be evaluated for public sewer service by this study including the five and ten year planning areas. This study will evaluate the feasibility of providing some form of public sewer collection and treatment to the entire portion of the Township north of Pigeon Creek from Parkerford in the east to Bickels Run in the west. The remainder of the Township, south of the Pigeon Creek and west of Bickels Run, will not be evaluated for public sewer and the preferred wastewater disposal method will remain individual on-lot systems.

With the exception of a small area along SR 0023 in the southern portion of the Township, all the commercial and industrial zoning districts are located in this area. All of the high-density residential districts are also located within this area.

Providing sewer service to this area would support growth in the areas currently zoned for it and support the direction given in the Township's Comprehensive Plan and Chester County's "Landscapes" Plan.

EXISTING AND PROJECTED WASTEWATER FLOW

The estimated wastewater flows for the study areas are contained in Table 1. Refer to Figures 3 through 7 found in Appendix C which delineate the North Coventry (NORCO) North, NORCO South, and Parkerford service areas.

Table 1 – Estimated (in terms of EDU's) Connections to Public Sewer System

	5 year	10 year	20 year
NORCO South			
Existing	0*	185	251
Proposed	359	359	359
Potential	0	98	189
NORCO North			
Existing	0*	45	116
Proposed	437	437	437
Potential	0	69	69
Parkerford			
Existing	182	226	339
Proposed	0	0	0
Potential	0	24	163
TOTAL	978	1,443	1,923

* **Note:** Currently all “Existing” EDUs utilize on-lot disposal systems for wastewater treatment and disposal. It is anticipated that none of the “Existing” EDUs will be connected to the proposed public sewer system for the NORCO North and NORCO South service areas within the next 5 years. However, it is anticipated that a portion of these same “Existing” EDUs will be connected to the public sewer system by the 10-year planning horizon. And, the remainder of the “Existing” EDUs not connected by the 10-year planning horizon will be connected by the 20-year planning horizon.

A window survey was performed to determine the number of existing EDU's. Potential EDU's were determined by analyzing the available land area with respect to current zoning densities and site specific constraints such as steep slopes, wetlands and flood plains. A development factor of 0.65 to 0.80 depending on site constraints was used. A 20 to 40 year buildout period was utilized depending on site locations.

Based on this information, treatment capacity for 1,923 EDU's would be required. This capacity would include 709 existing units, 793 proposed units at Orchard Ridge, Coventry Meadows, Coventry Business Park, Heather Glen, Strutynski, Jr., and Soltys/Strutynski, Sr. and 421 potential units. Assuming a flow of 262.5 gal/day/EDU, a total flow of at least 0.505 MGD would be anticipated. Minimum Treatment Facility Capacity of 0.510 MGD should be considered.

WASTEWATER MANAGEMENT ALTERNATIVES

Wastewater management is needed in East Cedarville/Earl Drive Area and Parkerford Area to eliminate the potential health problems occurring from the malfunctioning of on-lot sewerage disposal systems and discharge of sewage into the groundwater and waters of the Commonwealth of Pennsylvania.

The following subsections are analyses of general wastewater management alternatives to comply with the requirements of PA DEP and to meet the immediate and future needs of East Coventry Township.

EXISTING WASTEWATER TREATMENT FACILITIES

There are two existing treatment facilities located near enough to the study area to warrant investigation. The North Coventry WWTP is located at the Township line just north of the intersection of SR 0724 and Vaughan Road. A treatment facility in East Vincent Township is located at the former Penn Hurst State facility approximately 1.5 miles northeast of Parkerford.

It would be possible to construct a collection system that could convey raw wastewater to either or both of these facilities.

NEW TREATMENT FACILITIES

Considering the topography of the Study Area, it would be possible to locate a new treatment facility in either the Northern Schuylkill River Drainage Basin or the Pigeon Creek drainage Basin.

A treatment facility located in the Schuylkill River Drainage Basin would have the following discharge potentials:

1. Secondary Treatment with year round spray irrigation.
2. Seasonal spray irrigation with minimal wintertime stream discharge requirements.
3. Subsurface disposal or a permitted groundwater discharge system.
4. Year round stream discharge of treated wastes with at a minimum, average effluent concentrations of:

C-BOD₅ = 25 mg/l
 Total Phosphorous = 1.0 mg/l
 Total NH₃-N = 20 mg/l
 Suspended Solids = 30 mg/l
 Dissolved Oxygen = 5 to 6 mg/l

The Pigeon Creek is a tributary of the Schuylkill River. Pigeon Creek is considered High Quality Waters by the Pennsylvania Department of Environmental Protection, as such, advanced wastewater treatment is required. To encourage minimizing or eliminating surface water discharges, DEP maintains that one of the following technologies or a DEP approved equivalent must be applied in High Quality Waters. The technologies are as follows in the order of DEP preference:

- 1) Secondary treatment with year round spray irrigation.
- 2) Seasonal spray irrigation with minimum wintertime stream discharge requirements set at an antidegradation with best available treatment.
- 3) Subsurface disposal with conventional or alternative on-lot systems or a permitted groundwater discharge system.
- 4) Year round stream discharge of treated wastes with a minimum, antidegradation best available treatment average effluent concentrations of:

C-BOD₅ = 10 mg/l
 Total Phosphorous = 1.0 mg/l
 Total NH₃-N = 1.5 mg/l (May 1 to Oct. 31)
 Total NH₃-N = 4.5 mg/l (Nov. 1 to Apr. 30)
 Suspended Solids = 10 mg/l
 Dissolved Oxygen = 5 to 6 mg/l

The following list is potential pollutants that will be evaluated in permits and may or may not require treatment:

Hardness
 Total Iron
 Total Manganese
 Total Zinc
 Total Copper
 Total Nickel
 Total Aluminum
 Total Lead
 Fecal Coliform Density
 Nitrate Nitrogen (NO₃ – N)
 Nitrite Nitrogen (NO₂ – N)
 Volatile Organic Compounds

Because of the high level of treatment that will be required for stream discharge, and the possibility that DEP will not allow stream discharge; subsurface disposal or year-round spray irrigation of treated effluent is considered the only possible alternative method for wastewater disposal in the Pigeon Creek drainage area.

Due to the limited land areas available for surface or subsurface disposal within this drainage area and the potential for discharge to the Schuylkill River, further evaluations of this area were not performed. It is anticipated that public water from the Schuylkill River drainage basin will be supplied to this area as development progresses, which would offset any losses due to supplying public sewer with a discharge located within another drainage area to existing dwellings.

WASTEWATER TREATMENT AND YEAR-ROUND SPRAY IRRIGATION

This wastewater management alternative provides for secondary treatment and further removal and/or reduction of pollutants by the physical and/or biological processes that occur in the soil through land application by spray irrigation of treated wastewater. Utilization of this alternative management plan is based on the site availability, soil suitability, topography, geology, hydrology, climate, and vegetation. Year-round spray irrigation of treated effluent will require approximately sixty (60) days storage to prevent runoff to the stream during cold and wet periods when spraying is not feasible. Storage would consist of tankage capacities of sixty (60) days x 0.510 MGD = 30,600,000 gallons. The size of the required spray field based on an application rate of two inches (2")/week/acre for deep, well-drained soils would be approximately 65 acres. Due to the limited availability of land of sufficient size to accommodate this method of treatment, this alternative was not further evaluated.

WASTEWATER TREATMENT & SEASONAL OR PARTIAL SPRAY IRRIGATION

This alternative provides for spraying of treated effluent on a partial or seasonal basis. The degree of treatment would be the same as for a stream discharge for minimum wintertime requirements. Both NPDES and clean stream laws permits as well as social or economic justification is required. The spray field size and application ranges would be the same as that for year round spray irrigation. This method eliminates the need for sixty (60) days storage capacity. The use of spray irrigation on a seasonal basis would be precluded due to the size of the required spray field. It may be possible to provide for partial spray disposal depending on land availability.

WASTEWATER TREATMENT AND SUBSURFACE DISPOSAL

This method of effluent disposal requires pretreatment of the effluent by septic tank and/or aerobic tank methods. However secondary treatment would be considered in order to minimize the size of the disposal field. This method of effluent disposal relies on the percolation of the effluent into the soils. The application rate of the effluent is dependant upon the percolation rate of the soils. Based on an average percolation rate of 22 minutes per inch and 0.510 MGD, the size of the disposal area required in accordance with DEP Pennsylvania Code 25 Chapter 73 is 12 acres minimum.

ALTERNATIVES NOT REQUIRING OR MINIMIZING PHYSICAL FACILITIES FOR TREATMENT

These alternatives include water conservation methods and infiltration and inflow programs utilized to reduce wastewater flows.

At this time, since there are no existing municipal facilities in place, the proposed facilities will be sized for the full wastewater flow. Once the facility and collection system are operating, then water conservation methods and infiltration and inflow programs can be implemented.

NO ACTION

This management alternative is not feasible for the Study Area because it does not meet the goals and objectives of the Pennsylvania Department of Environmental Protection with regard to development and maintenance of water quality.

INDIVIDUAL SYSTEM REPAIRS, MODIFICATIONS AND OR RECONSTRUCTION

These alternatives include corrections to individual on-lot systems on a case-by-case basis, utilizing standard, approved alternate and experimental on-lot systems. Additional information concerning this alternative is provided in the 1997 Plan.

COLLECTION SYSTEM ALTERNATIVES

The Study Area spans two drainage areas, both of which contain several sub drainage areas. To provide services to the entire area, several pumping stations will be required regardless of the location of final treatment.

Several collection alternates were examined. Each alternate is dependent upon new development constructing portions of the collection system. Without new development participation in the form of construction of portions of the collection system and supplying an expanded user base, the project would not be financially feasible.

ALTERNATE 1 – NORCO SERVICE AREA – SOUTH

This alternate is presented in Figure 3. Final treatment would be supplied by North Coventry Township. A portion of the collection and conveyance system would be constructed by the proposed Orchard Ridge, Strutynski, Jr., and Soltys/Strutynski, Sr. developments. Included are 5 options which would expand the system to include most of the existing houses in the area. These options could be constructed as phases when funds become available if they are not feasible initially. Service to the needs area identified as Study Area #4 in the 1997 Plan would be provided by this Alternate.

The following table summarizes the project cost for the Base Area and Options.

	EXISTING EDU'S	COST
Base Area	150	\$ 2,068,613.00
Option 1	37	\$ 569,282.00
Option 2	17	\$ 200,920.00
Option 3	9	\$ 110,313.00
Option 4	18	\$ 218,636.00
Option 5	20	\$ 423,953.00

These costs are to provide service to existing units only and do not include the cost of facilities which is anticipated that the developers will construct.

A detailed cost estimate for this alternate is included in Appendix A.

ALTERNATE 2 – NORCO SERVICE AREA – NORTH AND SOUTH

This Alternate is an extension of Alternate 1 and would also provide for treatment at the North Coventry WWTP.

Service to existing houses located in the South portion of the Alternate would be heavily dependent upon developer's construction of a major portion of the collection and conveyance system.

ALTERNATE 3 – PARKERFORD AREA

This Alternate, detailed in Figure 4, addresses the needs area identified as Study Area #2 in the 1997 Plan. Final Wastewater Treatment would be provided by East Vincent Township.

This area contains a Mobile Home Park, which currently operates a package plant which discharges to the Pigeon Creek. At this time, the owners are not interested in connecting to a public system. This may change at some point in the future. At this time there are no proposed units in this area.

The following estimate includes 100 EDU's for the Mobile Home Park. Without the Park the cost estimate could be adjusted to exclude the portion of the interceptor along the Pigeon Creek.

	<u>EXISTING EDU'S</u>	<u>COST</u>
Base Area	250	\$2,794,417.00

A detailed cost estimate for this area is contained in Appendix A.

ALTERNATE 4

This Alternate combines the collection systems described in alternate 1 through 3.

As both the NORCO and Parkerford sub areas contain pumping stations, final treatment could be provided by either North Coventry or East Vincent by moving the force mains. Given the location of proposed development and the amount of force main required to convey the waste to East Vincent, treatment at East Vincent would not be feasible.

The costs for this Alternate would remain the same as Alternate 1 through 3.

ALTERNATES 5 THROUGH 7

These Alternates are detailed in figures 5, 6, and 7, respectively.

As with Alternate 4, these alternates explore the possibility of combining the entire area and providing treatment at a single facility. Three potential sites are identified as Sites "A", "B" and "C". Conveyance to these sites could be accomplished utilizing the same pumping stations contained in the previous Alternates with relocated force mains.

The number of existing units, fairly concentrated in the Parkersford and East Cedarville Areas are not enough to support the construction cost of the portion of system between the two areas. By themselves, these areas cannot support the portions of the system required to provide service to only existing EDU's. Accordingly, no cost estimates were prepared other than those for Alternate 1 and 3. The economic feasibility of constructing the complete conveyance system is dependent upon development.

WASTEWATER TREATMENT ALTERNATIVES

This section evaluates possible treatment processes for the wastewater treatment plant which are capable of complying with the hydraulic flow requirement and the proposed effluent limitations. The processes evaluated are for stream discharge only.

BIOLOGICAL TREATMENT SYSTEM ALTERNATIVES

The most feasible method of removing organic matter and converting ammonia nitrogen to nitrates for treatment plants of this size is to utilize aerobic biological treatment systems. Biological systems engage microorganisms in the presence of oxygen to synthesize BOD to new cells, water and carbon dioxide and to transform ammonia nitrogen to nitrates by bio-oxidation.

A. SUSPENDED GROWTH SYSTEMS:

The suspended growth processes (activated sludge and modifications thereof) depend on maintaining a biological microorganism population suspended in the wastewater in a mixed and aerated reactor. The suspended organisms metabolize the microorganisms to simpler compounds, carbon dioxide, and water. These biological solids are separated from the liquid stream in a sedimentation tank following the reactor (clarifier) and are returned to the aeration tank for further use in a continuously repeating cycle. The treated liquid is discharged as a "secondary effluent" to the receiving stream after a disinfection process to kill pathogenic bacteria. As in all metabolic processes, the organisms continue to grow and an excess mass is generated (waste activated sludge) which must be periodically or continuously removed from the system to keep it functional. Dissolved oxygen is required for the organism to function aerobically. Oxygen is provided by an air supply from blowers and diffusers or mechanical agitators which also keep the biomass in suspension by mixing.

To achieve nitrification biologically, the development and maintenance of a specific microbial population is required. These utilize ammonia in their metabolic process converting it to the nitrate form. The "nitrifiers" do not normally compete well with the broad biological populations that develop in a conventional activated sludge process. Typically the maintenance of nitrifying bacteria is accomplished by either having a two-stage treatment plant with carbonaceous BOD removal in the first stage and nitrification in the second stage or in a single stage plant with a very low food supply. Detention time, pH and temperature also play a significant role in nitrification.

The conventional two stage plans are significantly more costly and complex to operate and more sensitive to upset.

Three types of suspended growth aerobic biological treatment systems considered for the Study Area are as follows:

1. A²O
2. Sequencing Batch Reactor
3. Oxidation Ditch

SUSPENDED GROWTH OPTION 1

This option utilizes a 0.510 MGD A²O Package Treatment Plant. A schematic diagram of the facility is contained in Appendix "A". The configuration of this plant would adapt to any of the three selected treatment sites. The following table details the estimated project costs for this option.

TREATMENT OPTION 1

ENGINEER'S OPINION OF PROBABLE PROJECT COSTS 0.510 MGD A²O PACKAGE PLANT

CONSTRUCTION COSTS:

Package Treatment Facility, including Erection, Painting and Excavation	\$ 1,120,000.00
Control Building	\$ 210,000.00
Influent Pump Station, including Pumps, Controls & Enclosure	\$ 310,000.00
Reed Beds	\$ 150,000.00
Effluent Meter and Channel	\$ 35,000.00
Site Work including Grading, Fencing And Paving	\$ 105,000.00
Yard Piping, including Outfall	\$ 200,000.00
Chlorine Contact/Dechlorination	\$ 41,000.00
Chemical Addition Systems	\$ 20,000.00
Electrical	<u>\$ 210,000.00</u>
Subtotal Construction Cost	\$ 2,401,000.00
10% Construction Contingency	\$ 240,100.00
Subtotal	<u>\$ 2,641,000.00</u>
Land Acquisition	\$ 112,000.00
Legal, Financing, Engineering	<u>\$ 528,000.00</u>
Total Estimated Project Costs	\$ 3,281,000.00

TREATMENT OPTION 2

This option utilizes a 0.510 MGD Sequencing Batch reactor. A schematic diagram of the facility is included in Appendix "A". The configuration of the plant would adapt to any of the three selected treatment sites. The following table details the estimated project costs for this option.

TREATMENT OPTION 2

**ENGINEER'S OPINION OF PROBABLE PROJECT COSTS
0.510 MGD SEQUENCING BATCH REACTOR**

CONSTRUCTION COSTS:

SBR tanks Including Digesters & Post Equalization	\$ 675,000.00
Laboratory & Offices	\$ 153,000.00
Chlorine Contact/Dechlorination	\$ 35,725.00
Reed Beds	\$ 150,000.00
Mechanical Equipment including Decanters, Blowers, Controls, Diffusers & Instrumentation	\$ 478,000.00
Influent Pump Station, including Pumps, Controls, Enclosure & Comminutor	\$ 285,000.00
Effluent Meter and Channel	\$ 35,000.00
Site Work including Grading, Fencing And Paving	\$ 105,000.00
Misc. Metals, including Walkways & Railing	\$ 60,000.00
Yard Piping, including Outfall	\$ 125,000.00
Electrical	<u>\$ 170,000.00</u>
 Subtotal Construction Costs	 \$ 2,271,725.00
10% Construction Contingency	\$ 227,173.00
Subtotal	<u>\$ 2,498,898.00</u>
 Land Acquisition	 \$ 112,000.00
Legal, Financing, Engineering	<u>\$ 505,000.00</u>
 Total Estimated Project Costs	 \$ 3,115,898.00

TREATMENT OPTION 3

This option utilizes a 0.510 MGD Oxidation Ditch. A schematic diagram of the facility is included in Appendix "A". The configuration of the plant would adapt to any of the three selected treatment sites. The following table details the estimated project costs for this option.

TREATMENT OPTION 3**ENGINEER'S OPINION OF PROBABLE PROJECT COSTS
0.510 MGD OXIDATION DITCH****CONSTRUCTION COSTS:**

Oxidation Ditch including Mechanicals	\$ 750,000.00
Final Clarifiers including Mechanicals	\$ 530,000.00
Headworks, including Comminutor & Bar Screen	\$ 51,000.00
Chlorine Contact/Dechlorination Tanks	\$ 41,000.00
Digesters	\$ 101,500.00
Control Building	\$ 210,000.00
Yard Piping including Outfall	\$ 270,000.00
Site Work including Grading, Paving and Fencing	\$ 120,000.00
Reed Beds	\$ 150,000.00
Effluent Meter and Channel	\$ 35,000.00
Misc. Metals including Walkways & Railing	\$ 75,000.00
Electrical	\$ 210,000.00
Subtotal Construction Costs	\$ 2,543,500.00
10% Construction Contingency	\$ 254,350.00
Subtotal	\$ 2,797,850.00
Land Acquisition	\$ 112,000.00
Legal, Financing, Engineering	\$ 560,000.00
Total Estimated Project Costs	\$ 3,469,850.00

B. FIXED GROWTH REACTOR SYSTEMS

Fixed film reactors function in biological treatment theory much the same as the suspended growth system. In these processes, the microbial population adheres to rocks, specialized plastic media, or plates and the wastewater passes over the media contacting with the bacteria to achieve the metabiological removal. As with the suspended growth systems, sufficient biomass must be provided through surface area contact. Multi staging of reactors is generally required to achieve nitrification due to the previously mentioned competition factors affecting nitrifying bacteria.

All fixed film systems require final clarification to remove the excess biomass that is formed on and falls off the fixed media as the weight of growth become excessive. The oxygen supply for fixed film reactors is either direct from the air or by mechanical air supplies.

The Rotating Biological Contactors (RBCs) consist of plastic discs mounted on a rotating shaft with the lower portion of the disc intermittently being submerged in the wastewater for contact with the attached biomass. Oxygen for metabolism is provided from the air when the discs surface in the rotation and often from a supplemental compressed air supply. Several stages of RBCs in series would be required to develop the nitrification biomass in the final stages. This process requires less power than the suspended growth systems and is simple to operate but does not provide the operational flexibility of the suspended growth systems.

Trickling filters have a rotating device which distributes the wastewater evenly over a column of stones or special plastic media to which the microbial population is attached. Multi staging of trickling filters is required to develop a dependable nitrifying population in the last stage. Trickling filters would be the least reliable in nitrification as the biomass cannot be transferred or controlled as easily as it can in a suspended growth reactor.

Due to the need for multiple stages, Fixed Growth Reactor Systems will not be further evaluated.

C. WASTEWATER STABILIZATION PONDS

Stabilization ponds or lagoons, according to EPA manual 625/R, are considered as being equivalent to secondary treatment by the EPA. They are primarily used in smaller communities where land is readily available but skilled maintenance is not. Lagoons are usually 4 ft. to 6 ft. deep and are not mechanically mixed or aerated. The area near the surface of the lagoon is aerobic due to the atmospheric reaeration and algal respiration. The bottom of the lagoon is anaerobic and includes sludge deposits. The intermediate layer, called the facultative zone, ranges from aerobic near the top to anaerobic near the bottom. The oxygen produced by algae and by surface reaeration is used by the aerobic bacteria to stabilize the organic material in the upper layer of water. Anaerobic fermentation takes place in the bottom layer of the lagoon. Typical detention times range from 20 to 180 days and can approach 200 days in northern climates. Effluent BOD of 30 ppm more or less can be achieved and Total Suspended Solids (TSS) may range from 30 to 110 ppm depending on the algal concentrations.

Treatment capacity of 0.510 MGD, utilizing stabilization ponds would require land area in excess of 45 acres. Due to the limited availability of such an area and the additional area required for any expansion, no further evaluation was performed on this type of system.

SLUDGE TREATMENT AND DISPOSAL ALTERNATIVES

Sludge treatment, disposal and management are an integral part of any facility planning effort since all processes produce a growing biomass. The solids removed from the wastewater must be handled and disposed of in an environmentally sound manner and ideally in the most cost effective way. There are several sludge management alternatives. However, for a small treatment plant a few of the alternatives are not feasible. The sludge must be conditioned, stabilized and then disposed. The alternatives feasible for the Study Area are as follows:

1. Land application for agricultural utilization.
2. Disposal on Reed Beds at the treatment plant.
3. Transport sludge to another WWTP with digesting and dewatering facilities or through a company who disposes of sludge.

With land application, special PA DEP landspreading permits are required. The appropriate type of farmland needs to be available. During the periods of rain, snow and other conditions which stop the application, storage would need to be provided. Due to the limited availability of suitable land, required storage and special permits, land application for sludge management does not appear to be the optimum alternative. However, certain organizations provide services to dispose of sludge for agricultural utilization and should be contacted when a plant is operational.

Special reeds used in treatment plants are a phragmite which can uptake nutrients from sewage sludge to provide plant growth. Reed beds are becoming more and more popular for the management of sludge for small treatment plants.

Sludge can be applied to the reed beds almost year round and the longevity of the reeds is many years before replacement would be required. The cost of the reeds is minimal in comparison to the cost of disposing of the sludge. The reeds naturally dewater the sludge and utilize the nutrients in the sludge for their own needs. For a small wastewater treatment plant, reed beds are a feasible sludge management alternative. It must be remembered however, that the reeds do accumulate and must be properly disposed of at some point in time. Other disposal alternatives should be available as a backup.

The most practical option for a plant of this size is aerobic digestion and reed bed application. Land spreading and hauling for offsite dewatering and disposal after digestion can be utilized as an option.

DISINFECTION ALTERNATIVES

Generally, chlorination has been used almost exclusively for disinfection in the past. Problems with chlorination products such as trichlorethylene are causing DEP to modify requirements for chlorination. Alternative disinfection steps are important to consider.

Ultraviolet light systems for disinfection would require an additional building or a much larger area not required in the standard chlorine disinfection system. The cost of the filtration system and ultraviolet system, when utilizing stream discharge, including a building to house the systems would add a significant cost to the project.

Ozonation is not generally suitable in a plant of this size due to the complex operational requirements and initial costs.

Bromine Chloride is currently in use as a disinfection in the west and at least one facility is in operation in Maryland using this disinfection. This alternative can be examined during the design period as a possible substitute for chlorine.

Sodium hypochlorite in the liquid form is a very safe disinfection treatment form. The sodium hypochlorite comes in fifty-five gallon drums which can be slightly modified to have a mechanical feeder inject the appropriate amount of the sodium hypochlorite into the effluent.

For treatment plants of this size the most cost effective form of disinfection is chlorine gas, supplied in 150 lb. cylinders. For purposes of this study cost estimates will be prepared using chlorine gas and dechlorination using sodium bisulfite.

EXISTING TREATMENT FACILITY OPTION

It is feasible to construct a collection and conveyance system to transport raw waste to either North Coventry or East Vincent. The feasibility of these options is dependent upon the ability of the adjacent Townships to accept and treat the waste.

In the late 1990's, North Coventry expanded their existing facility. Included in the expansion was a total of 45,500 gpd for East Coventry. To service the three proposed developments and existing EDU's in the Earl Drive/East Cedarville area a total of 273,300 gpd (911 EDU's) would be required. This figure included no expansion.

On May 27, 1999, the additional capacity was formally requested. Informal conversations with the Authority indicated that there were only 600 unallocated EDU's at that time. In correspondence dated September 28, 1999, the North Coventry Municipal Authority indicated they were not in a position to respond to our request (Correspondence found in Appendix A). However, as of October 2000, the Township had received a response indicating that 500 units could be made available. This capacity would be inadequate to serve proposed units alone without consideration for existing needs areas.

In light of these previous dealings with North Coventry, both the North Coventry Municipal Authority (Authority) and East Coventry Township (Township) drafted an Intermunicipal Agreement in 2002 that establishes a basis for expanding the Authority's wastewater plant and allowing for the Township to be allocated treatment capacity in the expanded facility. This allocated capacity would be 0.510 MGD.

The draft agreement, in part, stipulates the following:

1. East Coventry is to agree to provide all construction and non-construction costs, as well as other related expenses for the Authority's expansion of the Authority's existing wastewater treatment plant to provide for 0.510 MGD (average daily flow) of additional wastewater treatment capacity.
2. The Authority is to construct the required additional facilities for the treatment plant expansion project to increase the Authority's permit by 0.510 MGD and provide for treatment of up to 0.510 MGD.

3. East Coventry shall pay \$2,353,000 (estimated) for the Treatment Plant Expansion Project. East Coventry has agreed to pay its proportionate share of the net costs for the use of the Authority's existing treatment facilities and infrastructure. This cost is \$1,432,000.
4. East Coventry will be constructing its own wastewater collection system within East Coventry Township for the conveyance of wastewater to the Authority's wastewater treatment plant.

Capacity availability and cost was also requested of East Vincent Township in March 18, 1999 correspondence (Appendix A). A response to the inquiry was received March 12, 2001, after the plan was adopted via formal resolution. This letter is also found in Appendix A. It is unlikely that capacity in the East Vincent system is or will be available in the foreseeable future. Therefore, no further evaluation was performed on this alternative.

Costs - Existing treatment facility option at North Coventry.

Plant Construction Cost	\$2,353,000
Treatment, Collection, Conveyance Usage Cost (updated to reflect Sept. 2002 figures)	<u>\$1,432,000</u> \$3,785,000
Collection System Costs (1) paid for by Township	\$ -0-
Amount of Local Financing Needed	\$3,785,000
Annual Debt Service (30 yrs @ 5.25%)	\$ 253,280
Annual Debt Service/EDU(2)	\$ 132
Annual O&M/EDU (3)	<u>\$ 150</u>
Total Annual Expenses per EDU	\$ 282

Notes:

- (1) Collection system design and construction costs funded completely by developers.
- (2) Based on a total of 1923 EDUs in the projected service area.
- (3) Based on estimates utilized for Options 1, 2, 3. Per the draft Intermunicipal Agreement, O&M fees are yet to be determined.

SITING OPTIONS

Three sites were evaluated for locating a new treatment facility. Site "A" is located on Wells Road near the intersection with Linfield Road. Site "B" is located at the northeast terminus of Anderson Road. Site "C" is located on Frick Lock Road approximately 1000' north of its intersection with SR 0724. These sites are indicated on figures 5, 6 and 7 in Appendix "C".

Site “A” and “B”, 12 and 19 acres respectively, are both located within the 100-year flood plain of the Schuylkill River and would require additional flood proofing measures for any facility constructed there. The project costs would be increased if either of these sites were selected.

The majority of the anticipated growth, including 793 proposed units, is located in the northwest corner of the study area approximately one mile away. As this project is dependent upon developer participation the additional force main costs would most likely limit their participation and prevent the project from moving forward.

Site “C”, containing 13 acres, is located outside the flood plain and in close proximity the proposed developments. As growth proceeds eastward from this area it will be possible to eventually connect the Parkerford Area.

Due to its proximity to proposed development, Site “C” presents the most promise and Site “A” and “B” were not further evaluated.

ANNUAL USER FEES

The following summarizes the capital cost for treatment facilities.

A ² O	Option 1	\$3,281,000
SBR	Option 2	\$3,115,898
Oxidation Ditch	Option 3	\$3,469,850
Existing Treatment Facility	Option 4	See previous section

Of the five options for collection in the NORCO – South area only options 2, 3 and 4 are feasible at this time. As growth occurs and the user base increases, it will be possible to extend the system to connect additional existing units.

Using the Base Area and Options 2, 3, and 4 yields a collection system cost of \$2,598,482 for a total of 182 existing EDUs. The proposed Coventry Business Park would yield 27 EDUs, Orchard Ridge 276 EDUs and Coventry Meadows an additional 380 EDUs, Heather Glen 30 EDUs, Strutynski, Jr. 22 EDUs, and Soltys/Strutynski, Sr. 61 EDUs for a total of 981 EDUs. Allowing an annual O&M cost of \$150 per EDU for options 1 and 3 and \$130 per EDU for option 2 would result in the following annual user fees:

	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
Treatment Facility Cost	\$ 3,281,000	\$ 3,115,898	\$ 3,469,850
Collection System Cost	\$ 2,598,484	\$ 2,598,482	\$ 2,598,482
Total Cost	\$ 5,897,482	\$ 5,714,380	\$ 6,068,332
Less Developer Contributions	\$ 3,281,000	\$ 3,115,898	\$ 3,469,850
Amount of Local Financing	\$ 2,598,482	\$ 2,598,482	\$ 2,598,482
Annual Debt Service (30 yrs. @ 5.25%)	\$ 172,959	\$ 172,959	\$ 172,959

Annual Debt Service/EDU	\$	176	\$	176	\$	176
Annual O&M/EDU	\$	150	\$	130	\$	150
	\$	<u>326</u>	\$	<u>306</u>	\$	<u>326</u>

RECOMMENDATIONS AND SELECTED ALTERNATIVE

It is not economically feasible to provide public sewer service to the Township's needs areas as originally proposed in the 1997 Plan without providing for and relying on additional growth.

It is recommended that the Township require the proposed development to construct and dedicate to the Township the portions of the collection system necessary to provide service to their respective projects.

Additionally, it is recommended that the Township enter into an Intermunicipal Agreement with the North Coventry Municipal Authority for wastewater treatment capacity at the Authority's wastewater treatment plant and conveyance capacity in the Authority's system. This Agreement will establish the legal requirements such that adequate capacity shall be available to service future development needs, and the needs of the existing Township residents. The treatment allocation should be 0.510 MGD.

In comparing the costs of the various options versus the prospect of sending wastewater to the Authority's wastewater treatment plant, present capital costs for the North Coventry Option are greater than capital costs for satellite treatment options. However, the total annual expenses per EDU are less since the total projected EDUs for the entire service area are greater.

In an effort to meet the pressing wastewater needs of existing properties and immediate needs for new development, regional wastewater treatment at the North Coventry Municipal Authority's wastewater treatment plant can be achieved in a more timely manner. Additionally, since the management and administrative systems are already in place, this alternative can be implemented through the cooperative efforts of East Coventry Township and the North Coventry Municipal Authority such that wastewater needs of the Township can be met without requiring all new facilities and infrastructure. To implement this planning strategy, the following schedule has been developed:

1. Submit revised Act 537 Plan to County Planning Commission for review and comment. October 2002
2. Submit revised Act 537 Plan to County Health Department for review and comment. October 2002
3. Submit revised Act 537 Plan to Township Planning Commission. October 2002
4. Advertise revised Act 537 Plan for Public Comment. October 2002
5. Respond to Public Comments. November 2002
6. Respond to Township Comments. December 2002

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|-----|---|----------------|
| 7. | Respond to County Comments. | January 2003 |
| 8. | Pass Resolutions Adopting Revised Act 537 Plan. | January 2003 |
| 9. | Submit revised Plan to PADEP for Final Review and Approval. | January 2003 |
| 10. | Begin Preparing Design Plans and Specifications for the Collection and Conveyance System. | January 2003 |
| 11. | Receive Act 537 Plan Approval from PADEP. | February 2003 |
| 12. | Submit Part II Application to PADEP. | March 2003 |
| 13. | Finalize and Execute Intermunicipal Agreement. | March 2003 |
| 14. | Receive comments from PADEP concerning the Part II permit application; Incorporate into Contract Documents and Respond. | May 2003 |
| 15. | Receive permit from PADEP. | June 2003 |
| 16. | Finalize Contract Documents and prepare for bidding. | June 2003 |
| 17. | Advertise for Bids. | July 2003 |
| 18. | Receive and Open Bids. | August 2003 |
| 19. | Notice of Project Award. | September 2003 |
| 20. | Start Construction. | October 2003 |
| 21. | Substantial Project Completion. | October 2004 |

North Coventry Township shall implement the tasks necessary for expansion of their wastewater treatment plant in accordance with the implementation schedule detailed in the draft Intermunicipal Agreement found in Appendix H of this Plan.

APPENDIX A

1997 Wastewater Facilities Planning Areas Figure I
Cost Estimates for Service Areas
Treatment Option 1; Schematic Diagram
Treatment Option 2; Schematic Diagram
Treatment Option 3; Schematic Diagram
East Vincent Township Correspondence dated 3/12/01
March 18, 1999 Correspondence
May 27, 1999 Correspondence
September 28, Correspondence

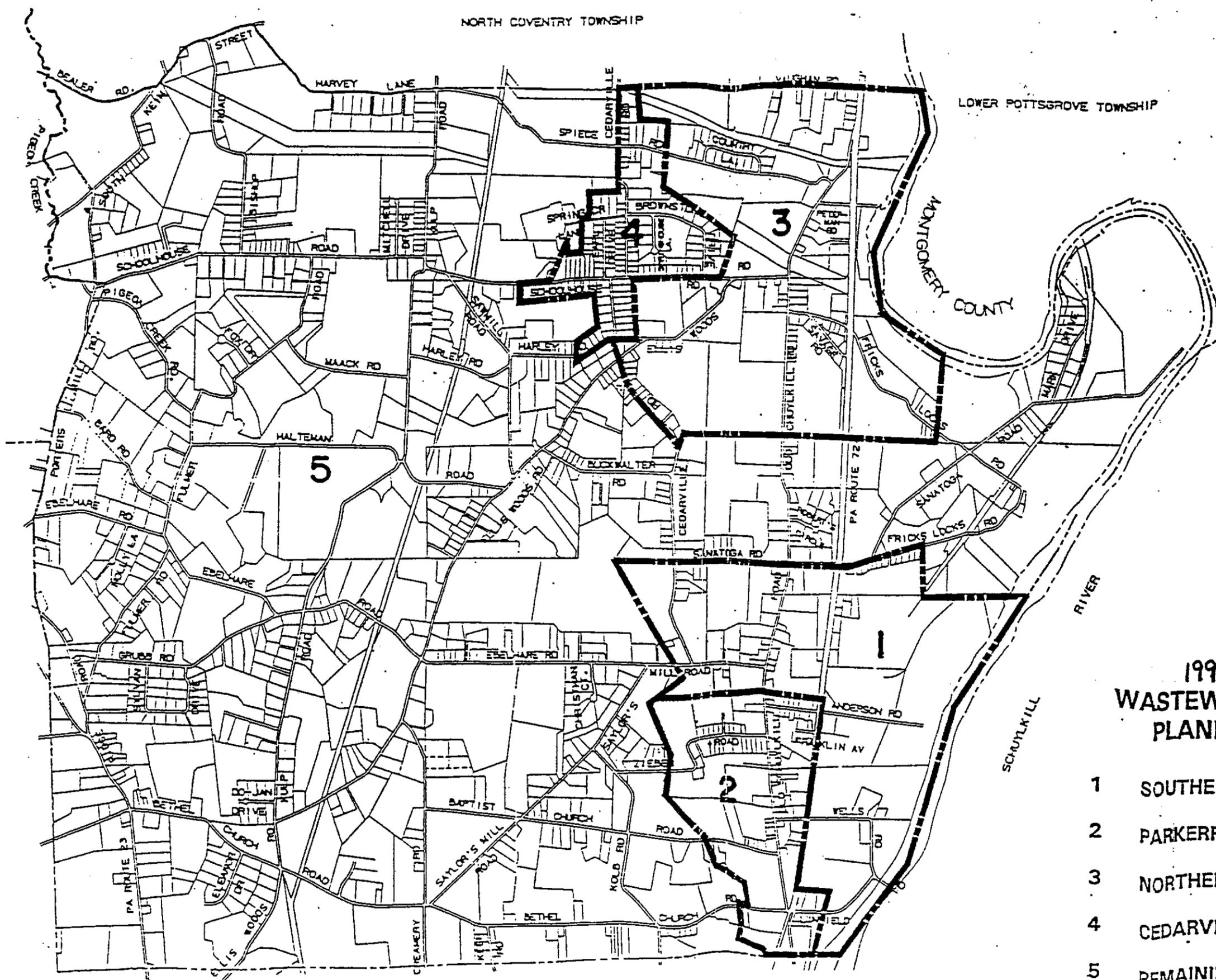


FIGURE 1
1997
WASTEWATER FACILITY
PLANNING AREAS

- 1 SOUTHERN HIGH DENSITY ZONED AREA
- 2 PARKERFORD AREA
- 3 NORTHERN HIGH DENSITY ZONED AREA
- 4 CEDARVILLE ROAD AREA
- 5 REMAINING AREAS

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
<u>GRAVITY SEWERS</u>				
8" PVC - NON PAVED AREAS				
8' TO 10' DEPTH	0	LF	\$25.00	\$0.00
10' TO 12' DEPTH	0	LF	\$28.00	\$0.00
OVER 12' DEPTH	0	LF	\$32.00	\$0.00
8" PVC - LOCAL ROADS				
8' TO 10' DEPTH	9745	LF	\$32.00	\$311,840.00
10' TO 12' DEPTH	0	LF	\$38.00	\$0.00
OVER 12' DEPTH	500	LF	\$42.00	\$21,000.00
8" PVC - STATE ROADS				
8' TO 10' DEPTH	3675	LF	\$38.00	\$139,650.00
10' TO 12' DEPTH	825	LF	\$42.00	\$34,650.00
OVER 12' DEPTH	0	LF	\$48.00	\$0.00
10" PVC - NON PAVED AREAS				
8' TO 10' DEPTH	3180	LF	\$38.00	\$120,840.00
10' TO 12' DEPTH	0	LF	\$42.00	\$0.00
OVER 12' DEPTH	0	LF	\$48.00	\$0.00
10" PVC - LOCAL ROADS				
8' TO 10' DEPTH	50	LF	\$35.00	\$1,750.00
10' TO 12' DEPTH	0	LF	\$41.00	\$0.00
OVER 12' DEPTH	0	LF	\$45.00	\$0.00
10" PVC - STATE ROADS				
8' TO 10' DEPTH	0	LF	\$41.00	\$0.00
10' TO 12' DEPTH	0	LF	\$45.00	\$0.00
OVER 12' DEPTH	0	LF	\$52.00	\$0.00
4' DIA. MANHOLE BASE & WALLS	62	EA	\$1,450.00	\$89,900.00
STANDARD FRAMES & COVERS	52	EA	\$300.00	\$15,600.00
WATERTIGHT FRAMES & COVERS	10	EA	\$400.00	\$4,000.00
PVC LATERALS	147	EA	\$650.00	\$95,550.00
STREAM CROSSING	0	EA	\$5,000.00	\$0.00

PRESSURE SEWERS

6" DIP FORCE MAIN	3750	LF	\$30.00	\$112,500.00
AIR RELEASE VALVES	3	EA	\$600.00	\$1,800.00
PUMP STATION	1	LS	\$150,000.00	\$150,000.00

RESTORATION

TEMPORARY				
NON PAVED AREAS	5300	SY	\$1.50	\$7,950.00
LOCAL ROADS	5015	SY	\$6.00	\$30,090.00
STATE ROADS	2327	SY	\$6.00	\$13,962.00
PERMANENT				
NON PAVED AREAS	5300	SY	\$2.00	\$10,600.00

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
LOCAL ROADS	5015	SY	\$20.00	\$100,300.00
STATE ROADS	2327	SY	\$25.00	\$58,175.00
<u>MISCELANEOUS</u>				
CLEAR & GRUB	1	LS	\$10,000.00	\$10,000.00
MOBILIZATION & DEMOBILIZATION	1	LS	\$15,000.00	\$15,000.00
ROCK REMOVAL	1	LS	\$35,000.00	\$35,000.00
SUBTOTAL CONSTRUCTION COST				\$1,380,157.00
10% CONTINGENCY				\$138,015.70
TOTAL CONSTRUCTION COST				\$1,518,172.70
RIGHT OF WAY ACQUISITION	3180	LF	\$6.00	\$19,080.00
LEGAL, FINANCE, ENGINEERING		LS		\$531,360.45
TOTAL ESTIMATED PROJECT COST				<u>\$2,068,613.15</u>

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
<u>GRAVITY SEWERS</u>				
8" PVC - LOCAL ROADS 3' TO 10' DEPTH	3370	LF	\$32.00	\$107,840.00
10' TO 12' DEPTH	0	LF	\$38.00	\$0.00
OVER 12' DEPTH	0	LF	\$42.00	\$0.00
4' DIA. MANHOLE BASE & WALLS	12	EA	\$1,450.00	\$17,400.00
STANDARD FRAMES & COVERS	12	EA	\$300.00	\$3,600.00
PVC LATERALS	14	EA	\$650.00	\$9,100.00
<u>LOW PRESSURE SEWERS</u>				
3" PVC	2470	LF	\$17.00	\$41,990.00
CURB STOPS	23	EA	\$150.00	\$3,450.00
CLEAN OUTS	6	EA	\$300.00	\$1,800.00
LATERALS	23	EA	\$400.00	\$9,200.00
GRINDER PUMP & VAULT	23	EA	\$4,800.00	\$110,400.00
<u>RESTORATION</u>				
TEMPORARY NON PAVED AREAS	50	SY	\$1.50	\$75.00
LOCAL ROADS	2900	SY	\$6.00	\$17,400.00
PERMANENT NON PAVED AREAS	50	SY	\$2.00	\$100.00
LOCAL ROADS	2900	SY	\$20.00	\$58,000.00
<u>MISCELLANEOUS</u>				
CLEAR & GRUB	1	LS	\$2,000.00	\$2,000.00
MOBILIZATION & DEMOBILIZATION	1	LS	\$1,000.00	\$1,000.00
SUBTOTAL CONSTRUCTION COST				\$383,355.00
10% CONTINGENCY				\$38,335.50
TOTAL CONSTRUCTION COST				\$421,690.50
LEGAL, FINANCE, ENGINEERING		LS		\$147,591.68
TOTAL ESTIMATED PROJECT COST				<u>\$569,282.18</u>

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
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LOW PRESSURE SEWERS

3" PVC	1350	LF	\$17.00	\$22,950.00
CURB STOPS	17	EA	\$150.00	\$2,550.00
CLEAN OUTS	4	EA	\$300.00	\$1,200.00
LATERALS	17	EA	\$400.00	\$6,800.00
GRINDER PUMP & VAULT	17	EA	\$4,800.00	\$81,600.00

RESTORATION

TEMPORARY NON PAVED AREAS LOCAL ROADS	100	SY	\$1.50	\$150.00
PERMANENT NON PAVED AREAS LOCAL ROADS	725	SY	\$6.00	\$4,350.00
	100	SY	\$2.00	\$200.00
	725	SY	\$20.00	\$14,500.00

MISCELLANEOUS

CLEAR & GRUB	0	LS	\$2,000.00	\$0.00
MOBILIZATION & DEMOBILIZATION	1	LS	\$1,000.00	\$1,000.00

SUBTOTAL CONSTRUCTION COST

\$135,300.00

10% CONTINGENCY

\$13,530.00

TOTAL CONSTRUCTION COST

\$148,830.00

LEGAL, FINANCE, ENGINEERING

LS

\$52,090.50

TOTAL ESTIMATED PROJECT COST

\$200,920.50

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
<u>LOW PRESSURE SEWERS</u>				
3" PVC	750	LF	\$17.00	\$12,750.00
CURB STOPS	9	EA	\$150.00	\$1,350.00
CLEAN OUTS	3	EA	\$300.00	\$900.00
LATERALS	9	EA	\$400.00	\$3,600.00
GRINDER PUMP & VAULT	9	EA	\$4,800.00	\$43,200.00
<u>RESTORATION</u>				
TEMPORARY NON PAVED AREAS	50	SY	\$1.50	\$75.00
LOCAL ROADS	435	SY	\$6.00	\$2,610.00
PERMANENT NON PAVED AREAS	50	SY	\$2.00	\$100.00
LOCAL ROADS	435	SY	\$20.00	\$8,700.00
<u>MISCELANEOUS</u>				
CLEAR & GRUB	0	LS	\$2,000.00	\$0.00
MOBILIZATION & DEMOBILIZATION	1	LS	\$1,000.00	\$1,000.00
SUBTOTAL CONSTRUCTION COST				\$74,285.00
10% CONTINGENCY				\$7,428.50
TOTAL CONSTRUCTION COST				\$81,713.50
LEGAL, FINANCE, ENGINEERING		LS		\$28,599.73
TOTAL ESTIMATED PROJECT COST				<u>\$110,313.23</u>

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
<u>LOW PRESSURE SEWERS</u>				
3" PVC	1700	LF	\$17.00	\$28,900.00
CURB STOPS	17	EA	\$150.00	\$2,550.00
CLEAN OUTS	4	EA	\$300.00	\$1,200.00
LATERALS	17	EA	\$400.00	\$6,800.00
GRINDER PUMP & VAULT	17	EA	\$4,800.00	\$81,600.00
<u>RESTORATION</u>				
TEMPORARY				
NON PAVED AREAS	100	SY	\$1.50	\$150.00
LOCAL ROADS	955	SY	\$6.00	\$5,730.00
PERMANENT				
NON PAVED AREAS	100	SY	\$2.00	\$200.00
LOCAL ROADS	955	SY	\$20.00	\$19,100.00
<u>MISCELANEOUS</u>				
CLEAR & GRUB	0	LS	\$2,000.00	\$0.00
MOBILIZATION & DEMOBILIZATION	1	LS	\$1,000.00	\$1,000.00
SUBTOTAL CONSTRUCTION COST				\$147,230.00
10% CONTINGENCY				\$14,723.00
TOTAL CONSTRUCTION COST				\$161,953.00
LEGAL, FINANCE, ENGINEERING		LS		\$56,683.55
TOTAL ESTIMATED PROJECT COST				<u>\$218,636.55</u>

DESCRIPTION QUANTITY UNITS UNIT COST EXTENSION

GRAVITY SEWERS

8" PVC - LOCAL ROADS				
8' TO 10' DEPTH	1850	LF	\$32.00	\$59,200.00
10' TO 12' DEPTH	0	LF	\$38.00	\$0.00
OVER 12' DEPTH	0	LF	\$42.00	\$0.00
OVER 12' DEPTH	0	LF	\$48.00	\$0.00
10" PVC - NON PAVED AREAS				
8' TO 10' DEPTH	2350	LF	\$38.00	\$89,300.00
10' TO 12' DEPTH	0	LF	\$42.00	\$0.00
OVER 12' DEPTH	0	LF	\$48.00	\$0.00
4' DIA. MANHOLE BASE & WALLS	16	EA	\$1,450.00	\$23,200.00
STANDARD FRAMES & COVERS	9	EA	\$300.00	\$2,700.00
WATERTIGHT FRAMES & COVERS	7	EA	\$400.00	\$2,800.00
PVC LATERALS	20	EA	\$650.00	\$13,000.00
STREAM CROSSING	1	EA	\$5,000.00	\$5,000.00

PRESSURE SEWERS

6" DIP FORCE MAIN	1425	LF	\$30.00	\$42,750.00
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RESTORATION

TEMPORARY				
NON PAVED AREAS	3917	SY	\$1.50	\$5,875.50
LOCAL ROADS	936	SY	\$6.00	\$5,616.00
STATE ROADS	0	SY	\$6.00	\$0.00
PERMANENT				
NON PAVED AREAS	3917	SY	\$2.00	\$7,834.00
LOCAL ROADS	936	SY	\$20.00	\$18,720.00
STATE ROADS	0	SY	\$25.00	\$0.00

SUBTOTAL CONSTRUCTION COST

\$275,995.50

10% CONTINGENCY

\$27,599.55

TOTAL CONSTRUCTION COST

\$303,595.05

RIGHT OF WAY ACQUISITION

2350 LF \$6.00 \$14,100.00

LEGAL, FINANCE, ENGINEERING

LS \$106,258.27

TOTAL ESTIMATED PROJECT COST

\$423,953.32

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
<u>GRAVITY SEWERS</u>				
8" PVC - NON PAVED AREAS				
8' TO 10' DEPTH	1300	LF	\$25.00	\$32,500.00
10' TO 12' DEPTH	0	LF	\$28.00	\$0.00
OVER 12' DEPTH	0	LF	\$32.00	\$0.00
8" PVC - LOCAL ROADS				
8' TO 10' DEPTH	9900	LF	\$32.00	\$316,800.00
10' TO 12' DEPTH	0	LF	\$38.00	\$0.00
OVER 12' DEPTH	0	LF	\$42.00	\$0.00
8" PVC - STATE ROADS				
8' TO 10' DEPTH	4925	LF	\$38.00	\$187,150.00
10' TO 12' DEPTH	350	LF	\$42.00	\$14,700.00
OVER 12' DEPTH	0	LF	\$48.00	\$0.00
10" PVC - NON PAVED AREAS				
8' TO 10' DEPTH	5250	LF	\$38.00	\$199,500.00
10' TO 12' DEPTH	0	LF	\$42.00	\$0.00
OVER 12' DEPTH	0	LF	\$48.00	\$0.00
10" PVC - LOCAL ROADS				
8' TO 10' DEPTH	0	LF	\$35.00	\$0.00
10' TO 12' DEPTH	0	LF	\$41.00	\$0.00
OVER 12' DEPTH	0	LF	\$45.00	\$0.00
10" PVC - STATE ROADS				
8' TO 10' DEPTH	0	LF	\$41.00	\$0.00
10' TO 12' DEPTH	0	LF	\$45.00	\$0.00
OVER 12' DEPTH	0	LF	\$52.00	\$0.00
4' DIA. MANHOLE BASE & WALLS	88	EA	\$1,450.00	\$127,600.00
STANDARD FRAMES & COVERS	71	EA	\$300.00	\$21,300.00
WATERTIGHT FRAMES & COVERS	17	EA	\$400.00	\$6,800.00
PVC LATERALS	150	EA	\$650.00	\$97,500.00
STREAM CROSSING	0	EA	\$5,000.00	\$0.00
STATE ROAD BORING	150	LF	\$300.00	\$45,000.00

PRESSURE SEWERS

8" DIP FORCE MAIN	6300	LF	\$32.00	\$201,600.00
AIR RELEASE VALVES	6	EA	\$600.00	\$3,600.00
PUMP STATION	1	LS	\$210,000.00	\$210,000.00

RESTORATION

TEMPORARY				
NON PAVED AREAS	13650	SY	\$1.50	\$20,475.00
LOCAL ROADS	5309	SY	\$6.00	\$31,854.00
STATE ROADS	4369	SY	\$6.00	\$26,214.00
PERMANENT				

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNITS</u>	<u>UNIT COST</u>	<u>EXTENSION</u>
NON PAVED AREAS	13650	SY	\$2.00	\$27,300.00
LOCAL ROADS	5309	SY	\$20.00	\$106,180.00
STATE ROADS	4369	SY	\$25.00	\$109,225.00
<u>MISCELANEOUS</u>				
CLEAR & GRUB	1	LS	\$20,000.00	\$20,000.00
MOBILIZATION & DEMOBILIZATION	1	LS	\$15,000.00	\$15,000.00
ROCK REMOVAL	1	LS	\$35,000.00	\$35,000.00
SUBTOTAL CONSTRUCTION COST				\$1,855,298.00
10% CONTINGENCY				\$185,529.80
TOTAL CONSTRUCTION COST				\$2,040,827.80
RIGHT OF WAY ACQUISITION	6550	LF	\$6.00	\$39,300.00
LEGAL, FINANCE, ENGINEERING		LS		\$714,289.73
TOTAL ESTIMATED PROJECT COST				<u>\$2,794,417.53</u>

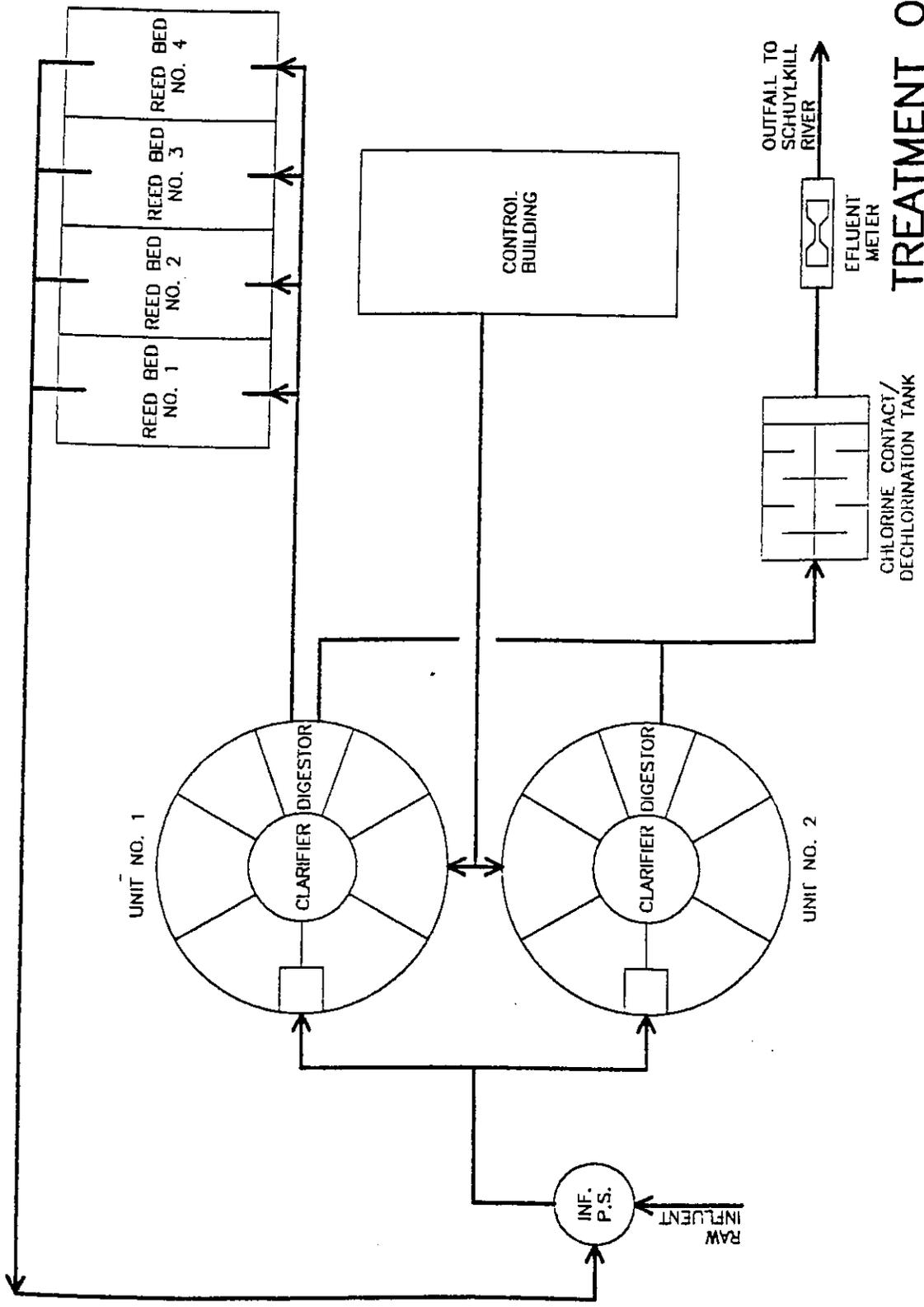
TREATMENT OPTION 1

A20
 PACKAGE PLANT

EAST COVENTRY TWP. CHESTER CO., PA.
 MOTLEY ENGINEERING CO., INC.
 consulting engineers
 1300 NEW HOLLAND RD. KENILWORTH PA. 19607 (610) 255-0998



ORDER NO.	SCALE	DATE	DRAWN BY	CHECKED BY
	NO SCALE	4/17/00	D.A.D.	



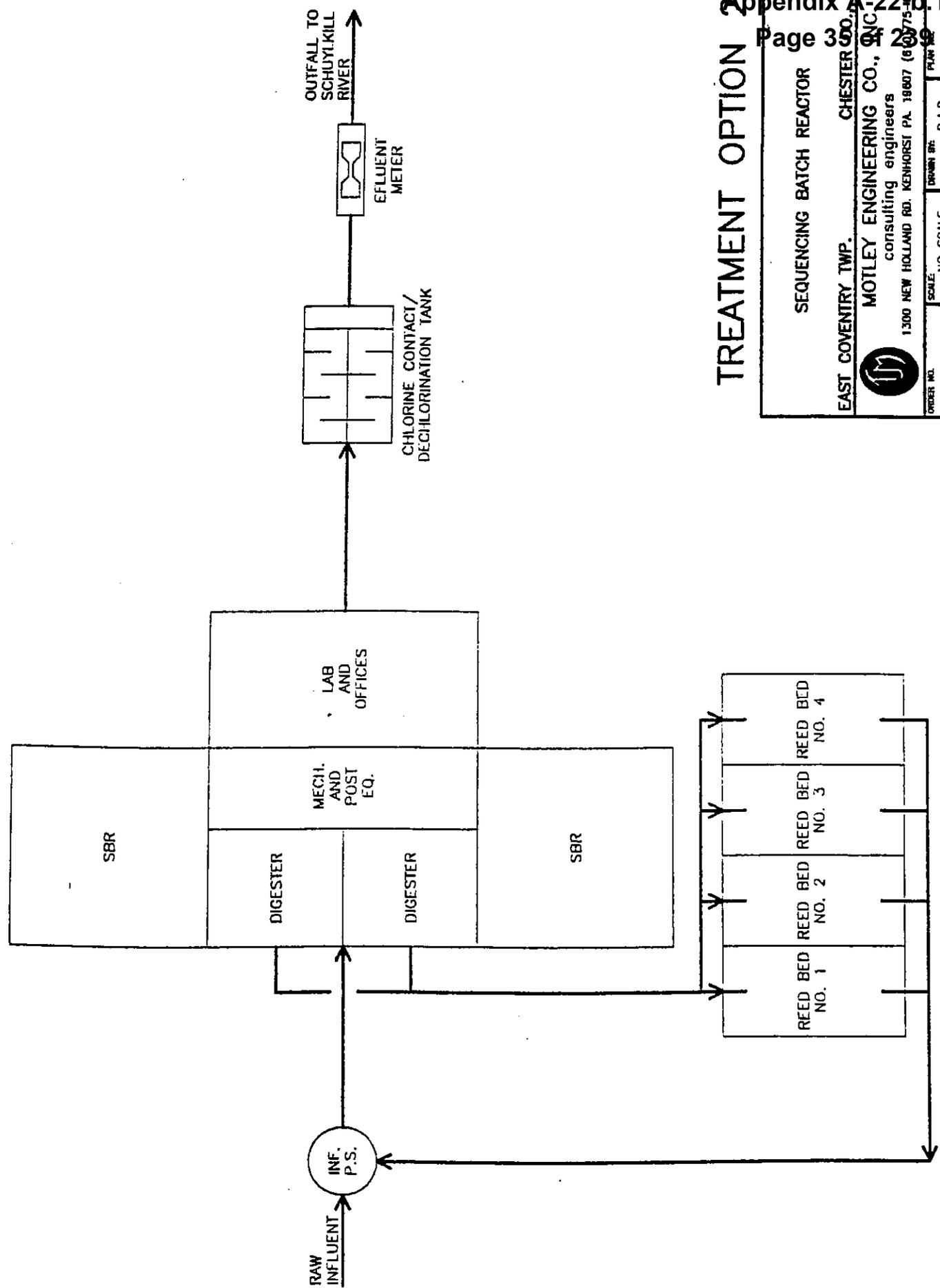
TREATMENT OPTION

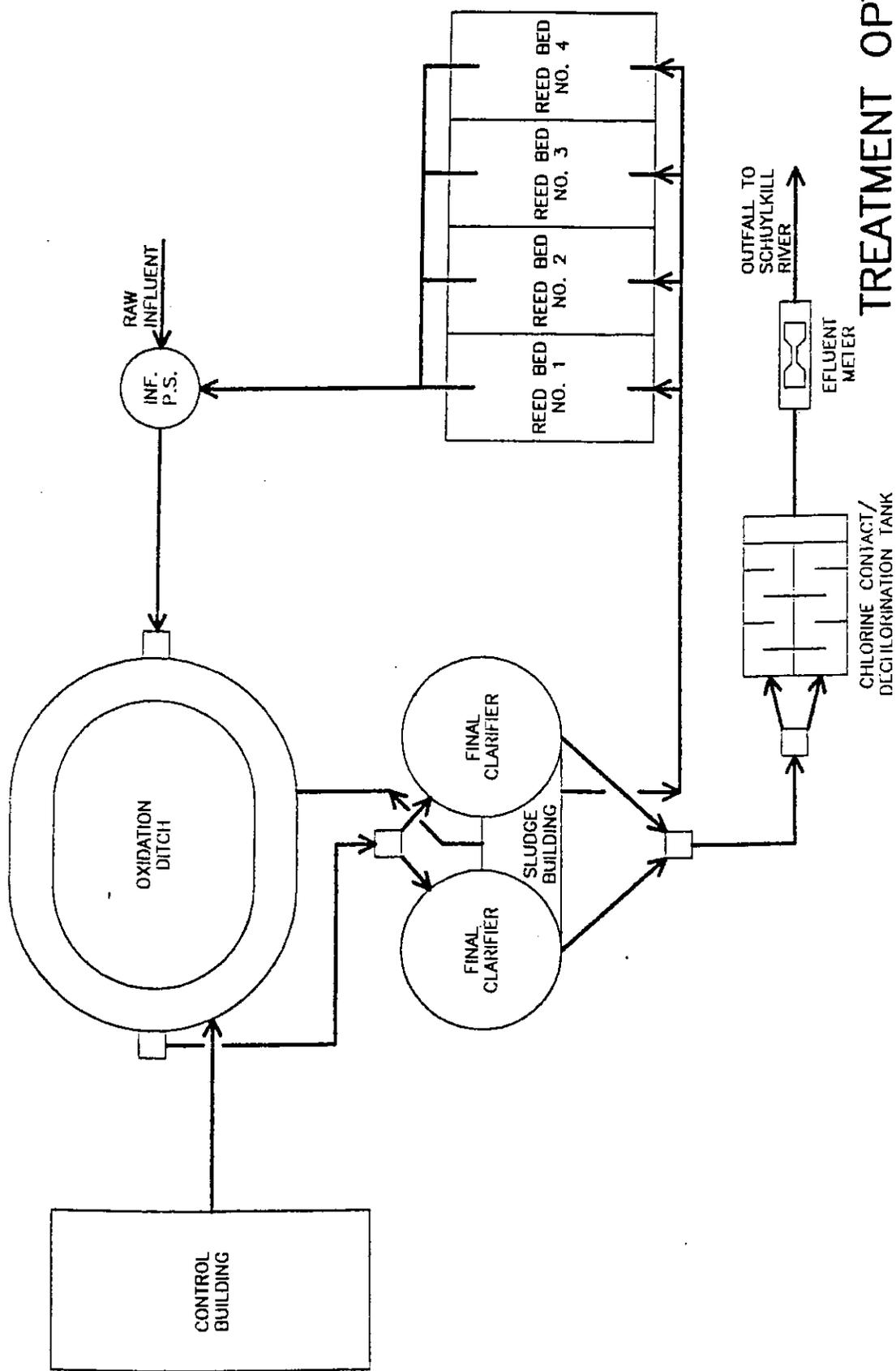
SEQUENCING BATCH REACTOR

EAST COVENTRY TWP. CHESTER CO., PA.
 MOTLEY ENGINEERING CO., INC.
 consulting engineers
 1300 NEW HOLLAND RD. KENHORST PA. 18607 (610) 775-0998



ORDER NO.	NO SCALE	DRAWN BY: D.A.D.
	DATE 4/17/00	CHECKED BY:





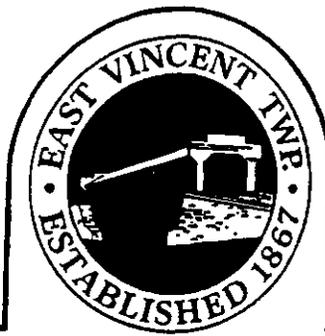
TREATMENT OPTION 3

OXIDATION DITCH

EAST COVENTRY TWP. CHESTER, PA.
 MOTLEY ENGINEERING CO., INC.
 consulting engineers
 1300 NEW HOLLAND RD. KENHURST PA. 19607 (814) 295-1888

ORDER NO.	SCALE: NO SCALE	DRAWN BY: D.A.D.	DATE: 4/17/00	CHECKED BY:
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Board of Supervisors
Walter C. Zaremba, Jr.
Richard L. Mull
Christine McNeil



Code Enforcement Officer
Paul Schmidt
(610) 935-2562

262 Ridge Road, Spring City, PA 19475
(610) 933-4424 • Fax (610) 933-1142

March 12, 2001

Mr. Robert E Ihlein
Township Manager
East Coventry Township
855 Ellis Woods Road
Pottstown, PA 19465

RECEIVED
MAR 14 2001
EAST COVENTRY TOWNSHIP

Dear Mr. Ihlein,

The Board of Supervisors has been asked by the Municipal Authority for direction in responding to your letter dated July 10, 2000 regarding sewage capacity and costs. The enclosed is an attempt to provide you with accurate and beneficial information without getting into issues that will require policy decisions and may change depending on specific situations to a given problem. It is a compilation from various sources including the Municipal Authority's Engineer. The Board would like you to know that we are willing to and want to work with you. Perhaps in resolving your problems, we as a Township, can better serve our residents.

The following information was taken from the Municipal Authority's Minutes dated October 2, 2000. Contained therein is a report of the 2000 Equivalent Dwelling Units (EDU's). 569 EDU's remain uncommitted, of which 304.86 are under negotiation. Therefore, the Municipal Authority is in a position to offer a limited amount of capacity immediately. How long this capacity will be available remains uncertain. The Municipal Authority guarantees capacity provided a reservation agreement has been completed.

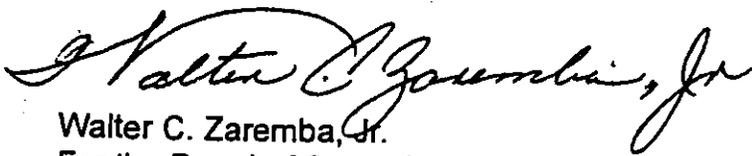
The current tapping fee for East Vincent residents is \$2,553.00 per EDU. It is difficult to estimate a projected tapping fee because the exact number of EDU's impacts plant expansion, which in turn directly relates to cost. However, the Municipal Authority's Engineer has suggested that a ball park cost of \$ 1,500 - 2,000/EDU plus debt service can be assumed.

The user fee (sewer rent) is calculated by yearly resolution and is currently set at \$600/year and is billed twice a year payable in advance. This rental rate is tied to operational and debt service costs. Discounts are offered to commercial and bulk customers. However, the minimum annual charge per EDU is \$400/year.

If one assumes that East Coventry delivers its waste water to the plant and pays for it up front, then East Coventry's costs would be their percent of flow share of the plant, operations, maintenance expense plus administrative and capital improvements fees. East Vincent contracts its operations to a private firm and perhaps they would supply a number reflecting system operations costs.

Finally, East Vincent, in their latest 537 study has prioritized certain areas of the Township for sewers. It does give preference to East Coventry's Parkerford Area, but does not guarantee capacity. This study is under review by the DEP. The East Vincent system is based on first come-first serve. Clearly, we can accommodate several hundred EDU's in the immediate future, but any long range planning should concentrate on obtaining capacity through future sewer plant expansion. I hope that the information presented is helpful. If you have further specific questions, please contact me at the Township on extension 211.

Sincerely,



Walter C. Zaremba, Jr.
For the Board of Supervisors

cc: Municipal Authority
BoS
EVT file



MOTLEY ENGINEERING CO., INC.
CONSULTING ENGINEERS

1300 new holland road
kenhorst, pa. 19607
ph. (610) 775-0888
fax (610) 775-9847

March 18, 1999

East Vincent Township
Board of Supervisors
262 Ridge Road
Spring City, PA 19475

RE: Connection to East Vincent WWTF

Gentlemen:

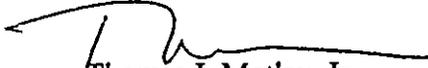
We have been retained by East Coventry Township to evaluate the potential of providing sewer to portions of the Township.

At this point we estimate a potential for connection of 450 EDU's to the East Vincent Township.

Should there be capacity in the expansion you are currently contemplating, please provide our office with an estimate of the costs to purchase.

Should you have any questions, please contact me.

Sincerely,


Thomas J. Motley, Jr.
General Manager

TJM:dk

CC: Karen Kemme

E. Coventry Twp
Alternative Analysis
1/31/99

Robert F. Preston
2013 East Cedarville Road
Pottstown Pa. 19465-8209
(610) 323-6295
Fax (610) 323-5128
E-mail Ufnerd @AOL.COM
MEMORANDUM

To: Thomas J. Motley Jr. (Via Fax 610-775-9847)
CC: East Coventry Board of Supervisors
Karen H. Kemme, Manager (Karen please distribute at the Feb 1, 1999 Supervisors meeting)
From: Robert F. Preston, member
Subject: Estimate of Wastewater Flows -- East Vincent Township WWTP
Re: Motley Engineering Co., Inc. letter dated January 26, 1999
Date: January 31, 1999

I have reviewed your letter referenced above and understand the caveats. However, the information presented is not usable for the purpose intended. The purpose intended was to present a viable, realistic estimate (plus or minus 20%) of the anticipated potential wastewater flows from East Coventry Township to East Vincent Township for their use in the East Vincent Township Act 537 Plan revision currently underway. The second purpose was to have East Vincent Township develop capital; and operation and maintenance costs for it services to treat East Coventry Township's wastewater for inclusion in this townships Alternative Study.

As I understand your letter there would be 632 EDU in basins 4, 5, and 6 (including approximately one half of basin or area 1) generating 151,680 gallons per day ($632\text{EDU} \times 240\text{gpd/EDU} = 151,680\text{gpd}$) in the year 2009 (ten year planning period). Thus all EDU's would be serviced by sewers with proposed treatment at East Vincent Township WWTP. Another 31,400 gallons per day could come from the existing WWTP at the mobile home park. Thus totaling 183,080 gallons per day.

As previously stated the following values were to be used in developing flows:

- A. 300 gpd / EDU for sizing and capacity requirements
- B. 240 gpd / EDU for estimating operations and maintenance costs on an annual basis or evaluating the affect of a discharge on an annual basis.

I am attaching herewith a six-year frequency analysis on a Three Consecutive Monthly basis and a graphical presentation of the ratio of monthly average flow to annual average flow for a seven-year period to support the use of the above two flow values per EDU.

Based on 632 EDU's and 300 gpd plus 31,400 gpd for the mobile home park the capacity requirement would equal 221,000 gpd with an 183,080 gpd operation and maintenance evaluation in the year 2009. However, these values require full sewerage of the service area indicated in the shaded area of the map attached to your letter. Full sewerage of the service area will probably not be the case in the year 2009. Therefore, your engineering judgement needs to be applied to establish the probable capacity flow and operation and maintenance flow for the following conditions: initial year, fifth year, tenth year and twentieth year.

E. Coventry Twp
Alternative Analysis
1/31/99

I am somewhat dismayed at your letter written after you assured me when specifically questioned at the January 25, 1999 Board of Supervisors meeting in the public session that the required information would be forth coming. You knew that at the time you answered my question you were not going to provide a complete answer. This statement is based on the date of your response letter. Additionally, I was willing to answer any questions you may have had, should you have raised the questions. If questions are not raised, I have the right to assume your professional company understands the requirements. I suggest that you be able to address the issues raised in this memorandum at the February 1, 1999 Board of Supervisors meeting.

Enclosure

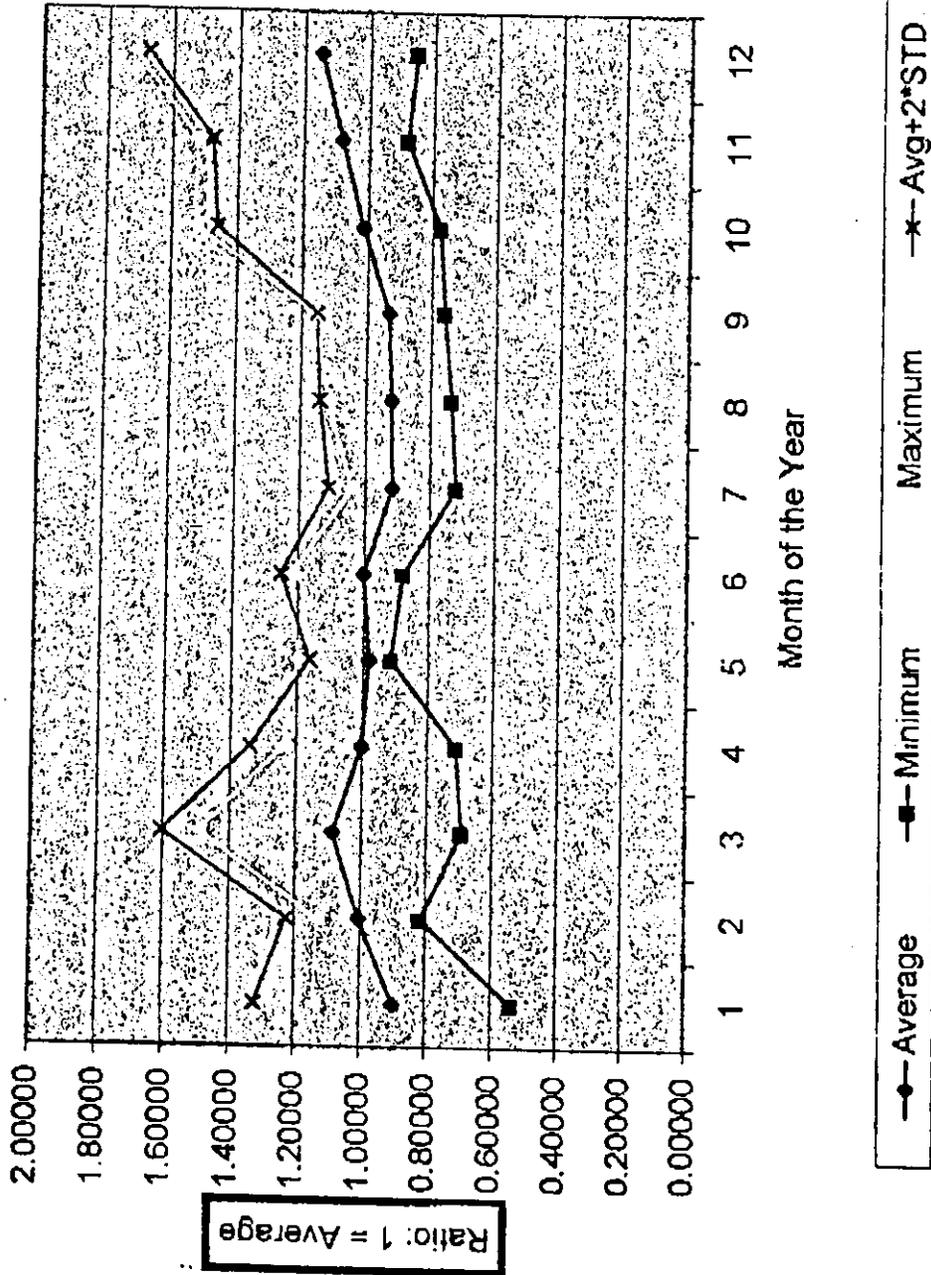
RFP Page 2 01/31/99Evin537.doc - East Coventry

Eureka WWTP

Frequency Analysis - Three Consecutive Month Average

Q/EDU Monthly Average	Frequency of Occurrence	Percent	Cumulative %
100	0	0.0000%	0.0000%
110	0	0.0000%	0.0000%
120	0	0.0000%	0.0000%
130	2	2.8571%	2.8571%
140	0	0.0000%	2.8571%
150	0	0.0000%	2.8571%
160	5	7.1429%	10.0000%
170	2	2.8571%	12.8571%
180	1	1.4286%	14.2857%
190	2	2.8571%	17.1429%
200	2	2.8571%	20.0000%
210	5	7.1429%	27.1429%
220	5	7.1429%	34.2857%
230	4	5.7143%	40.0000%
240	4	5.7143%	45.7143%
250	5	7.1429%	52.8571%
260	5	7.1429%	60.0000%
270	4	5.7143%	65.7143%
280	9	12.8571%	78.5714%
290	3	4.2857%	82.8571%
300	6	8.5714%	91.4286%
310	2	2.8571%	94.2857%
320	1	1.4286%	95.7143%
330	1	1.4286%	97.1429%
340	2	2.8571%	100.0000%
350	0	0.0000%	100.0000%
	70	100.0000%	

Eureka: Ratio: Q-month / Q-annual





MOTLEY ENGINEERING CO., INC.
CONSULTING ENGINEERS

1300 new holland road
kenhorst, pa. 19607
ph. (610) 775-0888
fax (610) 775-9847

February 1, 1999

East Coventry Township
Board of Supervisors
855 Ellis Woods Road
Pottstown, PA 19465

Re: Supervisor Preston's Memo of January 31, 1999

Gentlemen:

We are in receipt of the above referenced memorandum. As the correspondence is copied to the entire Board for distribution and discussion at this evening's meeting, we feel the following comments are in order.

1. It is indicated in the above memo, that 300 gpd/EDU should be used for sizing facilities and estimating capacity requirements.

Mr. Preston's memo of January 5, 1999 however indicated that 300 gpd/EDU was to be used for sizing facilities and 240 gpd to 250 gpd was to be used for annual average discharge flows.

The table contained in Section 43.4 of the Domestic Wastewater Facilities Manual indicates that annual average flow is to be used for evaluating Act 537 Updates and establishing the nominal design flow of a facility.

Furthermore, Section 403.41 requires that new systems utilize a design annual average flow based on 100 gpd per capita for systems of more than 150 homes. As the population information for the Township indicates approximately 2.64 persons per EDU, the 240 gpd figure is reasonable, considering variables in estimating the number of connections. Any deviation from these values must be based on actual water consumption data and projected or anticipated infiltration. As no water consumption data exists, we fail to see the relevance of the data justifying the 300 gpd figure.

As we are to provide estimated flows for a new system to East Vincent, not the design basis for sizing the facilities, the information provided is inadequate.

2. It is indicated that tighter estimates will be required to accurately determine O & M costs.

As stated in our correspondence of January 26, 1999, it is quite possible that these flows will change as the study progresses. The purpose of the study is to determine the flows. By providing these numbers without the benefit of first having evaluated a collection system could very well be an exercise in futility. Perhaps a more accurate way of stating anticipated flows, at this juncture, would be anywhere from 0 to 632 EDU's, as it is quite possible that the length of collection system alone will make this alternative not feasible.

I would also point out that the time period for providing the type of estimates that Mr. Preston was obviously expecting is most unrealistic. The scope of work which you have authorized is equivalent to the scope of your 1997 update, which took at least seven (7) years to complete.

At this point in the planning process, the figures provided for East Vincent should be quite adequate to estimate construction cost and annual O & M cost on a preliminary basis. If preliminary estimates based on these numbers indicate the alternative is feasible, the estimates can be further refined and the alternative further evaluated.

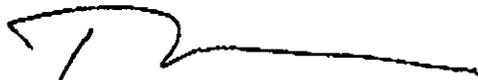
Our firm has completed eleven (11) Act 537 Updates in the last eight (8) years and is currently in the process of preparing three (3) more, not including East Coventry. We have a thorough knowledge of what is required in these plans and are more than capable of providing the services you have requested of us.

It appears that one member of the Board insists on controlling the project to the point where memorandum are issued directing us as to how to arrive at flow projections, determine design basis flows and itemize construction cost estimates. As we are ultimately responsible for this project we now find ourselves in a very difficult position; the project is being controlled by our client rather than a principle of our firm.

Unfortunately this is a situation which we can no longer accept. It is, with regrets, that we have no choice but to withdraw from this project and respectfully request that the Township retain another firm to complete the project.

Sincerely,

MOTLEY ENGINEERING CO., INC.



Thomas J. Motley, Jr.

CC: Karen H. Kemme, Township Manager
John A. Koury, Jr., Esq.



MOTLEY ENGINEERING CO., INC.
CONSULTING ENGINEERS

1300 new holland road
kenhorst, pa. 19607
ph. (610) 775-0888
fax (610) 775-9847

February 3, 1999

East Coventry Township
855 Ellis Woods Road
Pottstown, PA 19464

RECEIVED
FEB 08 1999
EAST COVENTRY TOWNSHIP

RE: Act 537, Flow Estimates

Attn: Karen H. Kemme, Twp. Manager

Dear Karen:

As a follow up to our letter of February 1, 1999, the following are the flows which we will utilize in preparing our estimates.

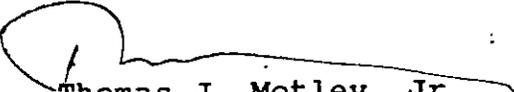
1. Treatment Facilities: Annual Average Flow of 100 gpd per capita
2. Collection System:
 - (a) Laterals and Sub Mains-400 gpd per capita
 - (b) Main, trunk, interceptor and outfalls-250 gpd per capita

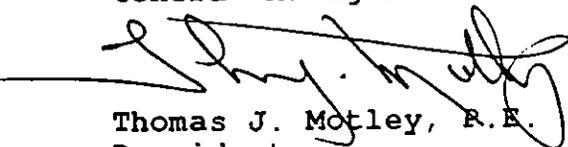
All flows given to East Vincent and North Coventry will be expressed in EDU's as flow estimates for existing facilities are to be based on existing flows. It is the responsibility of the respective parties to adequately size their facilities during design to handle these connections.

We have attached copies of the applicable sections of the PA DEP Domestic Wastewater Facilities Manual. Use of these numbers will preclude and any questions by DEP regarding the estimates.

Sincerely,

MOTLEY ENGINEERING CO., INC.


Thomas J. Motley, Jr.
General Manager


Thomas J. Motley, R.E.
President

The basis of design for all sewer projects shall accompany the plan documents.

→ 24. Design Basis (COLLECTION SYSTEMS)

24.1 Per Capita Flow - New sewer systems should be designed on the basis of an average daily per capita flow of not less than 100 gallons per day unless a rigorous justification for a lesser per capita flow can be established. This figure includes normal infiltration, but an additional allowance should be made where conditions are unfavorable. Generally, the sewers should be designed to carry, when flowing full, not less than the following daily per capita contributions of domestic wastewater, exclusive of wastewater from non-residential users.

24.11 Laterals and sub-main sewers - 400 gallons.

24.12 Main, trunk interceptor and outfall sewers - 250 gallons.

24.13 Interceptors carrying combined wastewater - Interceptors carrying combined wastewater flow should be designed to carry, as a minimum, 350 percent of the gauged or estimated flow during dry weather conditions.

24.2 Alternate Method - When deviations from foregoing per capita rates are proposed, a brief description of the procedure used for sewer design shall be included.

25. Details of Design and Construction

25.1 Minimum Size - Generally, no public sewer carrying untreated wastewater should be less than eight inches in diameter. Refer to Section 29 for the proposals involving use of smaller diameter alternative sewers.

The use of six-inch diameter sewers may be permitted when the following conditions are met:

- a. Topographical, geographical and/or practical conditions indicate that the sewer will not be extended and that the flow to the proposed sewers generated within the natural tributary drainage area will not be augmented by flow generated outside of that area.
- b. The sewers have hydraulic capacity to convey the projected future flows, and the agency responsible for maintaining the sewers must have equipment or be able to obtain immediate services to adequately clean and maintain the sewers.

25.2 Depth - Sewers shall be designed deep enough to prevent freezing. Insulation shall be provided for sewers that cannot be placed at a depth sufficient to prevent freezing. In general, sewers should be designed to allow for basement service of existing houses. As an alternative, an evaluation of existing houses may be performed to determine the most cost-effective solution for providing basement service.

25.3 Slope - Sewers shall be laid with uniform slope between manholes. All sewers shall be so designed and constructed to give mean velocities, when flowing full,

<u>Design Flow Parameter</u>	<u>General Definition</u>	<u>Typical Application</u>
Annual Average Flow	The total flow received at the facility during any one calendar year divided by 365 (the number of days in that period).	<p>The "nominal" design flow of a facility.</p> <p>Used for cost comparisons and annual estimates of O&M costs.</p> <p>Used for water quality modeling.</p> <p>Used for evaluating Act 537 plan updates.</p> <p>Used to determine allowable mass loadings in NPDES permits.</p>
Monthly Average Flow	The total flow received at the facility during any one calendar month divided by the number of days in that month.	A flow reporting parameter used in discharge monitoring reports.
Maximum Monthly Average Flow	The highest monthly average flow during any one calendar year.	<p>Determine the overall hydraulic design of the facility.</p> <p>Used for evaluating Act 537 plan updates and planning modules.</p> <p>Is the "hydraulic capacity" for Chapter 94 determinations.</p> <p>Establishes the monthly average flow limitation on NPDES permit.</p>
Peak Hourly Flow	The maximum flow rate received at the facility averaged over a period of one hour.	Designing clarifiers, chlorine contact tanks, and other hydraulically sensitive units.
Peak Instantaneous	The maximum instantaneous flow rate received at the facility at any given time.	Designing comminutors, pump stations, piping, and units subject to peak flow conditions.
Minimum Hourly Flow	The least flow rate received at the facility over a period of one hour.	Designing pump stations, and other units sensitive to excessive detention times.

→ 43.41 New Systems - For municipal systems and subdivisions of over 150 homes, the design annual average flow shall be based on 100 gallons per capita per day, with a 24-hour runoff period. The design annual average flow for plants serving less than 150 homes may be based on 75 gallons per capita per day, with a 16-hour runoff period. These flow figures include an allowance for infiltration.

Any deviation from these values should be based on actual data for water consumption and projected or anticipated flow due to infiltration (during high groundwater conditions). The pipe manufacturer's recommendations and/or actual infiltration values obtained in the field with the use of a similar kind of pipe having similar field conditions may be used to establish the projected flow due to infiltration.

The design flow for institutional and recreational establishments should be based on the design data in Section 43.51 of the manual and/or water consumption data (actual or estimated).

Estimates of design wastewater flows for industrial/commercial dischargers must take into account the expected amounts of process wastewater, sanitary wastewater, and cooling water which will be discharged into the sewerage system. Such information should be obtained directly from the owner/operator of the industrial/commercial establishment.

43.42 Existing Systems - When an existing treatment plant is expanded/upgraded, the volume and strength of existing flows shall be determined. As a minimum, the existing plant's past five years of data (if available) shall be reviewed, and a design engineer's report summarizing the monthly flows, loadings and corresponding performance of various units and/or plant as a whole should be prepared for at least three years' representative data (exclude the data pertaining to abnormal rain or drought conditions). The report should serve as the basis for development of the design flow and organic loadings based on the past as well as projected future conditions.

The design flow for the proposed plant expansion/upgrade should be based on the maximum monthly average flow derived from historical data, plus the additional projected maximum monthly average flow due to future flow contributions during the design period of the plant. The projected flow should include domestic wastewater flow, industrial wastewater flow, and infiltration/inflow within the sewer system based on future conditions.

The submission of a Water Quality Management Part II Permit application must be accompanied with a design engineer's report. The report must include information concerning the basis of design flow, the proposed and existing unit processes, the design and operational standards applied to each of the process units, and the source of information used as the basis of the design standards.

When an existing sewer system (currently not served by a treatment facility) is to be served by a new or modified treatment facility, the volume and strength of existing flows shall be determined. Flow



MOTLEY ENGINEERING CO., INC.
CONSULTING ENGINEERS

1300 new holland road
kenhorst, pa. 19607
ph. (610) 775-0888
fax (610) 775-9847

February 9, 1999

East Coventry Township
855 Ellis Woods Road
Pottstown, PA 19464

Attn: Karen H. Kemme, Township Manager

RE: Potential Sewage Flows;
East Vincent Township

RECEIVED
FEB 10 1999
EAST COVENTRY TOWNSHIP

Dear Karen:

Pursuant to our conversations, it would not be unreasonable to reduce our estimate of potential flow to East Vincent Township to 450 EDU's.

The use of 450 EDU's would eliminate connection of the existing units at the western end of the Pigeon Creek drainage basin. As discussed, this number may be revised upon evaluation of a collection system for that area.

Sincerely,

MOTLEY ENGINEERING CO., INC.


Thomas J. Motley, Jr.
General Manager



MOTLEY ENGINEERING CO., INC.
CONSULTING ENGINEERS

1300 new holland road
kenhorst, pa. 19607
ph. (610) 775-0888
fax (610) 775-9847

May 27, 1999

North Coventry Township
Sewer Authority
1485 E. Schuylkill Rd.
P.O. Box 833
Pottstown, PA 19465

RECEIVED
JUN 02 1999
EAST COVENTRY TOWNSHIP

**RE: Capacity Estimates
East Coventry Township**

Dear Authority Members:

Subsequent to our meeting last November regarding the availability of additional sewer capacity, East Coventry Township has undertaken a detailed study to determine the most feasible area for connection to North Coventry and the total number of connections needed over a twenty year planning period.

At their May 17, 1999 Board of Supervisors meeting, East Coventry Township authorized us to forward our estimates to you.

The area most feasible to be connected to North Coventry is shown on the attached map as Sub Areas "A" and "B".

Our estimate of flows from these areas is as follows:

	<u>5 YR.</u>	<u>10 YR.</u>	<u>20 YR.</u>
Sub Area 1			
Existing EDU's	0	185	231
Proposed EDU's	220	276	276
Potential EDU's	<u>0</u>	<u>178</u>	<u>269</u>
	220	639	776
 Sub Area 2			
Existing EDU's	0	45	116
Proposed EDU's	0	24	24
Potential EDU's	<u>0</u>	<u>65</u>	<u>143</u>
	0	134	283
 TOTAL ESTIMATED EDU'S	1,059		

(continue Page 2)

**RE: Capacity Estimates
East Coventry Township**

To proceed with our evaluation of this area, we would request the following information:

1. Availability of capacity
2. Cost of capacity
3. Estimate of annual treatment costs

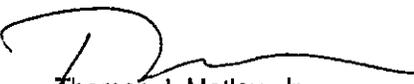
We understand that capacity for the full 20 year planning period would most likely not be available; however, we would request that lesser amounts be considered.

To prevent any misunderstandings, we would also like to be perfectly clear that we are not requesting the reservation of any capacity at this time. The availability and cost of capacity at your facility is needed so that we may fully evaluate all our options and provide a viable recommendation to East Coventry.

Your cooperation in this matter is greatly appreciated. Should you have any questions please contact me.

Sincerely,

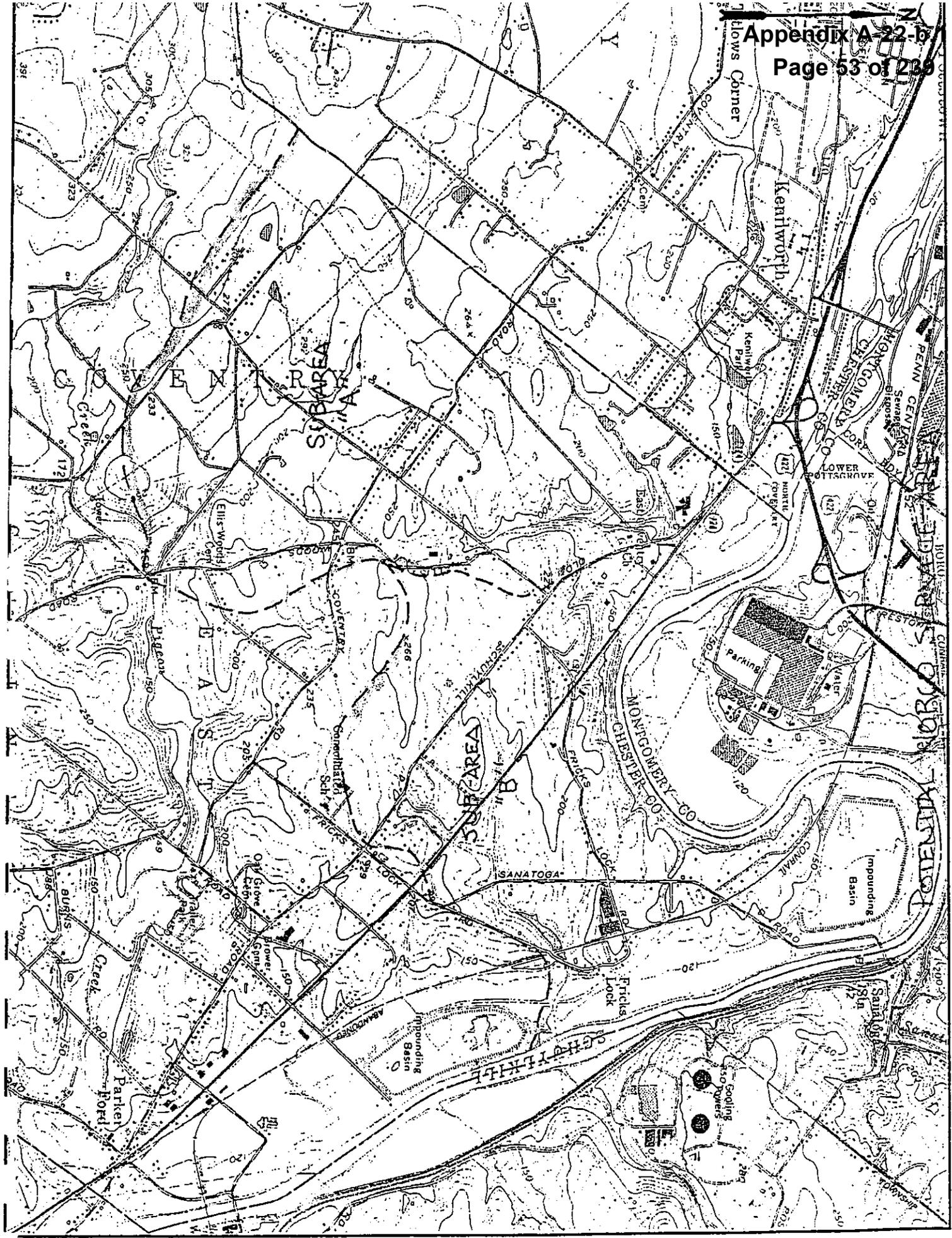
MOTLEY ENGINEERING CO., INC.



Thomas J. Motley, Jr.
General Manager

TJM/aml

cc: East Coventry Township Board of Supervisors



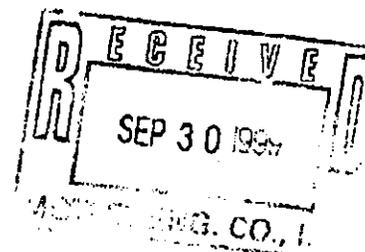
North Coventry Municipal Authority

P.O. Box 833

1485 E. Schuylkill Road

Pottstown, PA 19464-0833

(610) 326-1064 Fax (610) 326-4870



September 28, 1999

C: Bos ✓

Mr. Thomas J. Motley, Jr.
Motley Engineering Co., Inc.
1300 New Holland Road
Kenhorst, Pennsylvania 19607

RE: North Coventry Municipal Authority - Capacity for East Coventry Township

Dear Mr. Motley:

The North Coventry Municipal Authority has received the Capacity Estimates sent with your letter of May 27, 1999. As you are aware, the Authority is currently concluding the work under six separate contracts for the extension of its sewer lines, the construction of pumping stations, and the construction of an entirely new treatment plant. The finalization of these contracts will give the Authority and the Township Supervisors the needed information to properly respond to your request for further information.

Moreover, when the final cost figures are available, the Authority would have to meet with the Supervisors of North Coventry Township to collectively determine the amount and cost of additional sewer capacity over and above that provided in North Coventry Township's Act 537 Plan.

Thank you for your patience in this regard.

Very truly yours,

Ted A. Drauschak, Vice Chairman
North Coventry Municipal Authority

cc: North Coventry Township Board of Supervisors
Att: Robert Layman, Township Manager

Post-It* Fax Note	7671	Date	9-30	# of Pages	1
To	Ginny	From	Jamil		
Co./Dept	E Coventry	Co.	Motley		
Phone #		Phone #			
Fax #		Fax #			

SUPERVISORS PACKET

APPENDIX B

5 and 10-Year Planning Area Map

APPENDIX C

Figures 3 through 7

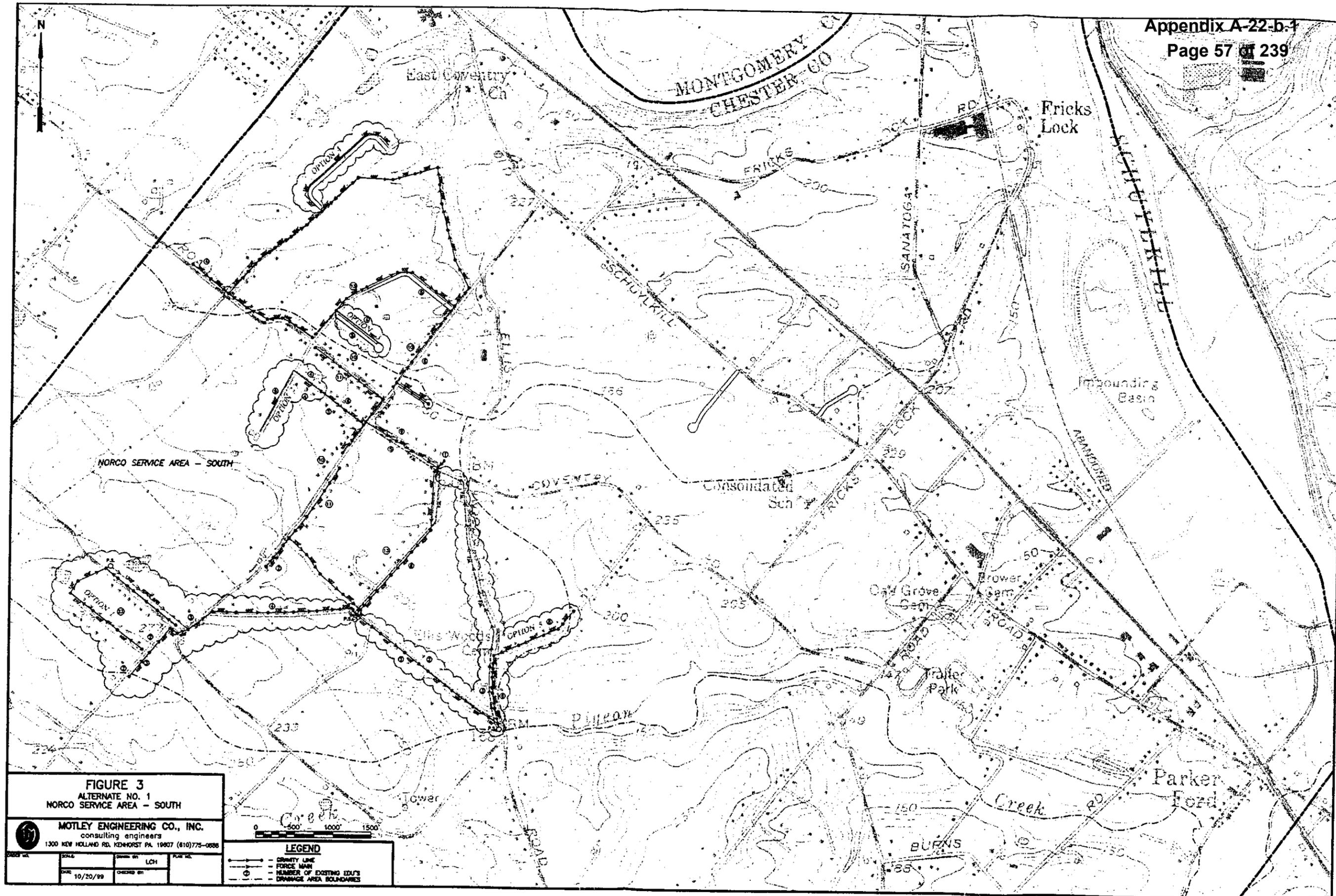


FIGURE 3
 ALTERNATE NO. 1
 NORCO SERVICE AREA - SOUTH

MOTLEY ENGINEERING CO., INC.
 consulting engineers
 1300 NEW HOLLAND RD. KENHORST PA. 19007 (610)775-0588

DATE	SCALE	DRAWN BY	CHKD BY	PLAN NO.
10/20/99		LCH		

0 500' 1000' 1500'

LEGEND

- GRADIENT LINE
- FORCE MAIN
- NUMBER OF EXISTING EDU'S
- - - DRAINAGE AREA BOUNDARIES

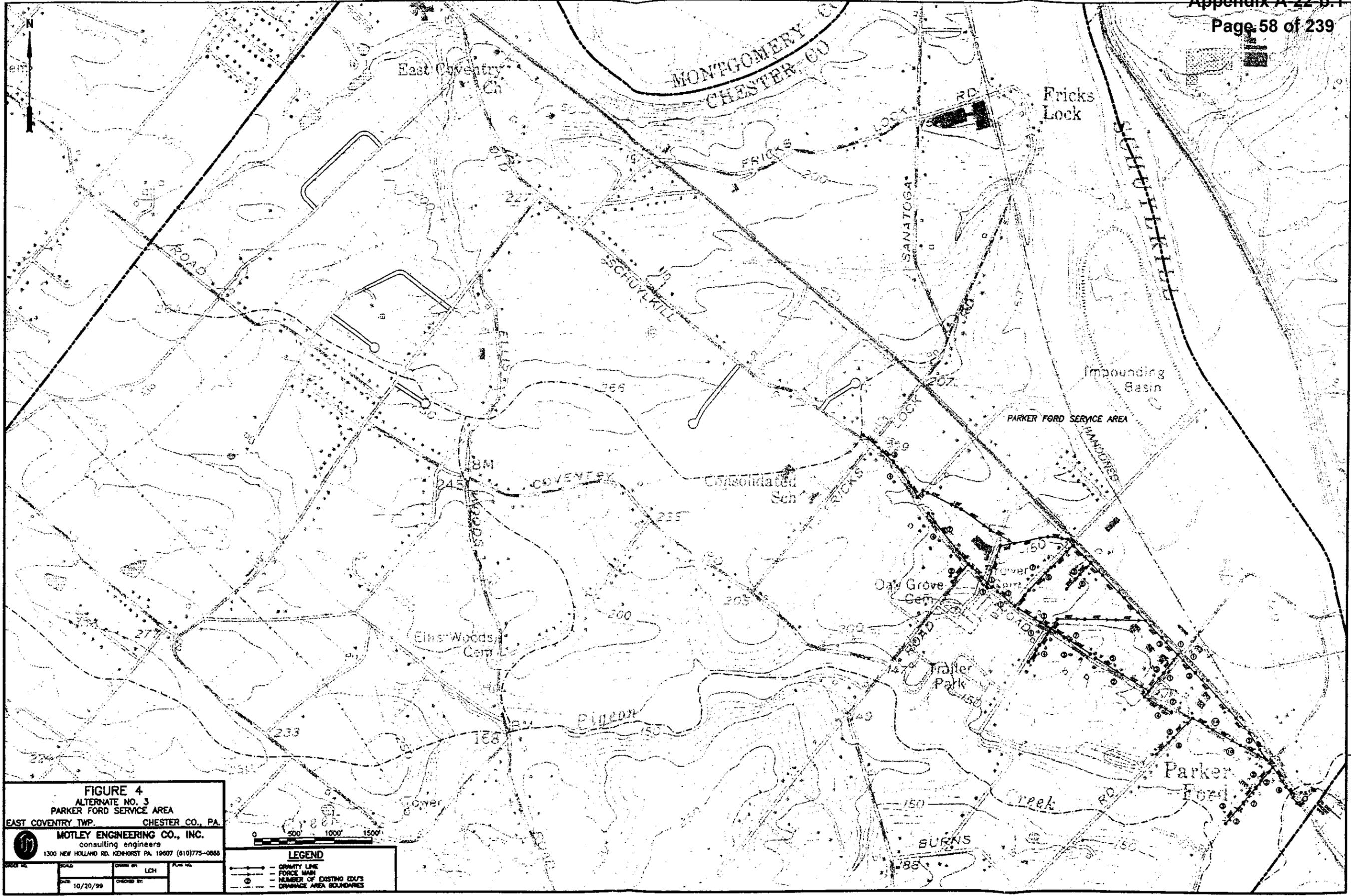


FIGURE 4
ALTERNATE NO. 3
PARKER FORD SERVICE AREA
EAST COVENTRY TWP. CHESTER CO., PA.

MOTLEY ENGINEERING CO., INC.
consulting engineers
1300 NEW HOLLAND RD. KENHORST PA. 19607 (610)775-0888

SCALE	DRAWN BY	PLAN NO.
DATE	CHECKED BY	
10/20/99	LCH	

LEGEND

	GRAVITY LINE
	FORCE MAIN
	NUMBER OF CASTING EDGY'S
	DRAINAGE AREA BOUNDARIES

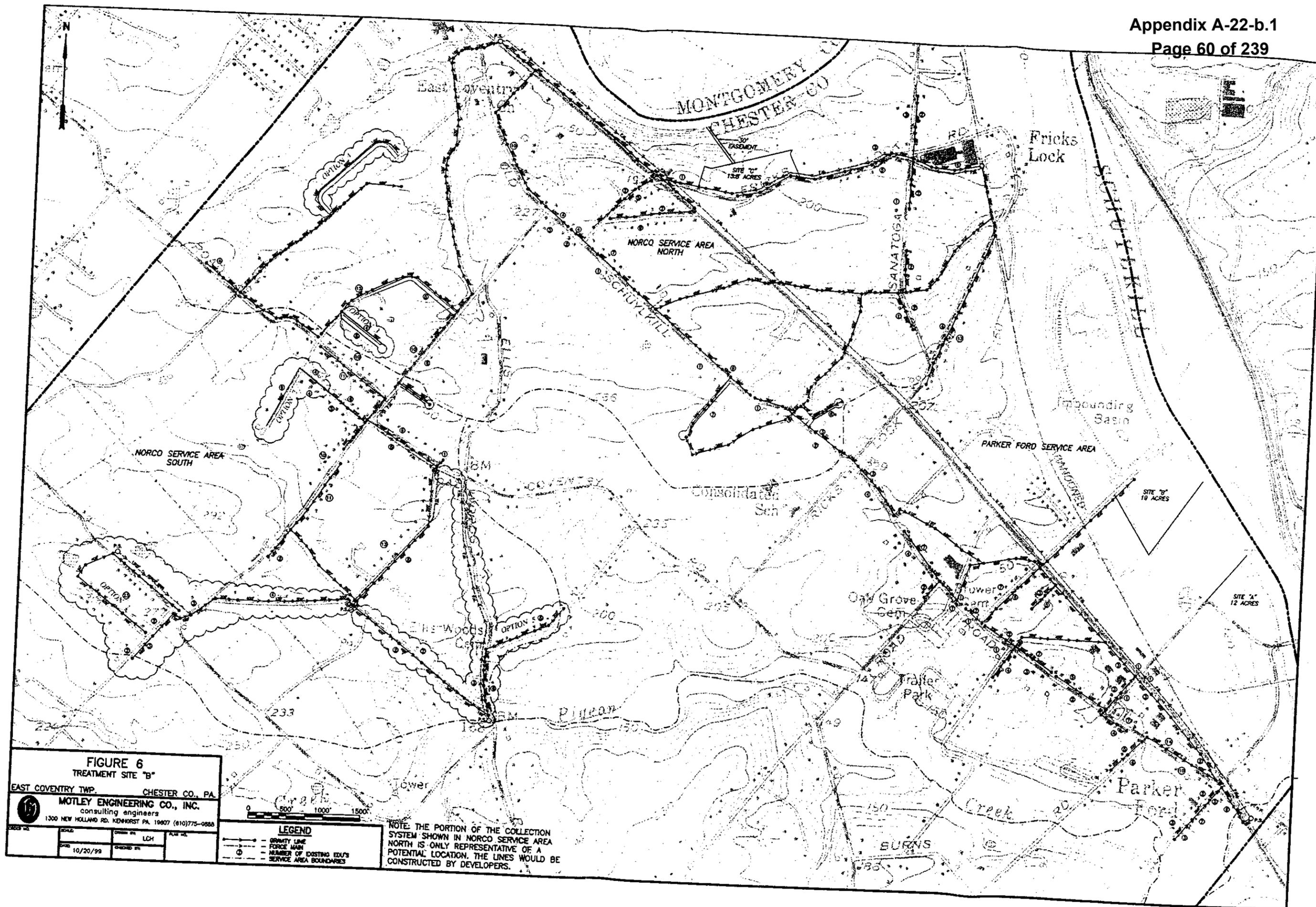


FIGURE 6
TREATMENT SITE "B"

EAST COVENTRY TWP. CHESTER CO., PA.

MOTLEY ENGINEERING CO., INC.
consulting engineers
1300 NEW HOLLAND RD. KENHORST PA. 19007 (610)775-0888

DATE	BY	CHECKED BY	SCALE
10/20/99			LCH

LEGEND

- GRAVITY LINE
- FORCE MAIN
- NUMBER OF EXISTING EDG'S
- - - SERVICE AREA BOUNDARIES

NOTE: THE PORTION OF THE COLLECTION SYSTEM SHOWN IN NORCO SERVICE AREA NORTH IS ONLY REPRESENTATIVE OF A POTENTIAL LOCATION. THE LINES WOULD BE CONSTRUCTED BY DEVELOPERS.

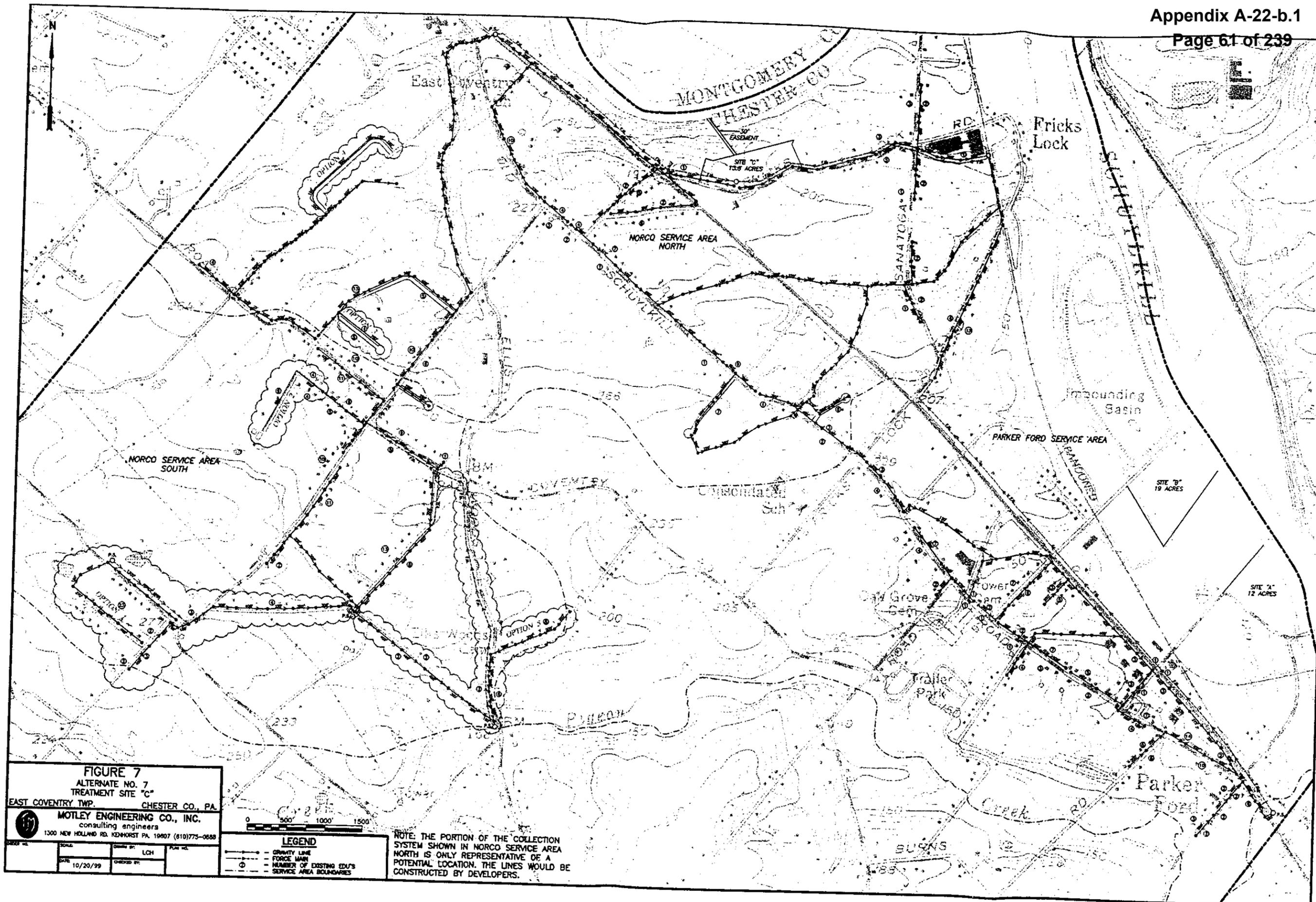
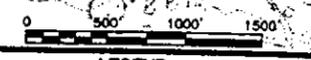


FIGURE 7
 ALTERNATE NO. 7
 TREATMENT SITE "C"
 EAST COVENTRY TWP. CHESTER CO., PA.
MOTLEY ENGINEERING CO., INC.
 consulting engineers
 1300 NEW HOLLAND RD. KENHORST PA. 19607 (610)775-0688



LEGEND

	GRAVITY LINE
	FORCE MAIN
	NUMBER OF EXISTING EDU'S
	SERVICE AREA BOUNDARIES

NOTE: THE PORTION OF THE COLLECTION SYSTEM SHOWN IN NORCO SERVICE AREA NORTH IS ONLY REPRESENTATIVE OF A POTENTIAL LOCATION. THE LINES WOULD BE CONSTRUCTED BY DEVELOPERS.

DATE	10/20/99	CHECKED BY	
SCALE		DRAWN BY	LCH
PROJECT NO.		PAGE NO.	

APPENDIX D

**Chester County Planning Commission Comments and
Responses 2001/2002**



THE COUNTY OF CHESTER



COMMISSIONERS:
Colin A. Hanna, Chairman
Karen L. Martynick
Andrew E. Dinniman

PLANNING COMMISSION
Government Services Center, Suite 270
601 Westtown Road
P.O. Box 2747
West Chester, PA 19380-0990
(610) 344-6285
FAX: (610) 344-6515

WILLIAM H. FULTON, AICP
Executive Director

January 8, 2001

RECEIVED
JAN 16 2001
EAST COVENTRY TOWNSHIP

David K. Leinbach, Chairman
East Coventry Township Board of Supervisors
855 Ellis Woods Road
Pottstown, PA 19465

Re: Wastewater Collection and Treatment Special Study

Dear Mr. Leinbach:

The Chester County Planning Commission (CCPC) has reviewed the above Draft 537 Special Study dated November 2000 as required by Section 71.53(a)(2) of the Pennsylvania Sewage Facilities Act (Act 537). The Special Study was prepared by Motley Engineering Company, Inc. The Plan was received on December 11, 2000.

Regarding this Study, we offer the following comments:

Consistency with the County Comprehensive Plan, *Landscapes*:

1. The area proposed to be served by public sewers appears to be consistent *Landscapes* as it is all within an area identified as a Suburban Landscape.
2. The Study recommends the construction of a new stream discharge treatment facility. This is not consistent with *Landscapes* policy and is opposed by the County Planning Commission.

Policy 6.1.5. Encourage innovative wastewater treatment and disposal systems with preference given to land application of treated wastewater.

General Comments:

1. Figures 2 through 7 are not very clear at the page size presented in the Study. We suggest that the material you send to DEP include maps of a larger scale.
2. While the introductory text states that materials from the 1997 Plan are not repeated in the Study, we suggest that the Townships Future Land Use and Zoning maps be included with the Study document to show the relationship and consistency with the proposed service area(s).
3. On page 2, Chester County's Comprehensive Plan is called "Horizons". The correct name is *Landscapes*.

Page: 2
Re: Wastewater Collection and Treatment Special Study
January 8, 2001

4. The Study recommends that a facility with a minimum capacity of 0.5MGD be constructed; yet the data in Table 1, indicates that the projected flow in five years will be 0.9MGD. We suggest that the Study be clearer on the Township's intentions regarding the initial treatment capacity of the facility.
5. We acknowledge the presentation regarding the discussion with the North Coventry Township Municipal Authority about the possibility of treating East Coventry wastewater at their facility which is just across the Township line. As they have recently expanded their facility, the indication is that they are not interested in financing an additional expansion at this time. We suggest that you continue to pursue this as the first alternative. *Landscapes* policies strongly support the use of existing systems and a regional approach to meet new needs.

Policy 6.1.1 Encourage coordination between municipalities and authorities to ensure consistency with land use plans.

Policy 6.1.2 Maintain or expand existing sewer and water facilities to support development in Urban and Suburban Landscapes.

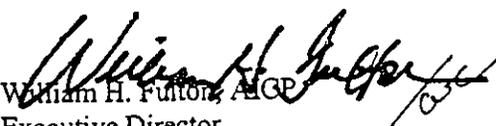
We are not clear on how the request to North Coventry was presented other than, as stated in the text on page 16 that a request for additional capacity was made. We suggest that, if not made previously, a request for capacity is sought, along with a commitment by East Coventry Township to pay for the necessary facility expansion. The cost incurred by East Coventry would be born by the developers and the Township. While not inexpensive, we view this as a more acceptable alternative than the construction of a completely new stream discharge facility.

6. The Planning Commission acknowledges the issue raised in the Study regarding the added cost of land for treatment lagoons to meet the anticipated flows indicated. If the alternative suggested above is not feasible, we suggest that the Township consider an alternative of mechanical treatment followed by land application, either spray or drip irrigation.

We trust that these comments will be a assistance to you as you finalize the Study document for submission to PADEP.

Thank you for the opportunity to review this material.

Sincerely,


William H. Fulton, AICP
Executive Director

WHF/WWC/yg
cc: Glenn Stinson, PADEP
Ralph DeFazio, CCHD
Robert Ihlein, North Coventry Township Manager
Motley Engineering Company, Inc.



MOTLEY ENGINEERING CO., INC.
CONSULTING ENGINEERS

**1300 new holland road
kenhorst, pa. 19607
ph. (610) 775-0888
fax (610) 775-9847**

February 5, 2001

East Coventry Township
Board of Supervisors
855 Ellis Woods Road
Pottstown, PA 19465

Re: Act 537 Special Study
Chester County Review Comments

Gentlemen:

We have reviewed the County's comments of January 8, 2001 regarding the above referenced special study and would offer the following response for your consideration.

For ease of reference the responses follow the same format as the review.

Consistency with Landscapes

1. No response necessary.
2. This comment refers to the selected method of disposal (stream discharge) and its relationship to policy 6.1.5 of landscapes which gives preference to land application of treated wastewater.

Both spray irrigation and subsurface disposal were evaluated in the study and in fact were considered the only possible alternatives for a treatment facility located within the Pigeon Creek drainage area. Due to the limited suitable land area available in that basin the preferred alternative was ultimate disposal within the Schuylkill River drainage basin.

Spray irrigation and subsurface disposal were evaluated within the Schuylkill River drainage basin and eliminated due to soil suitability and land availability.

It must be kept in mind that the purpose of this study was to provide sewage disposal to the two needs areas within the Township one of which is located in the Schuylkill River drainage basin. The method of disposal employed in this area is subsurface. The predominant soil types in this area are Penn soils which are marginal at best for subsurface discharge due to depth to bedrock and impermeable substratum. A large portion of this area is also located within the 100 year floodplain.

A soils map and table 7 from the Chester and Delaware County Soil Survey are included for reference. The Bucks (BxB2) soils are the most suitable for subsurface discharge. There are three fairly large areas of this type located within the Schuylkill River drainage basin: adjacent to the desilting basin on Sanatoga Road, the Coventry Business Park and the EP Henry Site. Both Coventry Business Park and the EP Henry had difficulty finding suitable subsurface disposal sites and the site adjacent to the desilting basin lies within the 100 year flood plain. DEP's manual for land application of treated sewage and industrial waste, section 2.3:4 prohibits land application within the 100 year flood plain. This would eliminate all areas to the North of the old railroad bed running along the Schuylkill River. To promulgate subsurface disposal in an area that is already known to be marginal at best is not an alternative that we would recommend as preferred given the availability of stream discharge.

Likewise, spray irrigation is dependent upon the soil suitability and availability of land. Additionally, spray irrigation is temperature dependent and alternate discharge methods are necessary. Given the limited soil suitability, limited land availability and seasonal limitations we feel stream discharge is more desirable in this instance.

Due to the lack of suitable land area, the special study did not estimate the cost of construction for the land application. It is our opinion that any sort of land application would at least double the cost of any treatment facility thus making it the most expensive alternative.

The portion of the county adjacent to the Schuylkill River contains soils which are not present in other portions of the county. While the southern portion of the county may contain large areas suitable for land application, it does not have access to a watercourse the size of the Schuylkill River. The area under consideration is most suitable for stream discharge due to soil limitations and its proximity to a large watercourse.

General Comments

1. Full size drawings can be provided.
2. The requested maps can be provided.
3. Page 2 can be corrected.
4. Table 1 refers to flow as EDU's not MGD as interpreted by the County. The title to the table may be misleading and should be changed to Estimated Connections.
5. The correspondence to North Coventry included the NORCO North and South portions of Table 1. We feel that it was very clear as to the capacity requirements of East Coventry and the 20 year estimates were in fact requested by North Coventry to ensure that they could meet future needs.

Utilization of existing facilities is only feasible when capacity exists or can be made available at a reasonable cost, or when access to discharge points is limited. NORCO has indicated that approximately 500 EDU's would be available in the existing plant for East Coventry but has not indicated a time table for expansion or an estimate of construction cost. Until this information is available, NORCO will continue to be a non-feasible option.

It is suggested that, regardless of cost, treatment at NORCO would be the preferred option. This is an easy statement to make, however, if the project is not financially feasible the "No Action" option is ultimately taken resulting in a disservice to both the environment and the Township residents.

6. The feasibility of land application was fully discussed previously.

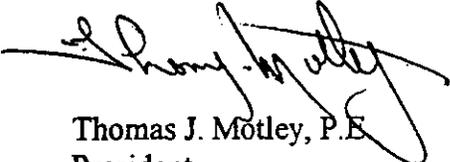
We trust that this answers the questions raised by the County Planning Commission.

Sincerely,

MOTLEY ENGINEERING CO., INC.



Thomas J. Motley, Jr.
General Manager



Thomas J. Motley, P.E.
President



THE COUNTY OF CHESTER



COMMISSIONERS:
Colin A. Hanna, Chairman
Karen L. Martynick
Andrew E. Dinniman

WILLIAM H. FULTON, AICP
Executive Director

PLANNING COMMISSION
Government Services Center, Suite 270
601 Westtown Road
P.O. Box 2747
West Chester, PA 19380-0990
(610) 344-6285
FAX: (610) 344-6515

January 31, 2001

David K. Leinbach, Chairman
East Coventry Township
Board of Supervisors
855 Ellis Woods Road
Pottstown, PA 19465

Re: Wastewater Collection and Treatment Special Study

Dear Mr. Leinbach:

RECEIVED
FEB 02 2001
EAST COVENTRY TOWNSHIP

In preparing our monthly report to the Planning Commission, staff identified an error in our letter dated January 8, 2001, with regard to the *Landscapes* Policy referenced in point #2 under Consistency with the County Comprehensive Plan, *Landscapes*. The Policy that should have been cited is Policy 6.1.2, which states, "Maintain or expand existing sewer and water facilities to support development in Urban and Suburban Landscapes."

The balance of the comments provided in the January 8, 2001, letter remain as presented.

I apologize for the inconvenience that this may cause you.

Sincerely,

William H. Fulton, AICP
Executive Director

WHF/WWC/kp

cc: Glenn Stinson, PADEP
Ralph DeFazio, CCHD
Robert Ihlein, North Coventry Township Manager
Motley Engineering Company, Inc.



THE COUNTY OF CHESTER

Appendix A-22-b.1

Page 69 of 239



COMMISSIONERS:
Colin A. Hanna, Chairman
Karen L. Martynick
Andrew E. Dinniman

WILLIAM H. FULTON, AICP
Executive Director

PLANNING COMMISSION
Government Services Center, Suite 270
601 Westtown Road
P.O. Box 2747
West Chester, PA 19380-0990
(610) 344-6285
FAX: (610) 344-6515

February 28, 2001

RECEIVED
MAR 01 2001
EAST COVENTRY TOWNSHIP

Glenn Stinson
PA DEP
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428

Re: East Coventry Township
Wastewater Collection and Treatment Special Study

Dear Mr. Stinson:

In correspondence dated January 8, 2001 and January 31, 2001, the County Planning Commission indicated its position with regards to the proposed Act 537 Plan revision of East Coventry Township, recommending construction of their own wastewater treatment facility. The position of the Planning Commission, as stated in those letters, is opposed to the construction of a new stream discharge facility in favor of working towards a regional wastewater treatment solution.

At their February 14th meeting, the Chester County Planning Commission discussed this matter further and recommended that an additional letter be sent directly to PADEP to emphasize the County Planning Commission's opposition to the Township's recommendation based on the policy stated in *Landscapes*. The policy, #6.1.2, is as follows:

"Maintain or expand existing sewer and water facilities to support development in Urban and Suburban Landscapes."

The County Planning Commission does not believe it to be practical to build a new stream discharge when a solution could be achieved through regional cooperation.

Subsequent to the County Planning Commission's meeting, we have learned that North Coventry officials have approached East Coventry officials to reopen discussions about the possibility of North Coventry's sewage treatment facility being expanded to serve East Coventry's needs. We applaud this new initiative and hope that it will result in a positive conclusion.

Page: 2

February 28, 2001

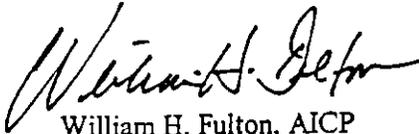
Re: East Coventry Township
Wastewater Collection and Treatment Special Study

The County Planning Commission further believes that even if a solution cannot be reached through regional cooperation, a new stream discharge facility is still not the preferred option of treatment. The Planning Commission encourages the use of land application techniques over stream discharge for the disposal of treated wastewater in implementing new systems. This policy is supported by the County Commissioners in the form of a grant program to assist municipalities with the acquisition of land for use as spray fields and/or lagoons.

We trust that PADEP staff will take these additional comments into consideration as you review this proposed revision.

If you wish to discuss this matter in more detail, please do not hesitate to contact me.

Sincerely,



William H. Fulton, AICP
Secretary

WHF/WWC/kp

cc: R. Ihlein, East Coventry Township Manager
R. Layman, North Coventry Township Manager

EAST COVENTRY TOWNSHIP

855 Ellis Woods Road
Pottstown, PA 19465

Phone: (610) 495-5443
Fax: (610) 495-9925
E-Mail: eastcvntry@fast.net

**BOARD OF SUPERVISORS:**

David K. Leinbach, Chairman
Wayne H. Shych, Vice Chairman
Robert F. Preston, Member

Robert E. Ihlein, Township Manager

March 10, 2001

Mr. William H. Fulton, AICP
Secretary
Chester County Planning Commission
Government Services Center
Suite 270
P.O. Box 2747
West Chester, Pa. 19380-0900
(610) 344-6285
Fax (610) 344-6515

RECEIVED
MAR 13 2001
EAST COVENTRY TOWNSHIP

Subject: East Coventry Township
Wastewater Collection and Treatment Special Study

Dear Mr. Fulton

This letter is in response to your letter dated February 28, 2001, to Mr. Glenn Stinson of the Pa DEP on the same subject. We acknowledge the position of the County Planning Commission in favor of working with our Neighbors (East Vincent and North Coventry Townships) for sewerage service. This is why our adopting Resolution No. 2001 - 02 that incorporates simultaneous negotiations with our neighbors during the Pa DEP approval phase of the "Special Study" as well as during the design phase of the Wastewater Treatment Plant (WWTP) to hopefully effect "Regional Sewerage Service". A copy of this resolution is attached to this correspondence. The resolution of adoption is in compliance with Landscapes and policy, #6.1.2. of the County Planning Commission. It is a shame that you could not have waited until you received a copy of the adopting resolution.

The letter goes on to indicate that if a regional solution cannot be reached that land disposal of treated and disinfected wastewater is the preferred option. I have no objection to land disposal of treated and disinfected wastewater provided it is the most cost effective, technically feasible and environmentally sound solution. The Pa DEP determines "Environmentally Sound" aspect by setting discharge standards for both stream discharge and land disposal of treated and disinfected

Chester County Planning Commission
East Coventry Township – Act 537 Plan
3/10/2001, Page 2 of 3

wastewater. The engineer determines technical feasibility and provides estimates to assist the Board of Supervisors in determining cost effectiveness. The engineer has determined by his study that land disposal of treated and disinfected wastewater is not cost effective when compared to stream discharge to the Schuylkill River (not an exceptional value stream). If the discharge were to an exceptional value stream the cost effectiveness may have been different and Land Disposal of treated and disinfected wastewater would be the preferred option.

I have attached to this letter a best possible estimate (least cost) for spray irrigation of 0.51 MGD of treated and disinfected wastewater. The estimate makes the following assumptions any one of which if not met would increase the cost of such a disposal field.

1. Land Costs at \$12,500 per acre based on the recent purchase of the 59-acre Maack Farm. Current developer offerings are in the range of \$18,000 to \$22,000 per acre for undeveloped farmland.
2. Wastewater Dosage rate at 2 inches per week and minimum storage of 60 days.
3. A 250-foot buffer zone around all spray facilities to intercept aerosols. This is per Pa DEP Sewerage Manual that suggests a 250-foot distance between a treatment unit and an adjacent property. This distance has been reduced to 50 feet on other spray facilities in some Chester County Townships. However, I have concern for my neighbors having aerosols effecting utilization of their back yards or coloring their homes with a brown color let alone bacterial infection potential if wastewater is not properly disinfected. Also, it is my understanding that New Hanover Township, Montgomery County Pennsylvania is deleting their spray irrigation system, which was one of the first systems in the area. This is the only area I may have not taken the least costly approach.
4. The spray field is no greater than 5000 feet from the treatment plant.
5. That sufficient land able to accept 2" of wastewater per week is available within 5000 feet from the treatment plant.

This results in an additional \$300 to \$400 per Equivalent Dwelling Unit in addition to the costs of the collection and treatment system indicated in the "Special Study." Therefore, if the Chester County Planning Commission is that desirous of having land disposal of treated and disinfected wastewater let them provide a grant of at least \$6,250,000 for capital costs and a grant for additional Operation and Maintenance costs of approximately \$1,000,000 or a total grant of at least \$7,250,000. These additional costs should not and must not be placed upon East Coventry Township residents without adequate justification.

The Board of Supervisors of East Coventry Township is allowing public water from Pennsylvania American (AKA Citizens Water) to provide water service to the Act 537 Planning area. Therefore, ground water replenishment is not an issue since their water will be from surface waters. Secondly, the board has adopted a Stormwater Ordinance similar to that being proposed by Cahill through Green Valleys Association and the Northern Federation of Chester County Communities. Therefore, ground water in the Act 537 area will not be an issue.

Additionally, I believe the Planning Commission could have seen the overflow development coming from Montgomery County, Pennsylvania and better positioned themselves and the Northern Chester County Townships by encouraging the purchase of development rights on farms

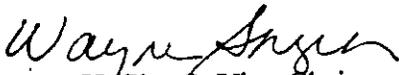
Chester County Planning Commission
East Coventry Township – Act 537 Plan
3/10/2001, Page 3 of 3

in this area much sooner. Southern Chester County has received the majority of if not all of agricultural preservation money spent by Chester County. It is now time for Southern Chester County to pay for agricultural preservation in Northern Chester County. It is not time for Northern Chester County to fund \$10,000,000 to pay for something that should have been equally or equitably shared all a long. If fair and equitable expenditures for agriculture preservation would have been taken place over time the majority of large farmland would not be available for development today.

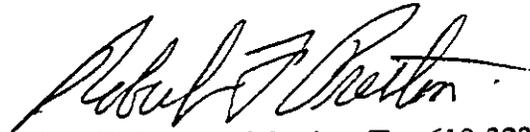
Very truly yours,



David K. Leinbach, Chairman (Fax 610-385-4938)
E-mail: dlienbach@fast.net



Wayne H. Shych, Vice-Chairman (Fax 610-718-4404)
E-mail: wayne.shych@exeloncorp.com



Robert F. Preston, Member (Fax 610-323-5128)
E-mail: ufnerd@aol.com or rffpreston@p3.net

East Coventry Township
Board of Supervisors
enclosures

Cc.

Mr. Robert Ihlein, Manager
East Coventry Township
Fax (610) 495-9925
E-mail rihleim@fast.net
With enclosures

Mr. Glenn K. Stinson
Pa DEP
Lee Park, Suite 6010
555 North Lane
Conshohocken, Pa 19428
With enclosures



October 1, 2002

Mr. William H. Fulton, AICP
 Executive Director
 Chester County Planning Commission
 Government Services Center
 601 Westtown Road, Suite 270
 P.O. Box 2747
 West Chester, PA 19380-0990

CERTIFIED MAIL
 RETURN RECEIPT REQUESTED

The ARRO Group, Inc.

ARRO Consulting, Inc.

ARRO Environmental
 Services, Inc.

RE: Revised Act 537 Plan/Special Study;
 Collection and Conveyance System
 East Coventry Township; Chester County
 ARRO # 5222.12

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610 495 0303

Fax: 610 495 5855

info@thearrogroup.com

www.thearrogroup.com

Dear Mr. Fulton:

On behalf of East Coventry Township (Township), we are submitting a revised copy of the Township's Act 537 Plan/Special Study for the Planning Commission's review. This Plan/Special Study has been revised to reflect modifications made to the November 2000 Plan that was originally submitted to PADEP in March 2001. A revision has been made to the selected technical alternative such that the Plan/Special Study recommends the North Coventry Municipal Authority's Wastewater Treatment Plant as the Township's primary option for sewage disposal.

Please review this Plan and provide us with your comments at your earliest convenience. Thank you for your attention concerning this important sewage facilities Plan. If you have any questions or concerns, please do not hesitate to call me at 610-495-2102 or Brady Flaharty at 610-495-2118.

Sincerely,

William L. Bohner, Jr., P.E.
 Project Engineer

WLB:car

Enclosure

c: Township Manager – East Coventry Township
 David K. Leinbach, Chairman – East Coventry Township Board of Supervisors
 John A. Koury, Jr., Esq., Township Solicitor – O'Donnell, Weiss & Mattei, P.C.
 Brady L. Flaharty, P.E., Township Engineer - ARRO

ENGINEERING

CONSULTING

OPERATIONS



THE COUNTY OF CHESTER Pa 75



COMMISSIONERS:
 Karen L. Martynick, Chairman
 Colin A. Hanna
 Andrew E. Dinniman

WILLIAM H. FULTON, AICP
 Executive Director

PLANNING COMMISSION
 Government Services Center, Suite 270
 601 Westtown Road
 P.O. Box 2747
 West Chester, PA 19380-0990
 610-344-6285
 FAX: 610-344-6515

November 26, 2002



David K. Leinbach, Chairman
 East Coventry Township
 Board of Supervisors
 855 Ellis Woods Road
 Pottstown, PA 19465

Re: Wastewater Collection and Treatment Special Study

Dear Mr. Leinbach:

The Chester County Planning Commission (CCPC) has reviewed the Draft 537 Plan/Special Study dated September 2002, as required by Section 71.31 (b) of the Pennsylvania Sewage Facilities Act (Act 537). The Plan/Special Study, was prepared by ARRO Consulting, Inc. The Plan/Special Study was received on October 3, 2002.

This Plan was prepared to identify and select an appropriate alternative to increase the wastewater disposal capabilities of East Coventry Township.

The following comments are offered based on review of the draft Plan:

A. Consistency with the County Plan – *Landscapes*:

Landscapes, through use of the *Livable Landscapes Map*, identifies four general land patterns, or Landscapes, of future development in the County – urban, suburban, rural and natural. The East Coventry Township Study Area is located predominately in the Suburban Landscape. The Suburban Landscape is to contain a mix of uses and higher densities of development than those found in the Rural Landscape. In order for this pattern to occur, *Landscapes* supports the provision of infrastructure and public services, such as public sewer systems. As with the 2001 review, we find the proposed public sewer service area to be consistent with *Landscapes*.

B. Selection of Alternative:

1. The Township officials and the North Coventry Municipal Authority are commended for pursuing an inter-municipal agreement for the treatment of East Coventry's wastewater at the existing North Coventry Municipal Authorities Waste Water Treatment Plant. In our 2001 review letter, CCPC indicated our support for pursuing this alternative over the previous decision to construct a new

Page: 2
November 26, 2002
Re: Act 537 Plan/Special Study
East Coventry Township

stream discharge facility. As was stated in our 2001 review, such an agreement between East Coventry Township and the North Coventry Municipal Authority is an acceptable alternative. The decision to provide public sewer service to the NORCO North and South Study Areas, and eventually to the Parkerford Study Area is consistent with *Landscapes* policies:

6.1.1 Encourage coordination between municipalities and authorities to ensure consistency with land use plans.

6.1.2 Maintain or expand existing sewer and water facilities to support development in Urban and Suburban Landscapes.

C. General Comments

1. Page 1. Previous Wastewater Planning – The text in this section discusses the study areas from the 1997 Act 537 Sewage Facilities Plan without making reference to Figure 1 “1997 Wastewater Facility Planning Areas.” For reference purposes, it may be helpful to include a reference to Figure 1 in this text section.
2. Page 1. Previous Wastewater Planning – In the fourth paragraph, the text refers to correspondence dated January 24, 1996 from North Coventry indicating the costs of the East Coventry Collection System. We suggest including a copy of this letter for reference in the Appendix.
3. Table 1. Estimated (in terms of EDU’s) Connections – For the 5-year planning estimates, we believe there may be a calculation error. Should the correct total EDU’s for the 5-year planning estimate be 902 instead of 911?
4. Table 1. Estimated (in terms of EDU’s) Connections – This is the first time we noticed the acronym NORCO being used. We suggest before the first use of this acronym, that it be defined as North Coventry to prevent any confusion.
5. Page 5. Wastewater Treatment and Year-Round Spray Irrigation – The text states that year-round spray irrigation of treated effluent will require approximately sixty- (60) days storage. While the PADEP Manual for Land Application of Treated Sewage and Industrial Wastewater states that the length of storage may be as low as 60 days in southeastern Pennsylvania, it is our understanding that the PADEP Southeastern Office may require a slightly longer period of storage. The required storage period for this area should be confirmed, and if different, the correct period included in the text.
6. Page 7. Alternate 1 – NORCO Service Area South – The last sentence of this section states that a detailed cost estimate for the alternate can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1 and the cost estimate was not found elsewhere in the document. We suggest that the cost estimate be added as an Appendix and that the appropriate Appendix be referenced in the text.

7. Page 7. Alternate 1 – NORCO Service Area South – The text indicates that the developer(s) of the “Gardens of East Coventry” project would be required to construct a portion of the infrastructure. Why are the developers of the projects noted on Page 1 – “Burkhart-Elliott Tract” and “Coventry Business Park”, not included in this requirement?
8. Page 8. Alternate 3 – Parkerford Area – The last sentence of this section states that a detailed cost estimate for the alternate can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1 and the cost estimate was not found elsewhere in the document. We suggest that the cost estimate be added as an Appendix and that the appropriate Appendix be referenced in the text.
9. Page 9. Biological Treatment Systems Alternatives – We believe the term biological oxygen demand (BOD) is being used erroneously in the first sentence of this section, “The most feasible method of removing organic matter (BOD) and converting ammonia nitrogen to nitrates for treatment plants of this size is to utilize aerobic biological treatment systems.” BOD is the amount of oxygen needed to breakdown organic matter. BOD can be used as an indicator of the concentration of organic matter, but is not organic matter itself.
10. Page 10. Suspended Growth Option 1 - The second sentence of this section states that a schematic diagram for the facility can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1, the 1997 Wastewater Facility Planning Areas, and the schematic drawing was not found elsewhere in the document. We suggest that the drawing be added as an Appendix and that the appropriate Appendix be referenced in the text.
11. Page 11. Treatment Option 2 - The second sentence of this section states that a schematic diagram for the facility can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1, the 1997 Wastewater Facility Planning Areas, and the schematic drawing was not found elsewhere in the document. We suggest that the drawing be added as an Appendix and that the appropriate Appendix be referenced in the text.
12. Page 11. Treatment Option 2 - For the construction cost estimates, we believe there may be a calculation error. Should the correct subtotal construction costs be \$2,271,725.00 instead of \$2,296,725.00? If so, we suggest that any calculations that are based on this figured be re-worked.
13. Page 12. Treatment Option 3 - The second sentence of this section states that a schematic diagram for the facility can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1, the 1997 Wastewater Facility Planning Areas, and the schematic drawing was not found elsewhere in the document. We suggest that the drawing be added as an Appendix and that the appropriate Appendix be referenced in the text.

Page: 4
November 26, 2002
Re: Act 537 Plan/Special Study
East Coventry Township

14. Page 13. Fixed Growth Reactor Systems – In the second sentence of this section, the text refers to the removal of BOD and ammonia. Based on comment #8 above, we question the use of BOD in this sentence, and whether organic matter should be used here instead.
15. Page 14. Sludge Treatment and Disposal Alternatives – In the third paragraph of this section, the text refers to the “fragmite family” of plants. We believe that you are referring to the common reed known as “phragmites” and suggest that the proper name to describe this reed be used.
16. Page 14. Disinfection Alternatives – We believe an extra line space is needed between paragraph one and two.
17. Page 15. Existing Treatment Facility Option - In the third paragraph, the text refers to correspondence dated May 27, 1999 and the response dated September 28, 1999 between East Coventry Township and the North Coventry Municipal Authority regarding additional capacity at the North Coventry Municipal Authorities Waste Water Treatment Plant. We suggest including a copy of this letter for reference in the Appendix.
18. Page 16. Existing Treatment Facility Option - In the last paragraph, the text refers to correspondence dated February 1999 between East Coventry Township and East Vincent Township regarding additional capacity at their facility. We suggest including a copy of this letter for reference in the Appendix.
19. Page 16. Costs – The treatment, collection, conveyance usage cost presented here as \$1,432,000.000 is inconsistent with the amount (\$1,365,000.00) used throughout the Draft Intermunicipal Agreement 2002 (between East Coventry Township and North Coventry Municipal Authority). Before submittal of the final document to PADEP, we recommended that care be taken to ensure that these numbers are consistent.
20. Page 16. Siting Options – The text refers to figures 7, 8, and 9 in Appendix A for the locations of sites A, B, and C. In the copy of the plan we received for review, figures 7, 8, and 9 were not included in Appendix A, and while there is a figure 7 included with the document, there were no figures 8 or 9. However, it appears that figures 5, 6, and 7 in Appendix C may be the documents to which the text refers. If this is correct, we recommended changing the text to reflect the proper number and location of these figures.
21. Page 17. Annual User Fees – It does not appear that the annual user fees presented in this section accurately represent the annual user fees for the selected alternative. We believe that the selected alternative was to provide service to the NORCO North and South Study Areas, and eventually to the Parkerford Study Area, through the construction of a collection and conveyance system by East Coventry to an existing wastewater treatment plant in North Coventry. This section however provides cost estimates for the construction of a treatment

Page: 5
November 26, 2002
Re: Act 537 Plan/Special Study
East Coventry Township

facility. Should the costs and total annual expenses provided on page 16 be used here instead?

22. Page 18. Recommendations – While the text in the third paragraph implies which alternative is selected, the summary contained in this section does not clearly define the selected alternative. We recommended that a sentence of text be added clearly stating what alternative has been selected.
23. Figures 3 through 7. The information on these figures is hard to identify since the photocopy is not clear. We recommend including easier to read copies when submitting this document to PADEP.
24. Throughout the text, both 0.510 MGD and 510,000 gpd are used. For consistency, we suggest that either 0.510 MGD or 510,000 gpd be used instead of interchanging between the two.
25. The Plan does not indicate whether all structures with on-lot systems will be required to connect to the public system. If so, this should be stated in the financial section of the Plan so the reader will understand that this is part of the annual unit cost for service.

We trust that these comments will be of assistance to you as you prepare the final document for submission to PADEP. Thank you for the opportunity to offer comments on this plan.

Sincerely,



William H. Fulton, AICP
Secretary

WHF/CD/kp

cc: Clint Cleaver, PADEP
Ralph DeFazio, CCHD
William L. Bohner, Jr., P.E., ARRO Consulting
Township Manager, East Coventry Township



January 7, 2003

Mr. William H. Fulton, AICP
 Executive Director
 Chester County Planning Commission
 Government Services Center
 601 Westtown Road
 Suite 270
 P.O. Box 2747
 West Chester, PA 19380-0990

The ARRO Group, Inc.

ARRO Consulting, Inc.

*ARRO Environmental
 Services, Inc.*

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

RE: East Coventry Township
 Act 537 Special Study
 Response to Comments Dated 11/26/02
 ARRO # 5222.12 ✓

Dear Mr. Fulton:

Thank you for your comments regarding the East Coventry Township Act 537 Plan/Special Study (Special Study). As you may be aware, the original Special Study was prepared by the Township's previous engineer, and we are only making modifications to the original document as necessary to address comments as opposed to completely redoing/reformatting the original document. As indicated in our October 1, 2002 transmittal letter, the primary change to the revised Special Study, since your last review, is the Township's selected option for sewage disposal. Although we were anticipating only limited comments in this regard, we appreciate your thorough review. On behalf of East Coventry Township, we would like to take this opportunity to respond to your comments that raise questions and concerns about various aspects of the Special Study. The following are responses to these questions and concerns. These responses will become a part of the Special Study that is submitted to PA DEP.

Comment A:

Consistency with the County Plan – Landscapes

Landscapes, through use of the Livable Landscapes Map, identifies four general land patterns, or Landscapes, of future development in the County – urban, suburban, rural and natural. The East Coventry Township Study Area is located predominantly in the Suburban Landscape. The Suburban Landscape is to contain a mix of uses and higher densities of development than those found in the Rural Landscape. In order for this pattern to occur, Landscapes supports the provision of infrastructure and public services, such as public sewer systems. As with the 2001 review, we find the proposed public sewer service area to be consistent with Landscapes.

Response:

Acknowledged.

ENGINEERING

CONSULTING

ENVIRONMENTAL

Comment B:

Selection of Alternative

1. The Township officials and the North Coventry Municipal Authority are commended for pursuing an Intermunicipal Agreement for the treatment of East Coventry's wastewater at the existing North Coventry Municipal Authority's Wastewater Treatment Plant. In our 2001 review letter, CCPC indicated our support for pursuing this alternative over the previous decision to construct a new stream discharge facility. As was stated in our 2001 review, such an agreement between East Coventry Township and the North Coventry Municipal Authority is an acceptable alternative. The decision to provide public sewer service to the NORCO North and South Study Areas, and eventually to the Parkerford Study Area is consistent with Landscapes policies:
 - 6.1.1 Encourage coordination between municipalities and authorities to ensure consistency with land use plans.
 - 6.1.2 Maintain or expand existing sewer and water facilities to support development in Urban and Suburban Landscapes

Response:

Acknowledged. The Township appreciates the support of the CCPC for the recommendations set forth in this Special Study.

Comment C:

General Comment #1:

Page 1. Previous Wastewater Planning – The text in this section discusses the study areas from the 1997 Act 537 Sewage Facilities Plan without making reference to Figure 1 “1997 Wastewater Facilities Planning Areas.” For reference purposes, it may be helpful to include a reference to Figure 1 in this text section.

Response:

Acknowledged. A reference will be added to the text.

General Comment #2:

Page 1. Previous Wastewater Planning – In the fourth paragraph, the text refers to correspondence dated January 24, 1996 from North Coventry indicating the costs of the East Coventry Collection System. We suggest including a copy of this letter for reference in the Appendix.

Response:

A copy of the 1997 Plan has been included for reference in Appendix N.

General Comment #3:

Table 1. Estimated (in terms of EDU's) Connections – For the 5-year planning estimates, we believe there may be a calculation error. Should the correct total EDU's for the 5-year planning estimate be 902 instead of 911?

Response:

Acknowledged. Corrections and adjustments have been made to Table 1.

General Comment #4:

Table 1. Estimate (in terms of EDU's) Connections – This is the first time we noticed the acronym NORCO being used. We suggest before the first use of this acronym, that it be defined as North Coventry to prevent any confusion.

Response:

Acknowledged. Revisions will be made to the text to reflect this.

General Comment #5:

Page 5. Wastewater Treatment and Year-Round Spray Irrigation – The text states that year-round spray irrigation of treated effluent will require approximately sixty – (60) days storage. While the PADEP Manual for Land Application of Treated Sewage and Industrial Wastewater states that the length of storage may be as low as 60 days in southeastern Pennsylvania, it is our understanding that the PADEP Southeastern Office may require a slightly longer period of storage. The required storage period for this area should be confirmed and if different, the correct period included in the text.

Response:

PA DEP suggests the use of EPA-3 to assist with determining the length of the wastewater storage period. EPA-3 is a computer program that helps to determine storage requirements using temperature, rainfall, and snowdepth as input criteria. According to EPA guidance documentation, EPA-3 predicts 66 storage days for a 10-year return interval in the Philadelphia area. It is assumed that default values for temperature, rainfall, and snowdepth were entered into this program such that this determination could be made. PA DEP indicates that it supports the default values used by the EPA-3 program in determining a site's storage requirements.

It should also be noted that EPA-3 predicts 80 storage days for a 20-year return interval in the Philadelphia area. To increase the design storage value in the Special Study to meet the more conservative EPA criteria, would increase the cost of the "Wastewater Treatment and Year-Round Spray Irrigation" alternative. This would further provide support for the selection of the current recommended technical alternative of a public wastewater collection/conveyance system with treatment at the North Coventry Municipal Authority's Wastewater Treatment Plant.

General Comment #6:

Page 7. Alternate 1 – NORCO Service Area South – The last sentence of this section states that a detailed cost estimate for the alternate can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1 and the cost estimate was not found elsewhere in the document. We suggest that the cost estimate be added as an Appendix and that the appropriate Appendix be referenced in the text.

Response:

Acknowledged. The cost opinion has been included in Appendix A for reference.

General Comment #7:

Page 7. Alternate 1 – NORCO Service Area South – The text indicates that the developer(s) of the “Gardens of East Coventry” project would be required to construct a portion of the infrastructure. Why are the developers of the projects noted on Page 1 – “Burkhart-Elliot Tract and “Coventry Business Park”, not included in this requirement?

Response:

The developers that are listed in this Special Study are members of a consortium. This consortium will indeed be responsible for construction of the collection and conveyance system network in the Township.

General Comment #8:

Page 8. Alternate 3 –Parkerford Area – The last sentence of this section states that a detailed cost estimate for the alternate can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1 and the cost estimate was not found elsewhere in the document. We suggest that the cost estimate be added as an Appendix and that the appropriate Appendix be referenced in the text.

Response:

Acknowledged. A copy of this cost opinion will be inserted into Appendix A.

General Comment #9:

Page 9. Biological Treatment Systems Alternatives – We believe the term biological oxygen demand (BOD) is being used erroneously in the first sentence of this section. “The most feasible method of removing organic matter (BOD) and converting ammonia nitrogen to nitrates for treatment plants of this size is to utilize aerobic biological treatment systems.”

BOD is the amount of oxygen needed to breakdown organic matter. BOD can be used as an indicator of the concentration of organic matter, but is not organic matter itself.

Response:

Acknowledged. Text adjustments have been made to this section to reflect a more accurate description.

General Comment #10:

Page 10. Suspended Growth Option 1 – The second sentence of this section states that a schematic diagram for the facility can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1, the 1997 Wastewater Facility Planning Areas, and the schematic drawing was not found elsewhere in the document. We suggest that the drawing be added as an Appendix and that the appropriate Appendix be referenced in the text.

Response:

Acknowledged. The schematic diagram for the suspended growth option shall be included in Appendix A as indicated.

General Comment #11:

Page 11. Treatment Option 2 – The second sentence of this section states that a schematic diagram for the facility can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1, the 1997 Wastewater Facility Planning Areas, and the schematic drawing was not found elsewhere in the document. We suggest that the drawing be added as an Appendix and that the appropriate Appendix be referenced in the text.

Response:

Acknowledged. The schematic diagram for Treatment Option 2 shall be included in Appendix A as indicated.

General Comment #12:

Page 11. Treatment Option 2 – For the construction cost estimates, we believe there may be a calculation error. Should the correct subtotal construction costs be \$2,271,725.00 instead of \$2,296,725.00? If so, we suggest that any calculations that are based on this figured be re-worked.

Response:

Acknowledged. Corrections have been made to this cost opinion.

General Comment #13:

Page 12. Treatment Option 3 – The second sentence of this section states that a schematic diagram for the facility can be found in Appendix A. In the copy we received for review, Appendix A contained Figure 1, the 1997 Wastewater Facility Planning Areas, and the schematic drawing was not found elsewhere in the document. We suggest that the drawing be added as an Appendix and that the appropriate Appendix be referenced in the text.

Response:

Acknowledged. The schematic diagram for Treatment Option 3 shall be included in Appendix A as indicated.

General Comment #14:

Page 13. Fixed Growth Reactor Systems – In the second sentence of this section, the text refers to the removal of BOD and ammonia. Based on comment #8 above, we question the use of BOD in this sentence, and whether organic matter should be used here instead.

Response:

Acknowledged. Text adjustments have been made to this section to reflect a more accurate description.

General Comment #15:

Page 14. Sludge Treatment and Disposal Alternatives – In the third paragraph of this section, the text refers to the “fragmite family” of plants. We believe that you are referring to the common reed known as “phragmites” and suggest that the proper name to describe this reed be used.

Response:

A correction and clarification has been made to the term “phragmite” accordingly.

General Comment #16:

Page 14. Disinfection Alternatives – We believe an extra line space is needed between paragraph one and two.

Response:

Acknowledged. An extra line space will be added.

General Comment #17:

Page 15. Existing Treatment Facility Option – In the third paragraph, the text refers to correspondence dated May 27, 1999 and the response dated September 28, 1999 between East Coventry Township and the North Coventry Municipal Authority regarding additional capacity at the North Coventry Municipal Authorities Waste Water Treatment Plant. We suggest including a copy of this letter for reference in the Appendix.

Response:

A copy of this correspondence is found in Appendix A.

General Comment #18:

Page 16. Existing Treatment Facility Option – In the last paragraph, the text refers to correspondence dated February 1999 between East Coventry Township and East Vincent Township regarding additional capacity at their facility. We suggest including a copy of this letter for reference in the Appendix.

Response:

The correspondence referenced on Page 16 and in the above comment was issued on March 18, 1999. The text has been corrected to reflect this and the correspondence has been inserted into Appendix A.

General Comment #19:

Page 16. Costs – The treatment, collection, conveyance usage cost presented here as \$1,432,000.00 is inconsistent with the amount (\$1,365,000.00) used throughout the Draft Intermunicipal Agreement 2002 (between East Coventry Township and North Coventry Municipal Authority). Before submittal of the final document to PADEP, we recommended that care be taken to ensure that these numbers are consistent.

Response:

The correct figure is \$1,432,000.00, which reflects the \$1,365,000 updated from the March 2001 to September 2002 costs based on the Engineering News-Record Construction Cost Index. This number may be adjusted in the Intermunicipal Agreement when it is finalized. It is anticipated that the Intermunicipal Agreement will be finished after approval of the Special Study.

General Comment #20:

Page 16. Siting Options – The text refers to figures 7, 8 and 9 in Appendix A for the locations of sites A, B, and C. In the copy of the plan we received for review, figures 7, 8,

and 9 were not included in Appendix A, and while there is a figure 7 included with the document, there were no figures 8 or 9. However, it appears that figures 5, 6, and 7 in Appendix C may be the documents to which the text refers. If this is correct, we recommended changing the text to reflect the proper number and location of these figures.

Response:

The text has been corrected to reflect that Figures sites A, B, and C are shown on Figures 5, 6, and 7 and are found in Appendix C.

General Comment #21:

Page 17. Annual User Fees – It does not appear that the annual user fees presented in this section accurately represent the annual user fees for the selected alternative. We believe that the selected alternative was to provide service to the NORCO North and South Study Areas, and eventually to the Parkerford Study Area, through the construction of a collection and conveyance system by East Coventry to an existing wastewater treatment plant in North Coventry. This section however provides cost estimates for the construction of a treatment facility. Should the costs and total annual expenses provided on page 16 be used here instead?

Response:

The annual user fees shown on page 17 represent those fees that pertain to the treatment alternatives that focus on the construction of new facilities in East Coventry Township. Adjustments have been made to the text which refer the reader to the annual user fees on page 16 which represent those fees associated with the option use the existing North Coventry wastewater treatment facility.

General Comment #22:

Page 18. Recommendations – While the text in the third paragraph implies which alternative is selected, the summary contained in this section does not clearly define the selected alternative. We recommended that a sentence of text be added clearly stating what alternative has been selected.

Response:

Acknowledged. The text in this section has been revised to more clearly define the selected alternative.

General Comment #23:

Figures 3 through 7. The information on these figures is hard to identify since the photocopy is not clear. We recommended including easier to read copies when submitting this document to PADEP.

Response:

These maps shall be re-plotted and inserted into the document that will be submitted to PA DEP.

General Comment #24:

Throughout the text, both 0.510 MGD and 510,000 gpd are used. For consistency, we suggest that either 0.510 MGD or 510,000 gpd be used instead of interchanging between the two.

Response:

Acknowledged. Corrections have been made such that the projected flow is consistently shown as 0.510 MGD.

General Comment #25:

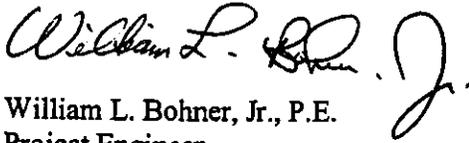
The Plan does not indicate whether all structures with on-lot systems will be required to connect to the public system. If so, this should be stated in the financial section of the Plan so the reader will understand that this is part of the annual unit cost for service.

Response:

Not all structures with on-lot systems will be required to connect to the public sewer system. Connection to the proposed system will be handled on a case-by-case basis. Currently, the Township is soliciting a list of residents who want to connect to the proposed public sewer system. This is being done so that the Township can determine, from a design standpoint, whether or not it is feasible to accommodate those residents. It should be noted that the Township is required to enact a Mandatory Connection Ordinance as prescribed by Pennsylvania Law in order to require anyone within 150 feet of a gravity sewer to make a connection. This Ordinance does not apply to connection to force mains. Secondly, any facility that has a permit for operation from the PA DEP, can only be required to connect to a public system by PA DEP either by directing the permittee to connect or the by PA DEP refusing to issue another NPDES permit.

On behalf of the Township, thank you again for your attention concerning this important regional sewage facilities plan. If you have any further questions or concerns, please call me at 610-495-2102.

Sincerely,



William L. Bohner, Jr., P.E.
Project Engineer

WLB:car

- c: Board of Supervisors – East Coventry Township
Township Manager – East Coventry Township
John A. Koury, Jr., Esq., Township Solicitor – O'Donnell, Weiss & Mattei, P.C.
Brady L. Flaharty, P.E., Township Engineer – ARRO Consulting, Inc.

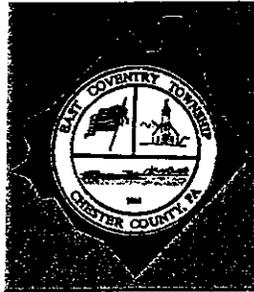
APPENDIX E

**Chester County Health Department Comments and
Responses 2001/2002**

EAST COVENTRY TOWNSHIP

855 Ellis Woods Road
Pottstown, PA 19465

Phone: (610) 495-5443
Fax: (610) 495-9925
E-Mail: eastcvntry@fast.net

**BOARD OF SUPERVISORS:**

David K. Leinbach, Chairman
Wayne H. Shych, Vice Chairman
Robert F. Preston, Member

Robert E. Ihlein, Township Manager

December 1, 2000

Mr. Ralph DeFazio
Chester County Health Department
PO Box 2747
West Chester, PA 19380-0990

Re: Wastewater Collection and Treatment Special Study

DeFazio
Dear Mr. ~~Fulton~~:

As required by PA Act 573, enclosed for your review and comment is a copy of the East Coventry Township Wastewater Collection and Treatment Special Study. This Study represents a revision to the Official Sewage Facilities Plan of the Township.

We understand that Act 537 allows 60 days for the County Health Department to comment, but if it is at all possible, the Township would like to have your comments by January 8, 2001. Please review this material and send your comments to the attention of the East Coventry Township Board of Supervisors. If any additional information is required, then please contact me.

Sincerely,
EAST COVENTRY TOWNSHIP

Robert E. Ihlein
Township Manager/Secretary

Enclosure



THE COUNTY OF CHESTER



COMMISSIONERS:
 Karen L. Martynick, Chairman
 Colin A. Hanna
 Andrew E. Dinniman

CHESTER COUNTY HEALTH DEPARTMENT
 601 Westtown Road, Suite 288
 P.O. Box 2747
 West Chester, PA 19380-0990
 FAX: 610-344-5934

Sewage/Wells 610-344-6526
 Food/Institution 610-344-6689
 Laboratory 610-344-6439

Certified Food Manager 610-344-5938
 Solid Waste Mgt./Recycling 610-344-5937
 Weights & Measures/Consumer Affairs 610-344-6150
 Engineering/Public Water 610-344-6237

February 1, 2001

David K. Leinbach, Chairman
 East Coventry Township, Board of Supervisors
 855 Ellis Woods Road
 Pottstown, PA 19465

RE: Wastewater Collection and Treatment Special Study

RECEIVED
 FEB 07 2001
 EAST COVENTRY TOWNSHIP

Dear Mr. Leinbach:

The Chester County Health Department has reviewed the above noted Draft Act 537 Plan entitled Wastewater Collection and Treatment Special Study dated November 2000. This draft document was prepared by Motley Engineering Company, Inc. and received by this Department on December 11, 2000. This draft has been reviewed in accordance with the requirement of Chapter 71.31 (b). We offer the following comments:

1. The diagrams originally submitted with this draft document were far too small to make adequate identification of many of the factors being illustrated clear. Larger sized drawings were requested and received from the East Coventry Township Manager, Robert Ehlein.
2. The content of the plan does not read coherently. Text describing the study areas was eventually clarified when the larger diagrams were received. Chester County's Landscapes Plan appears to have been misidentified.
3. Figures contained in the analysis of existing and proposed wastewater flows appear to contain miscalculations.
4. The summary contained on page 18 does not clearly describe what alternative solution is being proposed as the "Selected Alternative".

From my conversation with Mr. Ehlein I was able to determine that the object of this plan is to allow developers to provide the necessary infrastructure to provide improved sewage facilities for the areas in need. Though this may be the best financial alternative for the municipality, it will not resolve current problems.

Wastewater Treatment and Collection Study
February 1, 2001

It is the recommendation of this Department that East Coventry Township institute a comprehensive Septage Management Program to deal with present and future sewage disposal operational needs.

This draft document should be rewritten to clearly address the issues being considered. Please contact me with any questions or comments you may have concerning the above comments.

Sincerely,



Ralph E. DeFazio
Environmental Health Supervisor

CC: PA DEP
Motley Engineering Co., Inc., 1300 New Holland Rd. Kenhorst, PA 19607
CCPC
File



March 15, 2002

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The ARRO Group, Inc.

Mr. Ralph E. DeFazio
Environmental Health Supervisor
Chester County Health Department
601 Westtown Road
Suite 288
P.O. Box 2747
West Chester, PA 19380-0990

ARRO Consulting, Inc.

*ARRO Environmental
Services, Inc.*

649 North Lewis Road

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Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

RE: East Coventry Act 537 Plan/Special Study
Wastewater Collection and Treatment
ARRO P.N. 5222.12

Dear Mr. DeFazio:

On behalf of East Coventry Township (Township), we would like to take this opportunity to respond to your review comments concerning the Township's Act 537 Plan. This letter offers responses to your comments dated February 1, 2001.

Comment 1.: The diagrams originally submitted with this draft document were far too small to make adequate identification of many of the factors being illustrated clear. Larger size drawings were requested and received from the East Coventry Township Manager, Robert Ihlein.

Response: Acknowledged

Comment 2.: The content of the plan does not read coherently. Text describing the study areas was eventually clarified when the larger diagrams were received. Chester County's Landscapes Plan appears to have been misidentified.

Response: Acknowledged. The identification of the Chester County Comprehensive Plan, "Landscapes", will be identified correctly in the Plan text.

Comment 3.: Figures contained in the analysis of existing and proposed wastewater flows appear to contain miscalculations.

Response: Corrections have been made to the text that follows Table 1 in the Plan. Numbers of EDUs, used to formulate the basis for establishing projected treatment plant capacity, have been corrected such that they reflect the 20 year potential build-out shown in Table 1. Subsequently, the flow projections have been adjusted accordingly.

Comment 4.: The summary contained on page 18 does not clearly describe what alternative solution is being proposed as the selected alternative.

Response: This summary will be revised to more clearly describe the proposed alternative. The selected alternative for this Plan is to provide public sewer service to the NORCO Service Area North, NORCO Service Area South, and the Parker Ford Area and collect/convey the wastewater to the existing North Coventry Wastewater Treatment Plant.

General Comment: It is the recommendation of the Department that East Coventry institute a comprehensive Septage Management Program to deal with present and future sewage disposal operational needs.

Response: The Township amended and adopted Chapter 18, entitled "Sewers and Sewage Disposal", of the Township Code of Ordinances, in October 2000. This amendment added sections to the ordinance providing for the management of individual and community on-lot sewage systems. Mandatory pump-out requirements are a part of this amendment.

We trust that these responses answer your questions and address your concerns regarding this Act 537 Plan. If you have any further comments or concerns, please call me.

Sincerely,



William L. Bohner, Jr., P.E.
Project Engineer

WLB/jem

C: Robert E. Ihlein, Manager – East Coventry Township
Brady F. Flaharty, P.E., Township Engineer – ARRO



October 1, 2002

Mr. Ralph E. DeFazio
Environmental Health Supervisor
Chester County Health Department
601 Westtown Road
Suite 288
P.O. Box 2747
West Chester, PA 19380-0990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The ARRO Group, Inc.

ARRO Consulting, Inc.

*ARRO Environmental
Services, Inc.*

RE: Revised Act 537 Plan/Special Study;
Collection and Conveyance System
East Coventry Township; Chester County
ARRO # 5222.12

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

Dear Mr. DeFazio:

On behalf of East Coventry Township (Township), we are submitting a revised copy of the Township's Act 537 Plan/Special Study for the Health Department's review. This Plan/Special Study has been revised to reflect modifications made to the November 2000 Plan that was originally submitted to PADEP in March 2001. A revision has been made to the selected technical alternative such that the Plan/Special Study recommends the North Coventry Municipal Authority's Wastewater Treatment Plant as the Township's primary option for sewage disposal.

Please review this Plan and provide us with your comments at your earliest convenience. Thank you for your attention concerning this important sewage facilities Plan. If you have any questions or concerns, please do not hesitate to call me at 610-495-2102 or Brady Flaharty at 610-495-2118.

Sincerely,

William L. Bohner, Jr., P.E.
Project Engineer

WLB:car

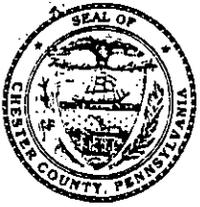
Enclosure

- c: Township Manager – East Coventry Township
- David K. Leinbach, Chairman – East Coventry Township Board of Supervisors
- John A. Koury, Jr., Esq., Township Solicitor – O'Donnell, Weiss & Mattei, P.C.
- Brady L. Flaharty, P.E., Township Engineer - ARRO

ENGINEERING

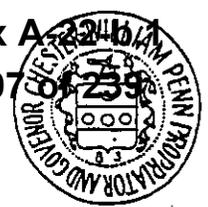
CONSULTING

OPERATIONS



THE COUNTY OF CHESTER

Appendix A
Page 97



COMMISSIONERS:
Karen L. Martynick, Chairman
Colin A. Hanna
Andrew E. Dinniman

CHESTER COUNTY HEALTH DEPARTMENT
Bureau of Environmental Health Protection
Government Services Center
601 Westtown Road, Suite 288
P.O. Box 2747
West Chester, PA 19380-0990
FAX: 610-344-5934
www.chesco.org/health

NOV 27 2002

ARRO

Sewage/Wells 610-344-6526
Food/Institution/Vector 610-344-6689
Certified Food Manager 610-344-5938
Engineering/Public Water 610-344-6237

Solid Waste Mgt./Recycling 610-344-5937
Weights & Measures/Consumer Affairs 610-344-6150
Laboratory 610-344-6249

David K. Leinbach, Chairman
East Coventry Township Board of Supervisors
855 Ellis Woods Road
Pottstown, PA 19465

25 November 2002

Dear Mr. Leinbach:

Chester County Health Department (CCHD) has reviewed the Draft of a revised Act 537 Special Study, dated September 2002, for East Coventry Township. ARRO Consulting, Inc. prepared and submitted the revised Study, on behalf of East Coventry Township. CCHD received the Draft on 3 October 2002. The revised Study reflects modifications made to the November 2000 Special Study that was originally submitted to the Pennsylvania Department of Environmental Protection (PA DEP) in March 2001. The November 2000 Study was prepared by Motley Engineering Company, Inc. for East Coventry Township.

Listed below are the suggestions made by CCHD:

1. **Page 1 – Previous Wastewater Planning** – The author refers to correspondence (dated 24 January 1996). A copy of the correspondence was not found in the Study. Please include a copy of the correspondence prior to submission to PA DEP.
2. **Page 1 – Previous Wastewater Planning** – The author directs the reader to reference background studies that were included in a 1997 Act 537 Sewage Facilities Plan. Referencing was not possible. Ideally, background studies and accompanying data should be included in this Study prior to submission to PA DEP. If inclusion is not feasible, then a copy of the 1997 Act 537 Sewage Facilities Plan should accompany the September 2002 Special Study.

3. Page 3 – **Existing and Projected Wastewater Flow** – In Table 1, *NORCO* is an acronym. The formal name for an acronym should be spelled out the first time it is used followed by the acronym in parentheses. Thereafter, the acronym can be used.
4. Page 3 – **Existing and Projected Wastewater Flow** – In the 5-year column of Table 1, the total number of connections is incorrect. Instead of 911 connections, the total should be 902 connections.
5. Page 5 – **Wastewater Treatment and Year-Round Spray Irrigation** – The text states that year-round spray irrigation of treated effluent will require approximately sixty- (60) days storage. According to the PA DEP, amounts of storage time are design-dependent. Consequently, please include documentation with the Study that details the calculations used to determine this figure.
6. Page 6 – **Wastewater Treatment and Seasonal or Partial Spray Irrigation** – In the first paragraph, the word *ranges* appears to be misspelled as *rages*.
7. Page 6 – **Wastewater Treatment and Subsurface Disposal** – The author uses a percolation rate of 22 minutes per inch as part of the calculation for the size of the disposal area. There is no explanation for how the author arrived at a percolation rate of 22 minutes per inch. If the number was determined from a prior study, the data should be included for review.
8. Page 7 – **Alternate 1 – NORCO Service Area – South** – The Cost column should be right justified.
9. Page 7 - **Alternate 1 – NORCO Service Area – South** – The last sentence on this page refers to a detailed cost estimate that is included in Appendix A. The cost estimate is not located in Appendix A.
10. Page 8 – **Alternate 3 – Parkerford Area** – The detailed cost estimate is not located in Appendix A.
11. Page 9 – **Biological Treatment System Alternatives** – The author uses the acronym BOD incorrectly. Biochemical oxygen demand (BOD) is a commonly used gross measurement of the concentration of biodegradable organic impurities in wastewater. BOD is the *amount* of oxygen, expressed in milligrams per liter (mg/L), required by bacteria while stabilizing, digesting, or treating organic matter under aerobic conditions. The amount is determined by the availability of material in the wastewater to be used as biological food and the amount of oxygen used by the microorganisms during oxidation.
(EPA/625/R-00/008, February 2002, Glossary-1)
12. Page 9 – **Suspended Growth Systems** – Again, the author uses the acronym BOD incorrectly. Please rewrite both sections prior to submission to the PA DEP.

13. Page 10 – **Suspended Growth Option 1** – The text refers to a schematic diagram of the facility contained in Appendix A. The schematic diagram is not located in Appendix A.
14. Page 11 – **Treatment Option 2** – The text refers to a schematic diagram of the facility contained in Appendix A. The schematic diagram is not located in Appendix A.
15. Page 11 – **Construction Costs** – The values for the following items appear to be incorrect: Subtotal Construction Costs (should be \$2,271,725.00), Subtotal (should be \$2,501,395.00), and Total Estimated Project Costs (should be \$3,118,395.00). Please double-check and correct these arithmetic inconsistencies.
16. Page 12 – **Treatment Option 2** – The text refers to a schematic diagram of the facility contained in Appendix A. The schematic diagram is not located in Appendix A.
17. Page 13 – **Fixed Growth Reactor Systems** – The author uses the acronym BOD incorrectly.
18. Page 14 – **Sludge Treatment and Disposal Alternatives** – The author mentions that special reeds are from the *fragmite family of plants*. The word *fragmite* is actually spelled *phragmite* and may be either a genus or a species, but it is not believed to be a family. Please investigate this concern and correct the text if necessary prior to submitting the Study to PA DEP.
19. Page 15 – **Existing Treatment Facility Option** – The author refers to correspondence dated 28 September 1999. Please include a copy of the correspondence with the Study.
20. Page 15 – **Existing Treatment Facility Option** – The author uses *510,000 gallons per day* on some pages (15, 16 and others) and *0.510 MGD* on others (page 11, 13 and others). Please be consistent throughout the document.
21. Page 16 – **Top of Page** – The response from East Vincent Township, received 12 March 2001, is not located in Appendix A. It should be included in the Study.
22. Page 16 – **Costs** – The treatment, collection, conveyance usage cost \$1,432,000.000 appears to be inconsistent with the amount \$1,365,000.00 used in the Draft Inter-Municipal Agreement located in Appendix H. Please re-calculate these figures to determine which is correct prior to submission to PA DEP.
23. Page 16 – **Siting Options** – Figures 7, 8, and 9 (showing Sites A, B, and C) are not located in Appendix A. It is believed that Sites A, B and C are indicated on Figures 5, 6, and 7, and are located in Appendix C. Please correct this error prior to submitting the Study to PA DEP.

24. Page 17 – **Annual User Fees** – The annual user fees in this section appear to stem from the cost estimates for the construction of a treatment facility. Please re-calculate these figures so that they represent the selected alternative.
25. Page 18 – **Recommendations** – The decision to provide public sewer service to the North Coventry North and South Study Areas and eventually to the Parkerford Study Area is consistent with policies put forth by Chester County Planning Commission (CCPC) and the Chester County Health Department. Therefore, CCHD supports the inter-municipal agreement between Township officials and the North Coventry Municipal Authority for the treatment of East Coventry's wastewater at the existing North Coventry Municipal Authorities Waste Water Treatment Plant.
26. **General Comment** – This Special Study was difficult to read. It is suggested that the author use more headings and subtitles along with introductory paragraphs and explicit text indicating what has been accomplished in the past, what is currently being studied, and what is being chosen. While all of these elements were present in this study, they were not clearly defined and the overall flow of the text was difficult to follow.
27. **General Comment** - The maps identified as Figures 3 through 7 should be re-plotted. They are not clear and impair the reader's ability to comprehend the document.

Chester County Health Department hopes that the comments presented herein are of help to you. If you have any questions regarding these comments, please contact me at 610.344.6457.

Sincerely,



Debra A. Town
Environmental Health Asst. Supervisor

cc: Clint Cleaver, PADEP
William Fulton, CCPC
William L. Bohner, Jr., P.E., ARRO Consulting
Township Manager, East Coventry Township



January 7, 2003

Ms. Debra A. Town
 Environmental Health Assistant Supervisor
 Chester County Health Department
 Bureau of Environmental Health Protection
 Government Services Center
 601 Westtown Road
 Suite 288
 P.O. Box 2747
 West Chester, PA 19380-0990

The ARRO Group, Inc.

ARRO Consulting, Inc.

*ARRO Environmental
 Services, Inc.*

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

RE: East Coventry Township
 Act 537 Special Study
 Response to Comments Dated 11/25/02
 ARRO # 5222.12 ✓

Dear Ms. Town:

Thank you for your comments regarding the East Coventry Township Act 537 Plan/Special Study (Special Study). For your edification, the original Special Study was prepared by the Township's previous engineer, and we are only making modifications to the original document as necessary to address comments as opposed to completely redoing/reformatting the original document. As indicated in our October 1, 2002 transmittal letter, the primary change to the revised Special Study, since your last review, is the Township's selected option for sewage disposal. Although we were anticipating only limited comments in this regard, we appreciate your thorough review. On behalf of East Coventry Township, we would like to take this opportunity to respond to your comments that raise questions and concerns about various aspects of the Special Study. The following are responses to these questions and concerns. These responses will become a part of the Special Study that is submitted to PA DEP.

Comment #1:

Page 1 – Previous Wastewater Planning – The author refers to correspondence (dated 24 January 1996). A copy of the correspondence was not found in the Study. Please include a copy of the correspondence prior to submission to PA DEP.

Response:

This correspondence is included with the 1997 Act 537 Plan found in Appendix N.

ENGINEERING

CONSULTING

OPERATIONS

Comment #2:

Page 1 – Previous Wastewater Planning – The author directs the reader to reference background studies that were included in a 1997 Act 537 Sewage Facilities Plan. Referencing was not possible. Ideally, background studies and accompanying data should be included in this Study prior to submission to PA DEP. If inclusion is not feasible, then a copy of the 1997 Act 537 Sewage Facilities Plan should accompany the September 2002 Special Study.

Response:

A copy of the 1997 Plan has been included for reference in Appendix N.

Comment #3:

Page 3 – Existing and Proposed Wastewater Flows – In Table 1, NORCO is an acronym. The formal name for an acronym should be spelled out for the first time it is used followed by the acronym in parentheses. Thereafter, the acronym can be used.

Response:

Acknowledged. NORCO is an acronym for North Coventry Township. Revisions will be made to the text to reflect this.

Comment #4:

Page 3 – Existing and Projected Wastewater Flow – In the 5-year column of Table 1, the total number of connections is incorrect. Instead of 911 connections, the total should be 902 connections.

Response:

Acknowledged. Corrections and adjustments have been made to Table 1.

Comment #5:

Page 5 – Wastewater Treatment and Year-Round Spray Irrigation – The text states that year round spray irrigation of treated effluent will require approximately sixty (60) days storage. According to the PA DEP, amounts of storage time are design dependent. Consequently, please include documentation with the Study that details the calculations used to determine this figure.

Response:

Year round wastewater treatment and spray irrigation operations will require a wastewater storage system based on low temperatures, precipitation, and wind. PA DEP indicates that the length of this storage period may vary widely across the state from a low of 60 days in the southeast to a high of 120 days in the northwest. PA DEP suggests the use of EPA-3 to assist with determining the length of the wastewater storage period. EPA-3 is a computer program

that helps to determine storage requirements using temperature, rainfall, and snowdepth as input criteria. According to EPA guidance documentation, EPA-3 predicts 66 storage days for a 10-year return interval in the Philadelphia area. It is assumed that default values for temperature, rainfall, and snowdepth were entered into this program such that this determination could be made. PA DEP indicates that it supports the default values used by the EPA-3 program in determining a site's storage requirements.

It should also be noted that EPA-3 predicts 80 storage days for a 20-year return interval in the Philadelphia area. To increase the design storage value in the Special Study to meet the more conservative EPA criteria, would increase the cost of the "Wastewater Treatment and Year-Round Spray Irrigation" alternative. This would further provide support for the selection of the current recommended technical alternative of a public wastewater collection/conveyance system with treatment at the North Coventry Municipal Authority's Wastewater Treatment Plant.

Comment #6:

Page 6 – Wastewater Treatment and Seasonal or Partial Spray Irrigation – In the first paragraph, the word "ranges" appears to be misspelled as "rages".

Response:

Acknowledged. This has been corrected in the text.

Comment #7:

Page 6 – Wastewater Treatment and Subsurface Disposal – The author uses a percolation rate of 22 minutes per inch as part of the calculation for the size of the disposal area. There is no explanation for how the author arrived at a percolation rate of 22 minutes per inch. If the number was determined from a prior study, the data should be included for review.

Response:

Information substantiating a percolation rate of 22 minutes per inch is not available.

Comment #8:

Page 7 – Alternate 1 – NORCO Service Area – South – The Cost column should be right justified.

Response:

Acknowledged. Correction made.

Comment #9:

Page 7 – Alternate 1 – NORCO Service Area – South – The last sentence on this page refers to a detailed cost estimate that is included in Appendix A. The cost estimate is not located in Appendix A.

Response:

Acknowledged. The cost estimate has been included in Appendix A for submission to PA DEP.

Comment #10:

Page 8 – Alternate 3 – Parkerford Area – The detailed cost estimate is not located in Appendix A.

Response:

Acknowledged. The cost estimate has been included in Appendix A for submission to PA DEP.

Comment #11:

Page 9 – Biological Treatment System Alternatives – The author uses the acronym BOD incorrectly. Biochemical oxygen demand (BOD) is a commonly used gross measurement of the concentration of biodegradable organic impurities in wastewater. BOD is the amount of oxygen, expressed in milligrams per liter (mg/L), required by bacteria while stabilizing, digesting, or treating organic matter under aerobic conditions. The amount is determined by the availability of material in the wastewater to be used as biological food and the amount of oxygen used by the microorganisms during oxidation. (EPA/625/R-00/008, February 2002, Glossary-1)

Response:

Acknowledged. Text adjustments have been made to this section to reflect a more accurate description.

Comment #12:

Page 9 – Suspended Growth Systems – Again, the author uses the acronym BOD incorrectly. Please rewrite both sections prior to submission to the PA DEP.

Response:

Acknowledged. Text adjustments have been made to this section to reflect a more accurate description.

Comment #13:

Page 10 – Suspended Growth Option 1 – The text refers to a schematic diagram of the facility contained in Appendix A. The schematic diagram is not located in Appendix A.

Response:

Acknowledged. The appropriate schematic diagram has been included in Appendix A.

Comment #14:

Page 11- Treatment Option 2 – The text refers to a schematic diagram of the facility contained in Appendix A. The schematic diagram is not located in Appendix A.

Response:

Acknowledged. The appropriate schematic diagram has been included in Appendix A.

Comment #15:

Page 11 – Construction Costs – The values for the following items appear to be incorrect: Subtotal Construction Costs (should be \$2,271,725.00), Subtotal (should be \$2,501,395.00), and Total Estimated Project Costs (should be \$3,118,395.00). Please double-check and correct these arithmetic inconsistencies.

Response:

Acknowledged. Corrections have been made to this cost opinion.

Comment #16:

Page 12 – Treatment Option 2 – The text refers to a schematic diagram of the facility contained in Appendix A. The schematic diagram is not located in Appendix A.

Response:

Acknowledged. The appropriate schematic diagram has been included in Appendix A.

Comment #17:

Page 13 – Fixed Growth Reactor Systems – The author uses the acronym BOD incorrectly.

Response:

Acknowledged. Text adjustments have been made to correct this.

Comment #18:

Page 14 – Sludge Treatment and Disposal Alternatives – The author mentions that special reeds are from the fragmite family of plants. The word fragmite is actually spelled phragmite and may be either a genus or a species, but it is not believed to be a family. Please investigate this concern and correct the text if necessary prior to submitting the Study to PA DEP.

Response:

A correction and clarification has been made to this paragraph accordingly.

Comment #19:

Page 15 – Existing Treatment Facility Option – The author refers to correspondence dated 28 September 1999. Please include a copy of the correspondence with the Study.

Response:

A copy of this correspondence is found in Appendix A.

Comment #20:

Page 15 – Existing Treatment Facility Option – the author uses 510,000 gallons per day on some pages (15, 16 and others) and 0.510 MGD on others (page 11, 13 and others). Please be consistent throughout the document.

Response:

Acknowledged. Corrections have been made such that the projected flow is consistently shown as 0.510 MGD.

Comment #21:

Page 16- Top of Page – The response from East Vincent Township, received 12 March 2001, is not located in Appendix A. It should be included in the Study.

Response:

The response from East Vincent Township dated 12 March 2001 has been included in Appendix A.

Comment #22:

Page 16 – Costs – The treatment, collection, conveyance usage cost \$1,432,000.00 appears to be inconsistent with the amount \$1,365,000.00 used in the Draft Intermunicipal Agreement located in Appendix H. Please re-calculate these figures to determine which is correct prior to submission to PA DEP.

Response:

The correct figure is \$1,432,000.00, which reflects the \$1,365,000 updated from the March 2001 to September 2002 costs based on the Engineering News-Record Construction Cost Index. This number may be adjusted in the Intermunicipal Agreement when it is finalized. It is anticipated that the Intermunicipal Agreement will be finished after approval of the Special Study.

Comment #23:

Page 16 – Siting Options – Figures 7, 8, and 9 (showing Sites A, B, and C) are not located in Appendix A. It is believed that Sites A, B, and C are indicated on Figures 5, 6, and 7, and are located in Appendix C. Please correct this error prior to submitting the Study to PA DEP.

Response:

The text has been corrected to reflect that Figures 7, 8, and 9 are found in Appendix C.

Comment #24:

Page 17 – Annual User Fees – The annual user fees in this section appear to stem from the cost estimates for the construction of a treatment facility. Please recalculate these figures so that they represent the selected alternative.

Response:

The text of the Special Study has been revised. The reader is referred to the previous section for the corresponding cost information.

Comment #25:

Page 18 – Recommendations – The decision to provide public sewer service to the North Coventry North and South Study Areas and eventually to the Parkerford Study Area is consistent with the policies put forth by Chester County Planning Commission (CCPC) and the Chester County Health Department. Therefore, CCHD supports the inter-municipal agreement between Township officials and the North Coventry Municipal Authority for the treatment of East Coventry's wastewater at the existing North Coventry Municipal Authority's Wastewater Treatment Plant.

Response:

Acknowledged. The Township appreciates the support of the CCHD for the recommendations set forth in this Special Study.

Comment #26:

General Comment – This Special Study was difficult to read. It is suggested that the author use more headings and subtitles along with introductory paragraphs and explicit text indicating what has been chosen. While all of these elements were present in this study, they were not clearly defined and the overall flow of the text was difficult to read.

Response:

As mentioned in the introductory paragraph of this letter, the structure of the Special Study was developed by the Township's previous engineer and submitted to PA DEP in 2001 for review. Due to changes in recommended alternative presented in the Study, PA DEP requested that the Study be reissued for County, municipal, and public comment. In an effort to remain consistent with the document that was originally submitted in 2001, the structure of the Study was maintained.

Comment #27:

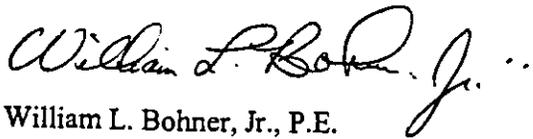
General Comment – The maps identified as Figures 3 through 7 should be re-plotted. They are not clear and impair the reader's ability to comprehend the document.

Response:

These maps shall be re-plotted and inserted into the document that will be submitted to PA DEP.

On behalf of the Township, thank you again for your attention concerning this important regional sewage facilities plan. If you have any further questions or concerns, please call me at 610-495-2102.

Sincerely,



William L. Bohner, Jr., P.E.
Project Engineer

WLB:car

- c: Board of Supervisors – East Coventry Township
- Township Manager – East Coventry Township
- John A. Koury, Jr., Esq., Township Solicitor – O'Donnell, Weiss & Mattei, P.C.
- Brady L. Flaharty, P.E., Township Engineer – ARRO Consulting, Inc.

APPENDIX F

**East Coventry Township Planning Commission
Comments and Responses 2001/2002**

EAST COVENTRY TOWNSHIP PLANNING COMMISSION

MINUTES OF THE WORKSHOP MEETING HELD ON JULY 20, 2000

The Township Planning Commission held a Workshop Meeting at the Township Building on Thursday, June 22nd. The purpose of the meeting was to continue the discussion on several draft ordinances. Present for the meeting were Raymond Nester (Chairman), Walter Woessner and Constance Megay. Also in attendance was Jamie Motley (Township Engineer), and the Township Manager, Robert Ihlein. Supervisor Bob Preston was present in the audience.

1. Call to Order

Chairman Nester called the meeting to order at 7:05 PM.

2. Township Manager's Report

Mr. Ihlein reminded the Commission about the special workshop on the new land use legislation that was recently signed into law. The workshop will be held on Wednesday, July 26th, 6:30 PM at the Lionville Best Western. The Chester County Association of Township Officials is sponsoring the event. Mr. Nester, Mr. Woessner, Mrs. Megay, Mr. Ihlein and Mr. Motley plan to attend.

3. General Business

There was no general business to attend to.

4. Municipal Plans and OrdinancesComprehensive Storm Water Management Ordinance (Project Number 99-2002)

The latest draft of the proposed ordinance has been prepared by Mr. Motley. Mr. Ihlein informed the Commission that the Board of Supervisors would like a recommendation as to whether the proposed ordinance should be included in the existing Subdivision and Land Development Ordinance (SLDO) or be adopted as a stand-alone ordinance. Mr. Motley pointed out that purpose of the ordinance was to control storm water runoff from activities that would not fall under the jurisdiction of the SLDO as well as new land developments. *After a brief discussion Mr. Woessner made a motion to recommend that the proposed ordinance be adopted as a separate stand-alone ordinance. This motion was seconded by Mr. Nester, and was approved by those in attendance.*

Roy Kolb arrived at 7:20 PM.

The Commission continued their discussion about some of the definitions in the proposed ordinance. The definition of Detention Basins needs modification. Moving on to the text, it was noted that a previous recommendation regarding placing detention basins on a single lot had not been included. The draft still needs a number of grammar and punctuation edits. The section regarding municipal ownership of storm water facilities should be removed and

replaced with "maintenance of storm water facilities shall be the responsibility of the owner of the lot where the facilities are located".

There was a discussion about the section on page nine dealing with flow and flow rate, which now reads there should be no increase in either. Mr. Motley pointed out that it would not be possible to meet the requirement of no increase in flow. Flow is equivalent to volume. Developments and new impervious surfaces will always produce an increase in the flow or volume of storm water runoff. The Commission thought that the purpose of an ordinance such as this was to control flow. Mr. Motley explained that the actual purpose of the ordinance was to control the flow rate, not the flow. Therefore, in most new land developments, the rate of storm water flow in a stream channel should be the same as it was before the development. However, there will be an increase in flow, meaning the water will flow over a longer period of time. Mr. Motley recommended removing most of the wording in that section of the ordinance but leave in "concentration of storm water onto adjacent properties shall be prohibited.

Mr. Woessner pointed out that there is something wrong with the formatting of Table 1. The sections after this table need to be re-numbered.

Mr. Ihlein noted that the Supervisors had authorized the Township Solicitor to begin the legal review of the proposed ordinance. Mr. Ihlein will forward the changes identified tonight to Mr. Koury. Mr. Motley also needs to provide additional information to him.

Act 537 Special Study

Mr. Motley has been working on this project for some time now. The Board of Supervisors is looking to the Commission for recommendations. To help facilitate discussion Mr. Ihlein handed out a list of policy decisions that he identified. The list of questions is attached to these Minutes for reference. Mr. Motley also distributed copies of the Study.

A lively discussion ensued about the selection of a policy for wastewater collection, treatment and disposal. Four possible options were identified, and pros and cons of each option were discussed. The first option would be to collect wastewater in the conventional manners, send it to a centralized plant for treatment, and discharge effluent into surface waters. Mrs. Megay felt that this is the option chosen by many municipalities and leads to more growth and development. Mr. Motley responded that it's the zoning ordinance that allows for the growth. Many developers will move forward even if there is no existing sewage system. They will build it themselves for their own developments and would not have to connect existing residents that may be in need.

Option two involves collecting wastewater in the conventional manners, sending it to a centralized treatment plant, and returning the effluent to various areas for land application. This is a strategy being used by some municipalities in the region to help preserve open space. The land application areas can be included as part of a new subdivision or land can be purchased for that purpose. This concept is included as one of the alternatives in the Special Study. Mr. Motley calculated that approximately 50 acres of land would be needed to hold treatment and storage lagoons for a system that would serve the estimated needs within the study area. Additional land would be required for land application sites. Some of the drawbacks of this strategy include higher land and equipment costs, the need for large areas of deep, well-drained soils, and possible pollutants from industrial users. There is also the

question of what to do if one of the disposal areas fails. Mr. Ihlein noted that Chester County does have grants available for the purchase of lands used for treatment lagoons and land application sites. Seasonal spray/ stream discharge systems would have a lower cost than a year-round system.

The third option includes a number of community systems dispersed around the township utilizing land application and/or stream discharge. This is essentially a no public sewer option. This is another strategy used by some municipalities to preserve open space and have the developers pay for the necessary infrastructure. Mr. Motley felt that the danger with this approach is that the township could end up owning and/or running these systems if there are problems the homeowner associates don't want to handle. The overall concept appealed to the Commission. They also realized that the current zoning ordinance would have to be substantially modified in order to allow for this type of subdivision design.

Mr. Charlie Knapp of CKIII entered into the discussion. His firm would like to develop the property on Spiece Road for an age restricted community, and has been weighing the options for sewage treatment and disposal. It appears that North Coventry Township may not have enough capacity at their plant to handle the projected needs of the township. Even if they had enough capacity, Mr. Motley feels that the cost associated with that option would be too high for many existing residents. Mr. Grant is considering installing a package plant on his property to serve his needs, and offered the possibility of sizing it so that the East Cedarville Road area could be connected.

Mr. Ihlein said that the fourth option could be called the radical environmental approach. There are various techniques available that could treat wastewater at a site and not have a discharge. These methods include composting and incineration toilets, greenhouses, living filters and other biotechnologies.

Mr. Motley noted that the Special Study is not quite complete. The Township is waiting for written communications from North Coventry and East Vincent Townships about available capacities and costs. At this point in time it appears that the construction of a new centralized wastewater treatment plant in the township would solve the existing problems at the lowest possible cost.

The Commission felt that this is an important policy decision and that there was a lot of information to consider. They decided to continue discussions on this subject at their next meeting since it will fall before the Supervisors meeting on August 7th.

Mrs. Megay left at 9:00 PM.

Communications Tower Ordinance (Project Number 99-2003)

The Commission turned their attention to the list of policy questions that Mr. Ihlein had prepared. The list of questions is attached to these Minutes for reference. There was a consensus as to the following answers:

#1 No. Federal regulations state that new towers and antennas cannot be prohibited if the service provider demonstrates that the site in question is the only site that can provide service coverage.

#2 New towers should be permitted as a conditional use if located next to an existing Public Utilities Transmission Tower and on municipal and essential service provider properties.

- #3 They should be permitted as a conditional use as stated in #2 in all zoning districts.
- #4 Co-location of the first set of Antennas on an existing building or structure should be permitted as a conditional use. Co-location of additional sets of Antennas should be a use by right.
- #5 As stated in #4 in all zoning districts.
- #6 No. However, the current regulations in the C-1 district does allow for multiple principle uses.
- #7 No.

Mr. Woessner noted that the words "systems and" should be inserted between the words "communications antennas" on page 10.

Mr. Kolb made a motion to forward these responses to the Board of Supervisors as their recommendations on the policies that should be implemented through the proposed ordinance. The motion was seconded by Mr. Woessner, and passed by those in attendance.

Sewage System Maintenance Ordinance

Mr. Ihlein asked the Commission for a recommendation for the Supervisors to consider. There was a brief discussion. Mr. Preston pointed out that the Township has little choice in the matter because Title 25, Chapter 71 of the PA Code requires municipalities to develop sewage system maintenance programs. The Commission supported mild penalties for property owners that do not comply.

5. Additional Items Brought Before the Commission

There were no additional items brought before the Commission.

6. Citizens Comments

There were no citizen comments.

7. Adjournment

The Chairman adjourned the meeting at 10:05 PM.

Raymond F. Nester
Chairman

Robert E. Ihlein for Susan Reed
Secretary

PLANNING COMMISSION

8/3/00

MINUTES

Township Building

7:00 PM

Present: Mr. Woessner, Mr. Kulp, Mr. Kolb, Mrs. Megay, Mr. Ihlein and Mr. Motley.

Mr. Kulp called the meeting to order at 7:05

Mr. Kulp led the Pledge of Allegiance

Mr. Woessner moved that the minutes of July 6 and July 20, 2000 be accepted. Mrs. Megay seconded and all agreed.

Twp. Manager's Report.

Mr. Ihlein announced that a workshop is coming up by the PA Association of Boroughs, titled Establishing a Green Communities Program. Anyone interested should see Mr. Ihlein.

Project: Carrier Property----- Project No. 00-1011
Mr. Ihlein stated that the Township recieved the application for review of a Preliminary Plan on July 22, 2000 and he believes that the application is complete. Mr. Woessner said that he also feels that the application is complete except for line item 17 which should read 1200'. This was so corrected.

Present were Mr. Ed Clark and Mr. Clay Chandler of the Heritage Building Group and Mr. Chris Burkett of Gilmore Associates.

The PC expressed concern about the placement of the emergency access required in our ordinance.

Mr. Woessner moved that the PC accept the plan for review.

Mrs. Megay seconded and all agreed.

Mr. Motley suggested that the emergency access could be closer to the bulb of the cul-de-sac and possibly the road be wider from that point to the bulb.

Mr. Clark stated that to go thru the adjacent horse farm was not viable at this time. The owners of this property, Mr. and Mrs. Warsheski were present. Mr. Preston suggested that the Heritage Group and Mr. and Mrs. Warsheskj get together for a discussion.

MINUTES 8/3/00 cont.

Mr. Nester asked through Mrs. Megay if the Heritage Group would consider dedicating some of the area as a walking trail for the Township.

Mr. Woessner expressed concerns about sewage system and well distances meeting the Ordinance.

Mr. Preston asked if the Heritage Group had been advised on Act 209. Mr. Ihlein said yes they have that information.

Mr. Jim Zettlemoyer asked Mr. Clark the estimated cost of the homes would be. Mr. Clark said he would estimate around 300,000 and up, but this was just an estimate. Mr. Zettlemoyer also asked if the road was considered in the lot size. The road is not calculated in the lot size.

General Buisness

Mr. Ihlein presented an informal sketch plan for Snowden Village 4, a plan for cluster housing, for discussion purposes only. Mr. Ihlein stated that we may need to talk about such developments in the future. Mr. Woessner stated that we would need to know the zoning of East Vincent Twp to make sure we would be compatible. Mr. Ihlein stated that this plan would not be permitted at this time, that the alternative is to have 14 separate lots with no common ground. He also stated that this plan calls for drip irrigation.

Mr. Motley stated that what the Snowden Village 4 plan is proposing is perfect timing for the Supervisors and the PC to consider cluster housing, Community systems, central systems or a combination of both.

Mr. Ihlein stated he presented this plan to stimulate discussions because there are many benefits to the Twp. with this type of plan.

Mr. Woessner stated that we need to complete the Comprehensive Plan before we can go ahead with the Zoning Ordinance.

Sewer Alternatives Special Study Project Project #99-2002 /

Mr. Ihlein gave the PC a map of the drainage basins from the Comprehensive Plan and East Coventry Township Act 537 Special Study policy considerations.

Mr. Motley asked what area of the Township would the PC like to see have a central public sewer system. Mr. Kolb stated he sees the need to plan the whole area north of Pidgeon Creek to the river to be a priority. Mrs. Megay agrees.

Mr. Motley stated that the PC needs to give a recommendation to the Supervisors as to what areas need to be considered and the time frames. The PC discussed this and recommended changes. Mr. Ihlein will revise Sewer Service figure 9 to reflect these changes.

Mrs. Megay moved that the Planning Commission recommend that Sewer Service figure #9 as thus revised be approved for the stated 5 yr., 10 yr. and 20 yr horizons. Mr. Kolb seconded and all agreed.

MINUTES 8/3/00 cont.

Mrs. Megay left the meeting at this time.

Communications Tower Ordinance #99-2003

The PC discussed various changes in wording. Mr. Ihlein made notes and he will correct the draft.

Mr. Woessner gave the PC a five page report titled SLDO, changes to support New Stormwater Ordinance for our use for future discussions.

Mr. Ihlein stated that we need to set up another workshop for the PC. He will check with Mr. Grafton if he is available for the 24th of this month and he will call the PC.

Citizens Comments.

Mr. Jim Zettlemoyer asked if the Township maintains the new roads as developed in the Twp. Mr. Woessner said yes the township is required to maintain the roads. Mr. Zettlemoyer also asked if the Township Ordinances are available. Mr. Ihlein said they may be purchased from the township or that copies are available in the Township building for review.

Mr. Woessner moved that the meeting be adjourned. Mr. Kulp seconded and all agreed.
Meeting adjourned 10:15 PM

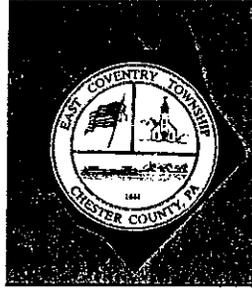


S.A. Reed Sec.

EAST COVENTRY TOWNSHIP Page 117 of 239

855 Ellis Woods Road
Pottstown, PA 19465

Phone: (610) 495-5443
Fax: (610) 495-9925
E-Mail: eastcvntry@fast.net

**BOARD OF SUPERVISORS:**

David K. Leinbach, Chairman
Robert F. Preston, Vice Chairman
W. Atlee Rinehart, Member

John T. Theobald, Chief of Police

December 4, 2002

ARRO Consulting, Inc.
Attn: Brady L. Flaharty, P.E.
649 North Lewis Road
Suite 100
Limerick, PA 19468-1234

Dear Brady:

Please find below recommendations to the Act 537 Plan submitted by Walter Woessner.

Page 1

Second paragraph:

"Gardens at East Coventry" should be "Orchard Ridge"

"Burkhardt-Elliot [sic] Tract" should be "Coventry Meadows"
proposing 393 units should be 379 T.H. plus one SFD.

"Coventry Business Park" proposing 48 units should be 22 lots.
The same holds throughout the report.

Page 2

Fourth paragraph last sentence:

"The remainder of the Township, south of the Pigeon Creek and west of Mitchell Drive, will not be evaluated for public sewer and the preferred wastewater disposal method will remain individual on-lot systems."

This statement is contrary to the maps generated prior to this report. The map that was used at the June 17, 2002 BOS meeting dated 8 May 2002 shows the boundary as Pigeon Creek and Bickels Run.

The map in the report, with the same 8 May 2002 date and no recorded alterations show the Mitchell Drive boundary.

The efforts in the Comprehensive Plan update have been following the original map generated by Motley and the original issue of the 8 May 2002 ARRO map utilizing Bickels Run as the boundary.

Last paragraph:

Providing sewer service to this area would support growth in the areas currently zoned for it and support the direction given in the Township's Comprehensive Plan and Chester County's Landscape Plan"

ARRO Consulting, Inc.

December 4, 2002

Page 2

There is a conflict between the Comp Plan and the 537.

Page 3

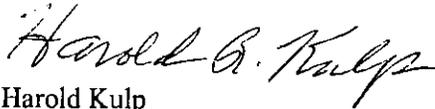
Table 1 jumps into "NORCO South" and "NORCO North" without defining their nature"

It's not clear how there can be 0.0 existing at 5 years, 185 at 10 years and 251 at 20 years.

Page 5

NO³ should be NO₃, same for NO₂

Respectfully submitted,



Harold Kulp

Chairman, East Coventry Township Planning Commission



December 10, 2002

Mr. Harold Kulp, Chairman
 East Coventry Township Planning Commission
 855 Ellis Woods Road
 Pottstown, PA 19465

RE: East Coventry Township Act 537 Plan/
 Special Study; Response to Township
 Planning Commission Comments
 ARRO # 5222.12 ✓

The ARRO Group, Inc.

ARRO Consulting, Inc.

*ARRO Environmental
 Services, Inc.*

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

Dear Mr. Kulp:

We would like to thank the East Coventry Township Planning Commission (Commission) for the comments and recommendations provided by the Commission and Mr. Walter Woessner, Vice-Chairman, regarding the Township's Wastewater Collection and Treatment Act 537 Plan/Special Study. We would like to take this opportunity to respond to the comments provided in your December 4, 2002 letter sent to Brady Flaharty of our office.

Comment 1:

Page 1

Second Paragraph:

"Gardens at East Coventry" should be "Orchard Ridge"

"Burkhart-Elliot [sic] Tract" should be "Coventry Meadows"

proposing 393 units should be 389 T.H. plus one SFD.

"Coventry Business Park" proposing 48 units should be 22 lots.

The same holds throughout the report

Response:

These revisions have been made to Page 1 and throughout the report.

Comment 2:

Page 2

Fourth paragraph last sentence:

"The remainder of the Township, south of the Pigeon Creek and west of Mitchell Drive, will not be evaluated for public sewer and the preferred wastewater disposal method will remain individual on-lot systems"

E N G I N E E R I N G

C O N S U L T I N G

O P E R A T I O N S

Mr. Harold Kulp, Chairman
Page 2
December 10, 2002

This statement is contrary to the maps generated prior to this report. The map that was used at the June 17, 2002 BOS meeting dated 9 May 2002 shows the boundary as Pigeon Creek and Bickels Run.

The map in the report, with the same 8 May 2002 date and no recorded alterations shows the Mitchell Drive boundary.

The efforts in the Comprehensive Plan update have been following the original map generated by Motley and the original issue of the 8 May 2002 ARRO map utilizing Bickels Run as the boundary.

Response:

The map as presented in the September 2002 Special Study, issued for municipal and public comment, has been revised to reflect Bickels Run as the western study area boundary and Pigeon Creek as the southern study area boundary.

Comment 3:

Last Paragraph:

Providing sewer service to this area would support growth in the areas currently zoned for it and support the direction given in the Township's Comprehensive Plan and Chester County's Landscape Plan"

There is a conflict between the Comp. Plan and the 537.

If there was a decision to change the map at the 17 June 2002 BOS meeting, the PC and Planner should have been advised. Supplying BOS minutes might help.

Which 8 May 2002 map is the correct map?

Response:

With the revisions to the above-mentioned map in response to Comment 2, we trust that there is no further conflict between the Comprehensive Plan and the Act 537 Plan/Special Study.

Comment 4:

Table 1 jumps into "NORCO South" and "NORCO North" without defining their nature.

Response:

The "NORCO South" and "NORCO North" designations have been clarified by adding a sentence to the text prior to Table 1 which refers the reader to Figures 3, 4, 5, 6, and 7 found in the Appendix. These figures delineate the NORCO North, NORCO South, and Parkerford service areas.

Mr. Harold Kulp, Chairman
Page 3
December 10, 2002

Comment 5:

It's not clear how there can be 0.0 existing at 5 years, 185 at 10 years, and 251 at 20 years.

Response:

A note was added to Table 1 stating the following: "Currently all 'Existing' EDUs utilize on-lot disposal systems for wastewater treatment and disposal. It is anticipated that none of the 'Existing' EDUs will be connected to the proposed public sewer system for the NORCO North and NORCO South service areas within the next 5 years. However, it is anticipated that a portion of these same 'Existing' EDUs will be connected to the public sewer system by the 10-year planning horizon. And, the remainder of the 'Existing' EDUs not connected by the 10-year planning horizon will be connected by the 20-year planning horizon."

Comment:

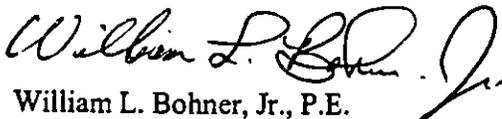
NO³ should be NO₃ same for NO₂

Response:

This correction was made.

Thank you again for providing us with your comments and suggestions. If you need any further information please call me at 610-495-2102 or Brady Flaharty at 610-495-2118.

Sincerely,



William L. Bohner, Jr., P.E.
Project Engineer

WLB:car

- c: Board of Supervisors – East Coventry Township
- Township Manager – East Coventry Township
- John A. Koury, Jr., Esq., Township Solicitor – O'Donnell, Weiss & Mattei, P.C.
- Brady L. Flaharty, P.E., Township Engineer – ARRO Consulting, Inc.

APPENDIX G

PNDI and PHMC Reviews and Responses 2002



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERSHED MANAGEMENT
BUREAU OF WATERWAYS ENGINEERING

1580520

SUPPLEMENT NO. 1

FOR OFFICIAL USE ONLY

Appendix A-22-b.1

PNDI Screening
Reviewer Page 123 of 2302
Date 03-5-02
Phone No. 610 832-6127

PENNSYLVANIA NATURAL DIVERSITY INVENTORY SEARCH FORM

This form provides site information necessary to perform a computer screening for species of special concern listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat Code or the PA Game and Wildlife Code. Records regarding species of special concern are maintained by PA DCNR in a computer data base called the "Pennsylvania Natural Diversity Inventory" (PNDI). Results from this search are not intended to be a conclusive compilation of all potential special concern resources located within a proposed project site. On-site biological surveys may be recommended to provide a definitive statement on the presence or absence, or degree of natural integrity of any project site. Results of this PNDI search are valid for one year.

Please complete the information below, attach an 8 1/2" x 11" photocopy (DO NOT REDUCE) of the portion of the U.S.G.S. Quadrangle Map that identifies the project location and outlines the approximate boundaries of the project and mail to the appropriate DEP regional office or delegated County Conservation District prior to completing a Chapter 105 environmental assessment or any other DEP permit application. (SEE REVERSE SIDE FOR LIST OF OFFICES AND ADDRESSES).

NAME: East Coventry Township c/o Robert Ihlein; Twp. Mgr.

ADDRESS: 855 Ellis Woods Road

Pottstown, PA 19465

PHONE: (610) 495-5443

COUNTY: Chester

TWP./MUNICIPALITY: East Coventry Township

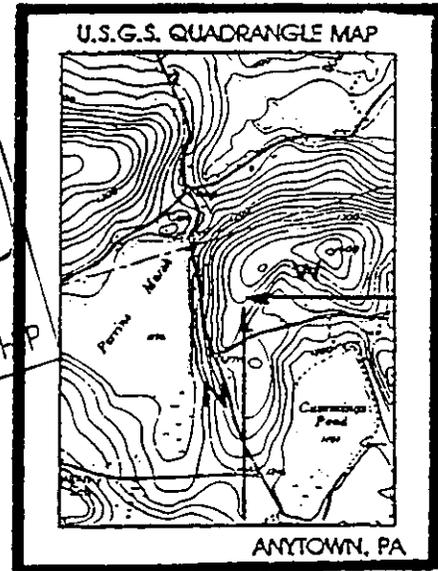
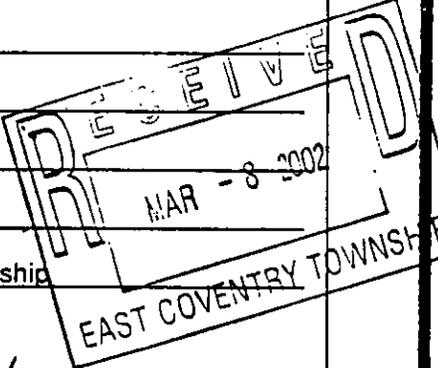
U.S.G.S. 7 1/2 Minute Quadrangle

Phoenixville and Pottstown 1741

PROJECT DESCRIPTION AND SIZE (Briefly describe entire area relevant to your project, including acreage.)

Install a sanitary sewer collection system (as proposed in the draft Act 537 Plan) at locations throughout the Township as depicted on Figure 5 attached. This would provide public sewer service. Disturbed

Acreage = approximately 31 acres.



North (Up) 13 inches

West (to the left) 16 inches

INDICATE PROJECT LOCATION TO THE NEAREST ONE TENTH INCH MEASURING FROM THE EDGE OF THE MAP IMAGE FROM THE LOWER RIGHT CORNER.
To center of Twp. using Phoenixville Quad.

FOR OFFICIAL USE ONLY

SCREENING RESULTS - Follow the directions of the checked block.

- No potential conflicts were encountered during the PNDI inquiry. Include this form and the PNDI receipt with your Chapter 105 environmental assessment or other DEP permit application submissions.
- Potential conflicts must be resolved by contacting the natural resource agencies listed on the PNDI receipt. Please provide a copy of this form and the PNDI receipt along with a brief description of your project to the listed agency for consultation and recommendations. Include this form, the printed PNDI search results and the natural resource agency's written recommendation with your Chapter 105 environmental assessment or other DEP permit application submissions.

PNDI Internet Database Search Results

PNDI Search Number: N94718

Search Results For Rivers.Kimberleigh@dep.state.pa.us

Search Performed By: Kimberleigh Rivers On 3/5/02 3:10:50 PM

Agency/Organization: Department of Environmental Protection

Phone Number: (610) 832-6127

Search Parameters: Quad - 407525; North Offset - 13.0; West Offset - 16.0; Acres - 50

Project location center (Latitude): 40.19637

Project location center (Longitude): 75.61456

Project Type: Other\Install a sanitary sewer

Print this page using your Internet browser's print function and keep it as a record of your search.

No conflicts with ecological resources of special concern are known to exist within the specified search area.

PNDI is a site specific information system, which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is valid for 1 year. An absence of recorded information does not necessarily imply actual conditions on-site. A field site survey may reveal previously unreported populations.

Legal authority for Pennsylvania's biological resources resides with three administrative agencies. The handout entitled Pennsylvania Biological Resource Management Agencies, outlines which species groups are managed by these agencies. Feel free to contact our office if you have concerning this response or the PNDI system, and please refer to the PNDI Search Number at the top of this page in future correspondence concerning this project.

[New Search using inches on a Quad](#)

[New Search using Latitude and Longitude](#)

[PNDI Search Home](#)

[PNDI Search Welcome](#)



ARRO

March 26, 2002

William L. Bohner, Jr., PE
ARRO Consulting, Inc.
649 North Lewis Road Suite 100
Limerick, PA 19468

TO EXPEDITE REVIEW USE
BHP REFERENCE NUMBER

Re: File No. ER 2002-1231-029-A
DEP ACT 537 Program: ACT 537
Planning Approval, East Coventry
Township Act 537 Plan, East
Coventry Twp., Chester Co.

Dear Mr. Bohner:

The Bureau for Historic Preservation has reviewed the above named project under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988). This review includes comments on the project's potential effect on both historic and archaeological resources.

**SIGNIFICANT KNOWN ARCHAEOLOGICAL RESOURCES ARE LOCATED
WITHIN THE PROJECT AREA**

Significant archaeological sites are located in your project area and others are likely to exist. These resources could be adversely affected by project activities. An archaeological survey is required to verify the extent of known sites and to locate other sites. Please arrange a meeting with us and the appropriate DEP Regional Office Planning Section to discuss the scope and options for this survey. The recorded sites in the area are listed below.

P.A.S.S. # 36 CH 39

There may be historic structures eligible for the National Register of Historic Places located in the project area. However, due to the nature of the activity, it is our opinion that there will be no effect on these properties. Should the applicant become aware, from any source, that unidentified historic resources are located at the project site, or that the project activities will have an effect on these properties, the Bureau for Historic Preservation should be contacted immediately.

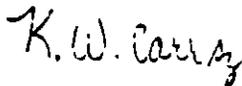
PLEASE NOTE:

If this project will receive federal or state funding, the funding agency is responsible for determining the area of potential effect (APE), conducting or causing to be conducted all appropriate surveys, and consulting with the State Historic Preservation Office (the BHP) under the National Historic Preservation Act of 1966 or the Pennsylvania History Code. We suggest that you consider conducting the survey early in the development or planning process to avoid delays in the future. Guidelines and instructions for conducting Phase I surveys are available from our office upon request.

Thank you for notifying us of your proposed activity.

If you need further information regarding archaeological survey please contact Mark Shaffer at (717) 783-9900. If you need further information concerning historic structures please consult Ann Safley at (717) 787-9121. If you need a **status only** of the reviewed project please call Tina Webber at (717) 705-4036.

Sincerely,



Kurt W. Carr, Chief
Division of Archaeology &
Protection

CC: DEP, Southeast Region
KWC/lmm

April 4, 2002

Mr. Kurt W. Carr, Chief
Division of Archaeology & Protection
PA Historic and Museum and Commission
Bureau of Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093

The ARRO Group, Inc.

ARRO Consulting, Inc.

*ARRO Environmental
Services, Inc.*

RE: East Coventry Act 537 Plan/Special Study
Significant Archaeological Sites;
PHMC File No. ER2002-1231-029-A
ARRO Project No. 5222.12

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

Dear Mr. Carr:

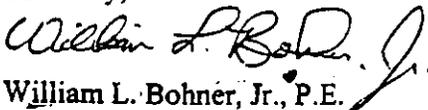
Thank you for your response (a copy of which is attached) to our request for review of the East Coventry Act 537 Plan/Special Study. We requested this review as part of the Act 537 Planning process such that a determination could be made concerning potential effects that a planned public sewer collection and conveyance system may have on historic and archaeological resources.

Per your review, you determined that significant archaeological sites are located in the planned project area and others are likely to exist. You indicated that an archaeological survey is required to verify the extent of known sites and to locate other sites.

As part of the design phase for the sewer collection and conveyance system, a Water Quality Management Part II Permit (Part II Permit) will need to be obtained from PA DEP. The application for the Part II Permit requires that PHMC be contacted and a PHMC review letter be submitted. Therefore, we would like to request that the meeting to discuss an archaeological survey and the actual survey, itself, be scheduled during the preliminary design phase of the collection and conveyance system. We feel that a meeting at that time would be most productive since the layout of the system will be more definitive.

Please let us know if this is satisfactory for you or if you have further questions or concerns. If you need more information, call me at 610-495-2102 or Brady Flaharty at 610-495-2118.

Sincerely,



William L. Bohner, Jr., P.E.
Project Engineer

WLB:car

Enclosure

c: Robert E. Ihlein, Manager – East Coventry Township
Brady L. Flaharty, P.E., Township Engineer – ARRO
Elizabeth Mahoney, PA DEP



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

Appendix A-22-b.1

Page 128 of 239

RECEIVED
MAY 2 - 2002
ABRO

April 25, 2002

The ARRO Group, Inc.
Attn: William L. Bohner, Jr.
649 North Lewis Road
Suite 100
Limerick, PA 19468-1234

TO EXPEDITE REVIEW USE
BHP REFERENCE NUMBER

Re: ER# 02-1231-029-B
DEP Act 537 Program: East Coventry Township,
Chester County

Dear Mr. Bohner:

The Bureau for Historic Preservation has reviewed the above named project under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988). This review includes comments on the project's potential effect on both historic and archaeological resources.

Thank you for your letter of April 4, 2002. We agree that a meeting should be arranged to discuss the potential effects of this project on site 36 Ch 39 and other resources that may be affected by project activities. We also agree that this meeting should be convened during the preliminary design phase of the collection and conveyance system.

Please contact Mark Shaffer at (717) 783-9900 to schedule this meeting. We appreciate your cooperation in taking into account the potential effects of this project on significant cultural resources.

Sincerely,

Kurt W. Carr, Chief
Division of Archaeology & Protection

cc: DEP, Southeast Region

**Draft Intermunicipal Agreement 2002 (Between East
Coventry Township and North Coventry Municipal
Authority)**

APPENDIX H

WHEREAS, East Coventry has agreed to provide all construction and non-construction costs, as well as all other related expenses, for the Authority's expansion of the Authority's

WHEREAS, Authority and North Coventry have determined that the currently remaining treatment capacity of the Authority's wastewater treatment plant must be retained for property owners within North Coventry Township; and

WHEREAS, East Coventry has adopted an Act 537 Sewage Facilities Plan, identifying a need for wastewater treatment plant capacity for 510,000 gallons of wastewater per day from portions of East Coventry Township which are experiencing malfunctioning on-site sewer systems and demands for new development; and the Pennsylvania Department of Environmental Protection has approved East Coventry Township's Act 537 Plan Special Study; (Comment: A copy is to be provided to Authority); and

WHEREAS, East Coventry and North Coventry are located in the northern portion of Chester County; both having a northern border along the Schuylkill River, and both sharing a common municipal boundary line; and

WHEREAS, the Authority's wastewater treatment plant has received a Permit from the Pennsylvania Department of Environmental Protection (hereinafter referred to as "DEP") to treat up to 1,500,000 gallons of wastewater per day; and

WHEREAS, Authority has constructed, owns, and is operating a municipal wastewater collection system, a wastewater treatment plant, and related facilities in North Coventry Township, Chester County, Pennsylvania; and

WITNESSETH:

EAST COVENTRY TOWNSHIP, a Pennsylvania Township of the Second Class, whose office is located at 855 Ellis Woods Road, Portstown, East Coventry Township, Chester County, Pennsylvania, (hereinafter referred to as "East Coventry");

NORTH COVENTRY TOWNSHIP, a Pennsylvania Township of the Second Class, whose office is located at 845 South Hanover Street, Portstown, North Coventry Township, Chester County, Pennsylvania, (hereinafter referred to as "North Coventry"); and

NORTH COVENTRY MUNICIPAL AUTHORITY, a Pennsylvania Municipality Authority, whose office is located at 1485 East Schuylkill Road, Portstown, North Coventry Township, Chester County, Pennsylvania, (hereinafter referred to as "Authority"); and

THIS AGREEMENT, made this _____ day of _____, A.D. 2002, by and among:

AGREEMENT

ODONWELL WESS & MATTEI, P.C.

SEP - 5 2002

RECORDED

NEED DEFINITIONS FOR THIS AGREEMENT AND EXHIBITS

1.1. The following terms and phrases shall have the following meanings for the purpose of this Agreement, unless the context clearly otherwise requires.

Definitions

ARTICLE I

NOW, THEREFORE, the parties hereto, intending to be legally bound, agree as follows:

WHEREAS, the parties wish to establish the sharing of the costs of future repairs, replacements, and upgrades to the Authority's wastewater treatment plant after completion of the Project.

WHEREAS, the parties further wish to establish the sharing of the operation and maintenance costs of the Authority's expanded wastewater treatment plant after the completion of the Project; and

WHEREAS, East Coventry will be constructing its own wastewater collection system within East Coventry Township for the conveyance of wastewater to the Authority's wastewater treatment plant; and

WHEREAS, in addition to paying all of the costs for the Treatment Plant Expansion Project, (estimated at \$2,353,000.00) which represents only a minor expansion of the Authority's facilities because existing treatment units and infrastructure can be utilized for the additional capacity, East Coventry has agreed to pay its proportionate share of the net costs for the use of the Authority's existing treatment facilities and infrastructure, with East Coventry's proportionate share being One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00); and

WHEREAS, Authority and North Coventry have agreed that Authority should construct the required additional facilities for the Treatment Plant Expansion Project to increase the Authority's Permit by 510,000 gallons per day and to provide for treatment of up to 510,000 gallons of wastewater per day from East Coventry; and

existing wastewater treatment plant to provide for 510,000 gallons per day of additional wastewater treatment capacity (hereinafter referred to as "Treatment Plant Expansion Project" or "Project"); and

~~2.3. Each party agrees to further amend its Act 537 Plans to be consistent with any approvals required by the Pennsylvania Department of Environmental Protection. Each party shall endeavor to achieve approval by the Pennsylvania Department of Environmental Protection of the capacities stated above.~~

~~2.3. East Coventry agrees to pay all costs incurred by North Coventry and Authority in planning and revising North Coventry's Act 537 Sewage Facilities Plan, and these costs shall be a part of the non-consideration costs hereinafter required to be paid by East Coventry to Authority.~~

2.2. East Coventry agrees to revise its Act 537 Sewage Facilities Plan to provide for up to 510,000 gallons per day of wastewater from East Coventry to be treated at the Authority's wastewater treatment plant, upon the capacity of the Authority's wastewater treatment plant being increased to 2,010,000 gallons per day, and upon the completion of the Treatment Plant Expansion Project.

2.1. North Coventry agrees that the Authority should prepare and present to North Coventry a revision to North Coventry's Act 537 Sewage Facilities Plan for adoption, providing for Authority's wastewater treatment plant capacity to be increased to 2,010,000 gallons per day and to provide for the Authority's wastewater treatment plant to treat up to 510,000 gallons per day of wastewater from East Coventry.

Act 537 Plan Revisions

ARTICLE II

4.1. The Authority's Engineer, Sports, Stevens and McCoy, Inc., has prepared an opinion of estimated expansion project costs to increase the plant capacity for the Authority's wastewater treatment plant to 2,010,000 gallons per day. This opinion was last revised on December 3, 2001, to increase the total estimated Treatment Plant Expansion Project costs to \$2,353,000.00. A copy of the December 3, 2001, cost opinion is attached hereto as Exhibit "A" and made a part hereof. The estimated Project costs listed below shall be revised in accordance with the Act 537 Plans of North Coventry and East Coventry Townships as approved by the Pennsylvania Department of Environmental Protection. The components of the cost opinion are as follows:

Procedures to Implement Treatment Plant Expansion

ARTICLE IV

3.1. Authority agrees that, provided East Coventry performs all of its obligations under this Agreement and pays to the Authority all amounts required under this Agreement, and upon obtaining the required approvals of DEP, the Authority will construct an expansion of the Authority's wastewater treatment plant, as described in this Agreement, and Authority will, upon completion of the Treatment Plant Expansion Project, accept and treat, in accordance with applicable regulations and permits, an amount of wastewater from East Coventry not to exceed an Annual Average Daily Flow, "AADF", of 510,000 gallons of wastewater per day, subject to the terms of this Agreement.

Treatment Plant Expansion

ARTICLE III

2.4 Each party shall attempt to implement its Act 537 Selected Plan Alternative in accordance with the proposed schedule found in Section 4.12 of this Agreement.

2.5 Each party to this Agreement agrees to prepare and submit an application for a Fifty Per Cent (50%) reimbursement provided by the Pennsylvania Department of Environmental Protection for preparation of Act 537 Plans and Special Studies.

2.6 East Coventry agrees to pay all costs incurred by North Coventry and Authority in planning and revising North Coventry's Act 537 Sewage Facilities Plan as the Plan relates to East Coventry Township. East Coventry shall have the opportunity to review and comment on the North Coventry/Authority Engineer's estimated cost to prepare an Act 537 Plan for North Coventry. These costs shall be a part of the non-construction costs hereinafter required to be paid by East Coventry.

4.5. After the execution of this Agreement and the Authority's receipt of the Three Hundred Thousand Dollars (\$300,000.00) required in Item Section 4.4 above, the Authority's Engineer will begin the preparation of the requirements for DEP approval, design for bidding, and the bidding and contract drawings, specifications, and documents for the Treatment Plant Expansion Project, in accordance with the preliminary Anticipated Implementation Schedule in Section 4.12 hereafter. Expedited cost opinions shall be provided by Authority to East Coventry at

4.4. East Coventry will pay Authority Three Hundred Thousand Dollars (\$300,000.00) at the time of the signing of this Agreement, which amount is meant to be used for the payment of the engineering and other non-construction costs of the Treatment Plant Expansion Project anticipated through the time of the receipt of construction bids. This amount is to be placed in a separate construction fund by Authority and is to be used by Authority for the payment of actual invoices and costs incurred in proceeding with the engineering fees, legal fees, permits, and administration costs of the Treatment Plant Expansion Project. Payments will be made upon approval by Authority of Requisitions submitted. Copies of approved Requisitions with supporting documentation will be provided to East Coventry.

4.3. East Coventry is to be solely responsible for the payment of all actual construction and non-construction costs of the Treatment Plant Expansion Project, which may be greater than or less than the estimated Project costs stated above in Section 4.1. The estimated expansion project costs identified above are cost opinions currently based on limited detail. East Coventry will be responsible for the payments due for all change orders and all other costs and expenses that arise during the course of the expansion Project. Neither North Coventry nor the Authority will be responsible for the payment of any of the Treatment Plant Expansion Project costs.

4.2. The costs associated with increasing the capacity of the Authority's treatment plant consist of both construction and non-construction costs. Non-construction costs include, but are not limited to, planning, legal, design, preparation of this Agreement, permitting, bidding, redesign and rebidding (if necessary), construction observation, contract administration, testing, start-up, auditor's fees, permit fees, and all other similar Project expenses.

Opinion of probable construction costs	\$1,475,200.00	
Major process units	29,504.00	
Bonds and insurance (2%)	22,128.00	
Mobilization, demobilization (1.5%)	59,008.00	
General conditions (4%)		
Total Opinion of probable construction costs	\$1,585,840.00	
20% construction contingency	317,160.00	
Non-construction (budget value only)	450,000.00	
Total estimated expansion project costs	\$2,353,000.00	

~~the following stages of the expansion project. Updated estimates of project costs (i.e. updated construction cost options, plus updated estimates of non-construction costs) shall be provided by Authority to East Coventry at the following stages of the Expansion Project:~~

~~A. 30 days after completion of Preliminary Design Report. The Report will be based upon the Part 1 NPDES discharge permit issued by the Pennsylvania Department of Environmental Protection.~~

~~B. 30 days after submittal of the Water Quality Management Receipt of Part 2 Permit application to the Pennsylvania Department of Environmental Protection, and completion of plans and specifications.~~

~~C. 30 days prior to advertising for Receipt of bids;~~

~~D. 30 days after receipt of bids.~~

~~East Coventry will be given the opportunity to review the design and bidding documents. East Coventry may make suggestions concerning these documents, but the decision concerning the final design, specifications, and bidding documents shall be made solely by Authority.~~

~~4.6. After receipt of bids, and provided that the total of the construction contract bids received from the apparent lowest responsible bidders does not exceed One Hundred Twenty Ten Per Cent (1210%) of the last updated opinion of probable construction costs issued by the Authority's Engineer prior to bidding, East Coventry will deliver to the Authority cash in the amount of One Hundred Ten Per Cent (110%) of the total of the construction contract bid amounts for all of the required construction contracts. This payment is to be made by East Coventry to the Authority no later than forty (40) days after the receipt of the bids.~~

~~4.7. If, after receipt of bids, the total of the construction contract bids received from the apparent lowest responsible bidders does exceed One Hundred Twenty Ten Per Cent (1210%) of the last updated opinion of probable construction costs issued by the Authority's Engineer prior to bidding, Authority and East Coventry shall review the bids received and collectively evaluate what revisions may be possible to reduce the cost of the construction contracts. If the reduction in the costs of the construction contracts can be accomplished without rebidding the construction contracts, East Coventry will deliver to the Authority cash in the amount of One Hundred Ten Per Cent (110%) of the total of the construction contract bid amounts for all of the construction contracts no later than forty (40) days after the receipt of bids.~~

~~If it is necessary to redesign and rebid the construction contracts, a revised opinion of probable construction costs shall be issued by the Authority's Engineer. After receipt of the "rebid", and provided that the total of the construction contract bids received from the apparent lowest responsible bidders does not exceed on rebidding, East Coventry agrees that it will proceed with the expansion project by payment of cash in the amount of One Hundred Ten Per Cent~~

4.7. The amounts paid by East Coventry to the Authority under Sections 1.6, 1.7, and 1.8 will be placed in the construction fund account by the Authority, and will be used by the Authority for the payment of construction costs, non-construction costs, change orders, and related Treatment Plant Expansion Project expenses. Payments will be made from the construction fund account upon the approval by the Authority of Requisitions submitted. Copies of approved Requisitions will be provided to East Coventry. If, during the construction phase of the Treatment Plant Expansion Project, the amount remaining in the construction fund account is less than the amount at any time or times determined by the Authority's Engineer to be needed to complete the wastewater Treatment Plant Expansion Project, East Coventry will pay to Authority the additional amount or amounts determined by the Authority's Engineer and the Authority to be necessary. The additional amount(s) are to be paid by East Coventry within thirty (30) days

4.8. At the same time as East Coventry is required to pay the One Hundred Ten Per Cent (110%) of the construction contract bid amounts to the Authority under the preceding paragraphs, East Coventry will deliver to the Authority toward the payment of any non-construction costs which remain unpaid and toward the non-construction costs which will be incurred in the construction phase of the Treatment Plant Expansion Project.

B. Stop any further connections to East Coventry's collection system that discharge into the Authority's system, until the Treatment Plant Expansion Project is funded at One Hundred Ten Per Cent (110%) of the total construction contract bid amounts. (Note: the solution to the eventual funding may be the result of further redesign, further re-bidding, and/or further negotiation and cost sharing between the parties, or other alternatives, etc.)

A. Proceed with the Expansion Project by payment of cash in the amount of One Hundred Ten Per Cent (110%) of the construction contract bids received from the apparent lowest responsible bidders upon re-bidding. This payment is to be made to the Authority no later than forty (40) days after receipt of the construction contract bids received upon re-bidding, or

If, after receipt of the "re-bid", the total of the construction contract bids received from the apparent lowest responsible bidders does exceed One Hundred Ten Per Cent (110%) of the revised opinion of probable construction costs issued by the Authority's Engineer prior to re-bidding, East Coventry agrees that it will either:

Cent (110%) of the revised opinion of probable construction costs issued by the Authority's Engineer prior to the "re-bidding", general bids received from the apparent lowest responsible bidders upon re-bidding. This payment to be made to the Authority no later than forty (40) days after the receipt of the construction contract bids received upon the re-bidding. East Coventry will deliver to the Authority cash in the amount of One Hundred Ten Per Cent (110%) of the total of the construction contract bid amounts for all of the required construction contracts. This payment is to be made by East Coventry to the Authority no later than forty (40) days after receipt of bids.

4.12. Anticipated Implementation Schedule. A preliminary schedule for implementing the Project is included in this Section. The schedule is labeled "preliminary" at this time because the full scope of some activities is not fully known, nor is the response time from governmental and regulatory agencies known. The schedule is subject to change as the Project develops.

4.11. After the Certificate of Substantial Completion has been issued by the Authority's Engineer and approved by the Authority, East Coventry will be a bulk customer of the Authority's expanded wastewater treatment plant, subject to the limitations in this Agreement. The Authority shall, at all times, be the sole owner of the original treatment plant facilities and of all of the additional treatment plant facilities constructed during the Treatment Plant Expansion Project.

4.10. After final payment to all of the construction contractors, completion of the Treatment Plant Expansion Project, the Authority's Engineer will issue a Report of Final Project Costs. Certificate of Completion that the Project has been completed and that all expenses of this Project have been paid. Provided that all payments required by this Agreement have been made by East Coventry to Authority, after approval by the Authority of the Report of Final Project Costs, any balance remaining in the construction fund account, including remaining interest, if any, shall thereafter be paid returned to East Coventry.

The Authority's Engineer shall monitor the balance remaining in the construction fund account, and compare the remaining balance with the amount of work, including change orders, remaining to complete the Project. If, during the construction phase of the Treatment Plant Expansion Project, the amount remaining in the construction fund account is less than the amount at any time or times determined by the Authority's Engineer to be needed to complete the wastewater Treatment Plant Expansion Project, East Coventry will pay to Authority the additional amount or amounts determined by the Authority's Engineer and the Authority to be necessary. The additional amount(s) are to be paid by East Coventry within thirty (30) days of the notification from the Authority to East Coventry of the additional amount(s) which, from time to time, are necessary.

4.9. The amounts paid by East Coventry to the Authority under Sections 4.6, 4.7, and 4.8 will be placed in the construction fund account by the Authority, and will be used by the Authority for the payment of construction costs, non-construction costs, change orders, and related Treatment Plant Expansion Project expenses. The construction fund account shall be an interest-bearing account, with interest being used for the Project costs. Payments will be made from the construction fund account upon the approval of the Authority of Requisitions submitted. Copies of Requisitions with supporting documentation scheduled for action by the Authority will be provided to East Coventry seven (7) days prior to the Authority meeting where action is scheduled to be taken on the Requisitions.

at the notification from the Authority to East Coventry of the additional amount(s) which are from time to time, necessary.

Estimated	Task	Duration (months)	Cumulative Time (months)
---	Intermunicipal Agreements executed	---	---
1	Prepare and submit Act 537 Plans) of Study	1	---
2	Pa. DEP approval of Act 537 Plans) of Study	2	2
3	Prepare Act 537 Plans) for Plant Expansion	3	3
7	Pa. DEP review and approval of Act 537 Plans)	4	7
---	Design, permit applications, bid documents (12)	---	---
11	Preliminary Design Report	4	11
11	30% Design Review	---	11
14	60% Design Review	---	14
16	Submit Part 2 Permit Application to Pa. DEP	---	16
18	95% Design Review	---	18
20	DEP review complete, all permits issued	4	20
21	Finalize Plans, Specifications, and Bid Documents	1	21
22	Authorization to advertise for bids	1	22
24	Copy, distribute documents, receive bids	2	24
25	Review bids, and bid recommendation	1	25
25	Notice to East Coventry of required funds	---	25
27	Receipt of project funds from East Coventry (40 days)	1.3	27
27	Issue Notice of Award to low bidders	1	27
29	Preparation, review, execution of contract documents	2	29
30	Issue Notice to Proceed	---	30
30	Construction (14)	---	30
30	30% Construction review	---	30
34	60% Construction review	---	34
38	Substantial Completion, Certificate of Substantial	---	38
42	Completion to be issued, full East Coventry	---	42
42	allocation available	---	42
44	Final inspection, final payment to contractors	---	44
44	Project complete, Report of Final Project Costs to be	---	44
45	issued, unused project funds returned	---	45

6.1. East Coventry shall, at its sole cost and expense, construct its own wastewater collection facilities within East Coventry Township. The East Coventry wastewater collection system shall be solely owned by East Coventry, and East Coventry will be responsible for the proper repair and maintenance of the East Coventry wastewater collection system.

East Coventry Sewer System

ARTICLE VI

5.4. All of the Authority's existing treatment plant facilities shall continue to be solely owned by the Authority. No payments made by East Coventry pursuant to any provision of this Agreement shall entitle East Coventry to ownership of the existing or expanded treatment plant, or any interest therein, except for the treatment capacity as expressly granted to East Coventry pursuant to this Agreement.

5.3. The payment by East Coventry of One Million Three Hundred Sixty-Five Thousand Dollars (\$1,365,000.00) is a fixed cost, and is not subject to further cost escalation after execution of this Agreement.

5.2. In addition to all amounts required to be paid by East Coventry to Authority for the Treatment Plant Expansion Project, East Coventry agrees to pay to Authority One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) on or before thirty (30) days after the issuance of the Certificate of Substantial Completion by the Authority's Engineer at the completion of the Treatment Plant Expansion Project. This payment represents East Coventry's contribution toward the portion of the Authority's existing wastewater treatment plant anticipated to be used by East Coventry. The required payment of One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) is based upon East Coventry's allocation of 510,000 gallons of available treatment capacity per day of the 2,010,000 gallons per day total treatment plant capacity available after completion of the Treatment Plant Expansion Project. East Coventry's 25.4% of \$5,374,000.00 equals \$1,364,996.00, which is rounded to \$1,365,000.00. In accordance with the provisions of Paragraph 7.4 of this Agreement, payments by East Coventry for sewer permits under that Paragraph will be credited against this amount.

Payment to Authority for Share of Existing Facilities

ARTICLE V

7.3. East Coventry may purchase sewer connection permits from the Authority in minimum blocks of 50 EDU's. East Coventry shall pay to the Authority Two Hundred Eighty-seven Thousand Five Hundred Dollars (\$287,500.00) in cash, for the purchase of each block of 50 EDU's. Upon payment for each block of 50 EDU's, the Authority shall issue a bulk sewer permit to East Coventry for these 50 EDU's. The sewer permit issued will also state the total number of EDU's currently purchased by East Coventry Township up to the date of that permit.

7.2. The Authority has previously established 300 gallons per day as the equivalent flow day per EDU for the period prior to the completion of the Treatment Plant Expansion Project.

7.1. Upon the approval by the DEP of both the North Coventry Act 537 Plan revision and the East Coventry Act 537 Plan revision, permitting the expansion of the Authority's wastewater treatment plant facilities to treat 2,010,000 gallons per day, and permitting the Authority to accept up to 510,000 gallons per day of wastewater from East Coventry, as well as upon the approval of any other regulatory agencies necessary (including zoning and development plan approvals for the Treatment Plant Expansion Project), and upon the receipt of the Certificate of Completion by East Coventry's Engineer that the East Coventry wastewater collection system has been properly completed, the Authority agrees to begin accepting wastewater from the East Coventry collection system. Purchase by East Coventry of blocks of wastewater capacity in the treatment plant shall be made by East Coventry to Authority in accordance with this Article.

Acceptance of East Coventry Sewage Flows Prior to Completion of Treatment Plant Expansion Project

ARTICLE VII

6.4. East Coventry sewer service area is the East Coventry Act 537 Plan sewer service area as approved by the Pennsylvania Department of Environmental Protection generally north of Pigeon Creek within the East Coventry Township boundaries irrespective of any plan attached as an exhibit to define initial sewer construction, provided that East Coventry doesn't exceed the limitations of this Agreement or any modifications thereto.

6.3. East Coventry's wastewater collection system shall connect to the Authority's treatment plant facilities at a location or locations approved by the Authority.

6.2. East Coventry's Engineer shall inspect the construction of the East Coventry wastewater collection system, and shall, upon completion of each section of construction of the East Coventry conveyance/collection system, issue a written Certificate of Completion for each section of the construction which could discharge wastewater for treatment to East Coventry and the Authority that the East Coventry wastewater collection system has been properly completed and is available for conveying of wastewater to the Authority's wastewater treatment plant.

7.4. The payments made by East Coventry to the Authority for sewer permits under this Article shall be credited by the Authority, without any credit for interest thereon, first against the One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) required to be paid by East Coventry as its contribution under Article V of this Agreement. If the payments by East Coventry to the Authority for sewer permits under this Article exceed the One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) required to be paid under Article V, the additional sewer payments made by East Coventry shall be deposited into the construction fund account and credited by the Authority, without any credit for interest thereon, against the payments required to be made by East Coventry for the Project construction costs and the Project non-construction costs required to be made by East Coventry under Sections 4.6, 4.7, and 4.8 of this Agreement.

7.5. East Coventry, in its sole discretion, shall allocate the EDU's which East Coventry has purchased to property owners within East Coventry Township. Until completion of the Treatment Plant Expansion Project, East Coventry shall give no allocation to industrial users discharging process wastewater that would require pre-treatment of sewage effluent and wastewater in accordance with the United States Environmental Protection Agency (U.S. EPA) guidelines, procedures and categorical standards published in 40 CFR and future revisions thereto.

7.6. By the 10th day of each month, East Coventry will provide the Authority with a written report of the number of single family units and other EDU's which have been connected to the East Coventry wastewater collection system during the previous month and the date of each connection based upon "Use and Occupancy Permits" as have been issued for the particular uses connected to the East Coventry Township collection and conveyance system. Sewer rental bills during the first quarter that an EDU is connected will be prorated on a daily basis in that quarter, beginning with the date that the East Coventry Township's Use and Occupancy Permit was issued. ~~Connections made during the first fifteen (15) days of a month will be billed as though connected for the entire month. Connections made during the remainder of a month will be billed at one-half of a month. Quarterly bills for all connections made to the East Coventry wastewater collection system will be sent as a bulk bill to East Coventry on or about the 15th day following each calendar quarter. In computing the bill to East Coventry, the amount of the quarterly sewer rental for each EDU connected to the East Coventry wastewater collection system will be the same amount charged by the Authority to its customers (currently Ninety Dollars (\$90.00) per quarter). These quarterly EDU charges to East Coventry shall continue until the Authority's Engineer has issued the Certificate of Substantial Completion for the Treatment Plant Expansion Project has been completed. (Comment: Need payment terms here.)~~

7.7. Until such time as East Coventry has funded the construction costs and the remaining non-construction costs for the Treatment Plant Expansion Project, as required in Sections 4.6, 4.7, and 4.8 above, the number of sewer permits available for purchase by East Coventry shall be limited to 259,650 EDU's.

7.8. If the total of the construction contract bids received from the apparent lowest responsible bidders exceeds One Hundred Twenty Ten Per Cent (1210%) of the last updated opinion of probable construction costs issued by the Authority's Engineer prior to bidding, East Coventry's right to purchase sewer connection permits shall cease and shall resume only at such time as East Coventry has funded the construction costs and the remaining non-construction costs for the Treatment Plant Expansion Project, as required in Sections 4.7 and 4.8 above. No additional purchases of sewer connection permits by East Coventry from the Authority may be made. Additional purchases by East Coventry of sewer permits under this Article VII may thereafter resume only at such time as East Coventry has paid to the Authority One Hundred Ten Per Cent (110%) of the total of the construction contract bids received from the apparent lowest responsible bidders.

7.9. Until such time as the Certificate of Substantial Completion has been issued by the Authority's Engineer for the Treatment Plant Expansion Project, the number of EDU's available for purchase by East Coventry shall be limited to 800 EDU's.

7.10. Until such time as the Certificate of Substantial Completion of the Treatment Plant Expansion Project has been issued, it is recognized that the capacity for the Authority's treatment plant to accept wastewater from East Coventry Township could be limited by committed EDU's within North Coventry Township and the actual flows recorded at the Authority's wastewater treatment plant. Each time that East Coventry requests the purchase of sewer connection permits under Section 7.3 above, the Authority, in its sole discretion, will determine if additional sewer permits can be sold to East Coventry in accordance with this Article. For any sewer permit purchase request from East Coventry prior to the issuance of the Certificate of Substantial Completion for the Treatment Plant Expansion Project, a determination must be made by the Authority that the unreserved capacity within the treatment plant exists for that number of equivalent EDU's requested by East Coventry. Capacity for wastewater from East Coventry within the treatment plant is considered reserved only after the required cost for the sewer permits requested has been paid. Approval for all sewer connections to the East Coventry wastewater collection system for treatment at the Authority's existing wastewater treatment plant must also be issued by DEP, when necessary. East Coventry releases Authority, and its Board members, from any and all claims, actions, causes of action, of any kind whatsoever, both in law or in equity, that East Coventry now has or may have, should the Authority be unable to accept wastewater flow from East Coventry in accordance with this Agreement because of delays in the completion of the construction of the expansion of the Authority's treatment plant, the certification that the treatment plant has been completed, or because of a prohibition, ban, or restriction from accepting new connections to the Authority's sewer treatment plant imposed by the County of Chester, the Commonwealth of Pennsylvania, the DEP, the Environmental Protection Agency, or any other department or agency of the Commonwealth of Pennsylvania or the United States of America, or any governmental unit, agency, or subdivision thereof, whatsoever. All projections and evaluations shall be performed by the Authority or its Engineer in accordance with Title 25, Chapter 94, of the Pennsylvania Department of Environmental Protection Rules and Regulations in effect at the time the evaluation is performed.

~~8.5. In the event the flow meter is out of service, an estimate of flow will be performed by the Authority based on flow records of the recent past. The estimate will incorporate sound~~

~~8.4. The flow meter shall be owned by the Authority, and the Authority shall be responsible for the operation, maintenance and replacement of the flow meter. The actual costs of operation, maintenance and replacement of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.~~

~~8.3. The flow meter will be calibrated and certified by the Authority on at least a semi-annual basis. The Authority will be responsible to schedule the calibration. The actual costs of calibration and certification will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and the Authority.~~

~~8.2. The East Coventry sewer service area, under consideration in this Agreement, is proposed to be connected to the Authority's wastewater treatment plant. A magnetic flow meter will be installed on the discharge pipe from the East Coventry's collection system, where the pipe enters the wastewater treatment plant. The magnetic flow meter will include a transmitter-recording chart, and meter bypass for maintenance of the meter. The cost of the flow meter is included in the cost for the Treatment Plant Expansion Project.~~

~~8.1. All wastewater flow discharged from the East Coventry collection system into the Authority's wastewater facilities shall be metered. Flow meters shall be the continuous measuring type that establish daily flow measured in gallons per day, and that include a totalizer and recording chart.~~

Flow Metering and Wastewater Sampling

ARTICLE VIII

7.11. ~~if it is determined~~ At any time that the ~~retained capacity~~ of the treatment plant, ~~exceeds the design or rated capacity of such~~ ~~Engineer~~, ~~exceeds the design or rated capacity of such~~ total actual capacity over the designed and/or rated capacity shall be allocated ~~Seventy-four (74%)~~ and ~~Six-Ten (16%)~~ to Authority and ~~Twenty-five (25%)~~ to East Coventry. Likewise, after the completion of the Project, if the total actual treatment plant capacity shall be less than the design or rated capacity of the upgraded treatment plant due to a change in regulations to more stringent effluent standards or to other causes beyond the control of the Authority, then such reduced capacity shall be similarly allocated, ~~Seventy-four (74%) and Six-Ten (16%)~~ reduction to Authority and ~~Twenty-five (25%)~~ and ~~Four-Ten (14%)~~ reduction to East Coventry, as a reduction in the respective capacities after the completion of the Project.

8.2. Samples of wastewater discharged by East Coventry to the Authority's wastewater facilities may be sampled and analyzed by the Authority on a random basis to insure compliance with the terms of this Agreement. However, compliance with the allowable discharge criteria shall be the responsibility of East Coventry. The costs of sampling and laboratory analysis will be included in the operation costs of the treatment plant.

8.3. The calculated average daily wastewater flow will then be added to the metered flow from the East Coventry collection system to determine the total flow from the East Coventry collection system that is discharged into the Authority's wastewater facilities. This value for total flow will be used in Article 19 to calculate the charges for treatment of East Coventry wastewater.

8.4. If wastewater flows are insufficient at future points of connection to provide an accurate measurement on a flow meter, the amount of flow shall be determined by the Authority. First, the Authority will determine the number of EDU's connected in the non-metered sewer service area of East Coventry. The number of EDU's will be based on the Authority's adopted "Schedule of EDU's for Type of Use". Next, the number of EDU's will then be multiplied by the Authority's then prevailing unit rate of flow for an EDU (currently, the Authority has established 300 gallons per day as the equivalent flow for each residential unit or for each EDU). The resultant product will be the calculated average daily wastewater flow from the non-metered sewer service area in East Coventry.

8.5. East Coventry connections to the Authority's system at additional point(s) other than contemplated in Section 8.2, own only be made upon approval of the Authority. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described above. Design and specifications for additional flow meters shall be submitted to the Authority for review and approval. The costs for flow meters at additional connection points that described in Section 8.2 shall be paid entirely by East Coventry. Once connection is certified to be complete by the Engineer for East Coventry, and the meter is installed, calibrated and certified, the Authority will assume responsibility thereafter for operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.

8.6. Unique circumstances that would require an adjustment to historical flow records would include items like extreme wet weather events (hurricane, flood), the recent addition of a large number of connections in East Coventry that would not be reflected in the historical flow records, or other circumstances. If the East Coventry sewer service area is served by a water system, water meter readings may be utilized to perform the estimate. The Authority will provide an explanation and calculations for any estimated flows.

8.1. All wastewater flow discharged from one party's system into another party's system shall be metered. Flow meters shall be the continuous measuring type that establishes daily flow measured as gallons per day. That include a totalizer and recording chart and may utilize digital recording of flow data with telemetering.

A. All flow that is pumped or flow that is under pressure in a pipeline shall utilize a magnetic flow meter having a minimum system accuracy at the metering point of plus or minus three per cent of actual flow (metering system includes primary measuring element, transmitter, totalizer, recorder and re-transmitter.)

B. All flow that is not pumped, and is conveyed by gravity, shall utilize an area-velocity flow meter having a minimum system accuracy at the metering point of plus or minus five per cent of actual flow (metering system includes primary measuring element, transmitter, totalizer, recorder and re-transmitter). In addition to the area-velocity flow meter, the installation shall include a standard flume (Palmer Bowls, Parshall or other non-clog design) which shall be used as a calibration standard for the area-velocity flow meter. For installations where flows are large enough to obtain meaningful data, the flume shall be utilized as the primary measuring device.

Flow meter system accuracy shall be determined as the square root of the sum of the squares of the accuracy statement of each individual component of the system. All flow meter installations shall be installed in accordance with the manufacturer's recommendations and good design practice. Based on the type of meter installation, these recommendations may include requirements for smooth, uniform upstream flow conditions, smooth, level flow through flumes, free discharge from flumes, minimum length of straight pipe upstream of the primary measuring device, NEMA 4X classification, and corrosion resistance. Flow meter requirements are subject to change to incorporate future improvements in technology and the most recent specifications from the manufacturer.

Flow Metering of East Coventry Flows Discharged into Authority System

8.2. The East Coventry sewer service area, under consideration in this Agreement is proposed to be connected to the Authority's wastewater treatment facilities at only one location. That location is at the Authority's wastewater treatment plant. A magnetic flow meter will be installed on the discharge pipe from the East Coventry's collection system, where the pipe enters the wastewater treatment plant. The magnetic flow meter will include a totalizer, recording chart, and meter bypass for maintenance of the meter. The cost of the flow meter is included in the cost for the Treatment Plant Expansion Project.

8.3. Upon completion of construction, the Authority will own any flow meters that measure flow from East Coventry into the Authority system. The Authority shall be responsible to schedule with the meter manufacturer or other qualified testing agent, on at least a semi-annual basis, the calibration of the flow meter. Copies of the meter calibration certification shall be sent to East Coventry. East Coventry may contest the meter calibration certification report

within thirty (30) days of receipt of the meter calibration report. If the meter calibration certification report is not contested within the thirty (30) days, the report shall be deemed accepted, and not subject to further dispute.

8.4. The flow meter shall be owned by the Authority, and the Authority shall be responsible for the operation, maintenance, and replacement of the flow meter. The actual costs of operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.

8.5. In the event the flow meter is out of service, an estimate of flow will be performed by the Authority based on flow records of the recent past. The estimate will incorporate sound engineering principles, and be adjusted as necessary to account for any unique circumstances. Unique circumstances that would require an adjustment to historical flow records, would include items like extreme wet weather events (hurricane, flood), the recent addition of a large number of connections in East Coventry that would not be reflected in the historical flow records, or other circumstances. If the East Coventry sewer service area is serviced by a water system, water meter readings may be utilized to perform the estimate. The Authority will provide an explanation and calculations for any estimated flows.

8.6. East Coventry connections to the Authority's system at additional points(s) other than contemplated in Section 3.2 can only be made upon approval of the Authority. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described above. Design and specifications for additional flow meters shall be submitted to the Authority for review and approval. The costs for flow meters at additional connection points than that described in Section 8.2 shall be paid entirely by East Coventry. Once construction is certified to be complete by the Engineer for East Coventry, and the meter is installed, calibrated, and certified, the Authority will assume responsibility thereafter for calibration and any future maintenance or replacement. The actual costs of calibration and operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.

8.7. If wastewater flows are insufficient at future points of connection to provide an accurate measurement by a flow meter, the amount of flow shall be determined by the Authority. First, the Authority will determine the number of EDU's connected in the non-metered sewer service area of East Coventry. The number of EDU's will be based on the Authority's adopted "Schedule of EDU's for Type of Use". Next, the number of EDU's will then be multiplied by the Authority's then prevailing unit rate of flow for an EDU (currently, the Authority has established 300 gallons per day as the equivalent flow for each residential unit or for each EDU). The resultant product will be the calculated average daily wastewater flow from the non-metered sewer service area in East Coventry.

8.12. In the event the flow meter is out of service, an estimate of flow will be performed by East Coventry based on flow records of the recent past. The estimate will incorporate sound

Authority and invoiced in arrears quarterly by East Coventry. of operation, maintenance, and replacement of the flow meter shall be the responsibility of the responsible for the operation, maintenance, and replacement of the flow meter. The actual costs 8.11. The flow meter shall be owned by East Coventry, and East Coventry shall be

subject to further dispute. report is not contested within the thirty (30) days, the report shall be deemed accepted, and not thirty (30) days of receipt of the meter calibration report. If the meter calibration certification report within be sent to Authority. The Authority may contest the meter calibration certification report within annual basis, the calibration of the flow meter. Copies of the meter calibration certification shall to schedule with the meter manufacturer or other qualified testing agent, on at least a semi- measure flow from Authority into the East Coventry system. East Coventry shall be responsible 8.10. Upon completion of construction, East Coventry will own any flow meters that

comply with Section 8.1. Coventry into the East Coventry collection system shall be metered. Meter requirements shall is connected to an East Coventry collection system, all wastewater flow discharged from North future time, due to topography, cost efficiency, etc., a sewer service area from North Coventry that is proposed to be connected to any East Coventry collection system. It, however, at some 8.9. There is no sewer service area in North Coventry under consideration at this time

Flow Metering of Authority Flows Discharged into the East Coventry Collection System

be included in the operation costs of the treatment plant. shall be the responsibility of East Coventry. The costs of sampling and laboratory analysis will with the terms of this Agreement. However, compliance with the allowable discharge criteria facilities may be sampled and analyzed by the Authority on a random basis to insure compliance 8.8. Samples of wastewater discharged by East Coventry to the Authority's wastewater

the number of residential units connected to and flowing through that individual flow meter. be to divide the total recorded daily flow through an individual collection system flow meter by engineering principles. An example method to calculate the gallons per day for an EDU would Any request to use a different value should include documentation that incorporates sound Coventry may request the use of a different value, and the Authority will consider the request. for each residential unit or for each EDU. After completion of the Expansion Project, East The Authority has previously established 300 gallons per day as the equivalent flow

wastewater. total flow will be used in Article 10 to calculate the charges for treatment of East Coventry collection system that is discharged into the Authority's wastewater facilities. This value for from the East Coventry collection system to determine the total flow from the East Coventry The calculated average daily wastewater flow will then be added to the metered flow

The Authority has previously established 300 gallons per day as the equivalent flow for each residential unit or for each EDU. If, in the future, connections from an Authority sewer service area are connected to the East Coventry collection system, the Authority may request the use of a different value, and East Coventry will consider the request. Any request to use a different value should include documentation that incorporates sound engineering principles. An example method to calculate the gallons per day for an EDU would be to divide the total recorded daily flow through an individual collection system flow meter by the number of residential units connected to and flowing through that individual flow meter.

The calculated average daily wastewater flow will then be added to the metered flow (if any) from the Authority collection system to determine the total flow from the Authority collection system that is discharged into the East Coventry wastewater conveyance facilities. This value for total flow will be deducted from East Coventry total wastewater flow used in Article 10 to calculate the charges for treatment of East Coventry wastewater.

8.14. If wastewater flows are insufficient at future points of connection to provide an accurate measurement by a flow meter, the amount of flow shall be determined by East Coventry. First, East Coventry will determine the number of EDUs connected in the non-metered sewer service area of Authority. The number of EDUs will be based on the Authority's adopted "Schedule of EDUs for Type of Use". Next, the number of EDUs will then be multiplied by the Authority's then prevailing unit rate of flow for an EDU (currently, the Authority has established 300 gallons per day as the equivalent flow for each residential unit or for each EDU). The resultant product will be the calculated average daily wastewater flow from the non-metered sewer service area in North Coventry.

8.13. Authority connections to the East Coventry system can only be made upon approval of East Coventry. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described in Section 8.1. Design and specifications for flow meters shall be submitted to East Coventry for review and approval. The costs for flow meters shall be paid entirely by Authority. Once construction is certified to be complete by the Engineer for Authority and the meter is installed, calibrated and certified, East Coventry will assume responsibility thereafter for calibration and any future maintenance or replacement. The actual costs of calibration, operation, maintenance, and replacement of the flow meter will be the responsibility of Authority and invoiced in arrears quarterly by East Coventry.

8.13. Authority connections to the East Coventry system can only be made upon approval of East Coventry. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described in Section 8.1. Design and specifications for flow meters shall be submitted to East Coventry for review and approval. The costs for flow meters shall be paid entirely by Authority. Once construction is certified to be complete by the Engineer for Authority and the meter is installed, calibrated and certified, East Coventry will assume responsibility thereafter for calibration and any future maintenance or replacement. The actual costs of calibration, operation, maintenance, and replacement of the flow meter will be the responsibility of Authority and invoiced in arrears quarterly by East Coventry.

engineering principles, and be adjusted as necessary to account for any unique circumstances. Unique circumstances that would require an adjustment to historical flow records would include items like extreme wet weather events (hurricanes, flood), the recent addition of a large number of connections in North Coventry that would not be reflected in the historical flow records, or other circumstances. If the Authority sewer service area is serviced by a water system, water meter readings may be utilized to perform the estimate. East Coventry will provide an explanation and calculations for any estimated flows.

Criteria

9.4. The Authority will notify East Coventry, in writing, when the flow from East Coventry is measured at 85% of its Annual Average Daily Flow as shown on Exhibit "D". Upon notification, East Coventry shall implement a Wasteload Management Program to monitor and, if necessary, restrict additional connections to its system in order to meet East Coventry's responsibility that the Flow Criteria listed in Exhibit "D" are not exceeded. The Authority will provide similar notice to East Coventry when the flow from East Coventry is measured at 85% of its maximum monthly average flow, maximum weekly average flow, maximum daily flow, or peak instantaneous flow as shown on Exhibit "D". Upon notification, East Coventry agrees to investigate and, thereafter, report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to not exceed the Flow

9.3. Compliance with all the Discharge Criteria shall be the sole responsibility of East Coventry. On a quarterly basis, the Authority will share flow metering data, and will share the results of any periodic sampling that is conducted.

9.2. The allocation of 510,000 gpd is subject to regulatory action and acts of nature, and therefore shall not be construed to be an absolute value. Changes in the discharge criteria of the treatment plant, or changes in the definition of standard strength domestic wastewater by DEP or other regulatory agencies, may result in a lesser allocation. Acts of nature, beyond the control of the Authority, including hurricanes, floods, tornadoes, etc., may temporarily delay East Coventry's full use of the allocated capacity.

9.1. Upon completion of the Treatment Plant Expansion Project and issuance of a Certificate of Substantial Completion by the Authority's Engineer that all expenses of the Project have been paid, the Authority will allocate 510,000 gallons per day (gpd) of wastewater treatment capacity to East Coventry. East Coventry agrees that its flow is limited to specific Discharge Criteria, both flow and qualitative, as defined in Exhibit "D", attached hereto and made a part hereof. Further, East Coventry agrees that it will not discharge any Prohibited Wastes as defined in Exhibit "E", attached hereto and made a part hereof.

Flow Allocation and Allowable Strength of Wastewater

ARTICLE IX

8.15. Samples of wastewater discharged by Authority to the East Coventry collection system may be sampled and analyzed by East Coventry on a random basis to insure compliance with the terms of this Agreement. However, compliance with the allowable discharge criteria shall be the responsibility of Authority. The costs of sampling and laboratory analysis will be the responsibility of the Authority if the Authority is not in compliance with the standards contained in this Agreement. If the Authority is in compliance with the standards in this Agreement, then the costs shall be borne by East Coventry.

(2) Investigate and thereafter submit to the Authority, within one hundred twenty (120) days of the date of the Authority's notice, an Overload Remediation Plan to manage/reduce flows in order to maintain compliance with the Flow Criteria. Said Overload Remediation Plan shall include an implementation schedule showing the dates on which each step of the plan will be undertaken. Activities include, but may not be limited to, planning, design, financing, and construction, as may be necessary to provide the required capacities and/or eliminate the excess flows.

(1) Stop any further connections to the East Coventry system, and

A. Upon notification, East Coventry agrees to:

9.6. The Authority will notify East Coventry, in writing, if the monthly flow from East Coventry exceeds the maximum monthly average flow and/or exceeds the annual average daily flow, as shown on Exhibit "D", for a period of ninety (90) consecutive days.

B. For circumstances where infiltration/inflow problems are suspected, East Coventry will initiate corrective action (investigation, design, bidding, enforcement, etc.) within 120 days of notice from the Authority. East Coventry will correct the problem, and return to compliance with the Flow Criteria, within 180 days of the notice. An extension of time may be considered by the Authority where East Coventry can demonstrate that an extraordinary repair effort is required.

A. For circumstances where the approaching or exceeding of the Flow Criteria is not attributable to infiltration/inflow problems, East Coventry shall minimize and/or cease further connections and begin sewage planning to determine future treatment capacity needs.

9.5. Upon notification, East Coventry agrees to investigate and thereafter report to the Authority, within 50 days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to maintain compliance with the Flow Criteria.

Coventry's plan to manage/reduce flows in order to not exceed the Flow Criteria. Report to the Authority, within sixty (60) days of the date of the Authority's notice. East Coventry shall report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to maintain compliance with the Flow Criteria. East Coventry shall report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to maintain compliance with the Flow Criteria. East Coventry shall report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to maintain compliance with the Flow Criteria. East Coventry shall report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to maintain compliance with the Flow Criteria.

(4) Pursue any other remedy or administrative order available at law, in equity, or administrative proceeding or otherwise.

(3) Pursue damages or any other legal remedy in any Court of competent jurisdiction; or

(2) Pursue an injunction or any other equitable remedy in any Court or agency of competent jurisdiction;

(1) Require East Coventry to purchase reserve capacity, if the Authority determines that such capacity exists, and the Authority is willing to sell such capacity, with the price being established by the Authority;

F. In addition to the penalty provisions of this Article, if, at any time, the flow from East Coventry's wastewater collection system exceeds the Flow Criteria, Authority, to the extent permitted by law, may pursue any one or more of the following additional remedies:

E. East Coventry agrees to pay any fines that are imposed by DEP or any other governmental agency due to violations at the treatment plant that are attributable to East Coventry's exceeding the Flow Criteria.

D. If, one hundred eighty (180) days after notification, the East Coventry flow exceeds the Flow Criteria, an additional twenty per cent (20%) penalty will be added to the quarterly treatment charge. The penalty will be increased by an additional twenty per cent (20%) of the quarterly treatment charge for each consecutive quarter thereafter that East Coventry fails to comply with the Flow Criteria.

C. If, upon completion of the Overload Remediation Plan, East Coventry is not able to demonstrate a reduction of flows, then further connections to the East Coventry system shall be prohibited until such time as additional treatment capacity has been made available at the plant and provisions have been made to increase the flow allocation to East Coventry. If the East Coventry flow exceeds the Flow Criteria, the Authority will notify East Coventry, and a twenty per cent (20%) penalty will be added to the East Coventry estimated quarterly treatment charge. The penalty will be increased by an additional twenty per cent (20%) of the quarterly treatment charge for each quarter that East Coventry fails to initiate corrective action.

B. If, upon completion of the Overload Remediation Plan, East Coventry is able to demonstrate a reduction of flows, then restrictions/prohibitions to further connections, that were temporarily instituted by East Coventry, may be removed.

The Plan shall be reviewed by the Authority, and if deemed acceptable, a limited number of connections may be allocated to East Coventry during the implementation of the Overload Remediation Plan.

9.8. The discharge of any industrial wastewater into the Authority's sanitary sewer system, pump stations or treatment plant is prohibited, except as provided for below in this Section. Industrial wastes are typically more concentrated in nature, and contain toxins that are not amenable to biological treatment and/or may inhibit the normal biological process. East Coventry agrees to prohibit the discharge into the East Coventry collection system of all industrial wastewaters, unless written approval for such discharge is obtained from the Authority, and East Coventry adopts pretreatment standards in compliance and with approval of EPA, DEP, the Authority, and other appropriate agencies. East Coventry agrees that if any form of industrial wastewaters are accepted in the future by the Authority, East Coventry will pay all the costs for

B. The surcharge formula specified in 9.7A applies to non-conforming waste that exceeds normal strength sanitary sewage. East Coventry further agrees to pay any charges for any other non-conforming waste that contains any one or more of the prohibited substances listed in Exhibit "E" which can be shown as being directly attributable to East Coventry wastewater passing through one of the East Coventry connection points. Additional charges may include fines, repairs to the treatment process, additional laboratory expenses, additional sludge disposal expenses, legal expenses, engineering expenses, etc.

Payment of the surcharge shall not be deemed as acceptance of a non-conforming waste by the Authority. In addition to the payment of the surcharge, East Coventry agrees that if repeated assessments of the surcharge occur, the Authority may require pre-treatment by East Coventry, may refuse further connections by East Coventry, or may compel East Coventry to terminate the particular discharge(s) from discharging into the East Coventry system. ~~discontinuation of use of the treatment plant by East Coventry in order to prevent discharges deemed harmful or to have a deleterious effect upon the treatment plant or receiving stream.~~

Note to formula: If, in the application of the above formula, the concentration for any parameter is less than the 1, zero shall be used in the calculation. The concentrations used in the formula shall be the mean values for any samples analyzed for that period.

where: The percent surcharge is to be added applied to the treatment charge for that billing period.

$$\% \text{ Surcharge} = 0.5(\text{BOD}_5 - 204) + 0.4(\text{TSS} - 240) + 0.05(\text{NH}_3\text{-N} - 30) + .05 (\text{P} - 10)$$

A. The Authority will impose a surcharge for any non-conforming wastewater discharged from East Coventry to the Authority's system. The surcharge will be based on a composite flow proportioned sample taken at the point of connection to the Authority's system. The surcharge will be calculated based upon the following formula:

9.7. The Authority will advise East Coventry, in writing, if the Authority's random sampling of the discharge from East Coventry does not comply with the Qualitative Criteria on Exhibit "D", or if the discharge contains any Prohibited Waste listed on Exhibit "E". Upon notification, East Coventry shall identify and eliminate the source of the Prohibited Waste.

10.4. The Authority's fiscal year is from February 1 to January 31. On an annual basis, the Authority will prepare an Estimate for the Operation Costs for the wastewater treatment plant for the upcoming year. The Estimate of Operation Costs will be forwarded to East Coventry. Based on the Estimate, and the anticipated connections to the East Coventry collection system during the upcoming year, East Coventry can establish an estimated user charge for its connections. East Coventry shall receive the Estimate for Operating Costs on or before February 28 of each year. On or before November 1 of each year, the Authority shall provide East Coventry with a Preliminary Estimate of Operating Costs based upon information then available, for East Coventry's use in preparing its budget in accordance with the Township Code.

10.3. This Agreement envisions East Coventry connecting and discharging directly at the treatment plant and not utilizing any portion of the Authority's collection system. Under this concept, only East Coventry's proportionate share of the operating costs for the treatment plant would be assessed to East Coventry. If, however, East Coventry connects to the Authority's collection system at some future time, charges for use of the Authority's collection system may be applied, and East Coventry agrees to pay the charges.

10.2. The Authority will separate its operating costs between treatment plant costs and collection system costs.

10.1. Upon completion of the Treatment Plant Expansion Project and issuance of a Certificate of Substantial Completion by the Authority's Engineer that all expenses of the Project have been paid, East Coventry and the Authority will share the annual operating costs for the wastewater treatment plant in proportion to the volume of wastewater discharged by each party into the wastewater treatment plant. Quarterly billings to East Coventry based upon proportionate flow shall commence on the next calendar quarter after the Certificate of Substantial Completion is issued.

Charges for Treatment of East Coventry Wastewater

ARTICLE X

9.9. Private or Bulk Dumping Prohibited. East Coventry agrees that it shall not permit the dumping of bulk wastewater, septage, sludge, or other wastes into its wastewater collection system by private haulers or other persons engaged in the business of transporting wastewater, septage, sludge, or other wastes.

additional sampling, treatment, and administrative charges for monitoring and processing of any industrial wastewater discharged to East Coventry's collection system.

10.5. On a quarterly basis, the Authority will review the flow meter records, and calculate East Coventry's percentage share of the total flow recorded at the treatment plant. East Coventry's percentage share will be multiplied by the 25% of the Estimate of Operation Costs for the wastewater treatment plant. The product of this multiplication will be the estimated quarterly charge for treatment of East Coventry wastewater.

10.6. Based on the resultant charge in Section 10.5, the Authority will invoice East Coventry fifteen (15) days after the close of each calendar quarter, an estimated quarterly treatment charge, for treatment services provided during the previous quarter.

10.7. Payment for treatment services shall be made by East Coventry within forty-five (45) days of receipt of the Authority's invoice. Any amount not paid by East Coventry within forty-five (45) days of the date of the invoice, will have a penalty of fifteen (15) Cent (15%) of the amount due added, and the amount due and penalty thereafter will be further subject to interest at the rate of Six Per Cent (6%) per annum until paid. Penalties and interest, if any, for bills remaining unpaid or delinquent, as the case may be, shall, in the future, be determined and added to such bills in the same manner and amounts applicable to all users of the Authority's wastewater system, as determined by the Authority, from time to time.

10.8. At the end of the Authority's fiscal year, an audit of the operation and maintenance costs will be performed by an independent certified public accountant. The operating and maintenance costs will be reduced by any operating grants received by the Authority. Based upon the audit of the previous year's operating costs for the wastewater treatment plant, and based on the total flows recorded discharged from each party, a reconciliation calculation will be performed to determine if there was any underpayment or overpayment on the amount due from East Coventry, based on actual operating expenses. East Coventry will be invoiced for any underpayments, with penalty and interest at the rates specified in Section 10.7. Overpayments will be applied to future invoices.

10.9. A listing of the items that are typically included in the operating cost of the wastewater treatment plant are included in Exhibit "F". A copy of the Current Operating Budget is attached as Exhibit "G", and a copy of each year's operating budget shall be forwarded to East Coventry by February 28 of each year.

A. The listing of items is not fixed, and items may be added or deleted as circumstances dictate.

B. The parties acknowledge that not all costs for the operation of the treatment plant can be readily segregated, so, to simplify the calculations for cost sharing, the following items

10.10. In the event of a dispute regarding treatment charges, East Coventry shall provide written objection to the Authority. The parties agree to review the calculations and attempt to resolve the dispute. Unresolved issues shall be settled in accordance with Article XVI. East Coventry shall continue to make full payment for each invoice until such time as the dispute is resolved. In the event East Coventry is correct in its assessment of treatment charges, all overpayments shall be subject to simple interest at the rate of Six Per Cent (6%) per annum.

D. The Authority's budget for the current fiscal year is attached to this Agreement.

East Coventry's annual Contribution to Fixed Costs	East Coventry Average Annual Daily Flow
\$15,0007	Less than 25,000 gpd
\$ 7,5007	25,000 gpd to 75,000 gpd
\$ 3,7507	75,000 gpd to 125,000 gpd
\$ 0	Over 125,000 gpd

C. The parties acknowledge that in the initial period after the Treatment Plant Expansion Project is completed, East Coventry may only have a small number of connections discharging to the treatment plant. The proportioning of operating costs based only on the East Coventry share of total plant flow, creates a disproportionate burden on the Authority. Certain expenses are incurred regardless of the amount of wastewater discharged. These "fixed" expenses will increase with the completion of the Treatment Plant Expansion Project and will increase with the additional treatment facilities required to be maintained and available for service. The parties agree that the following phased contribution toward fixed costs is agreed upon:

Item	Portion Allocable to Treatment Plant
(1) Routine engineering services to Authority	50%
(2) Routine legal services to Authority	50%
(3) Wages, taxes, benefits paid to Authority operating personnel	80%
(4) Wages, taxes, benefits paid to Authority administrative personnel	50%
(5) Administrative expenses	50%
(6) General Insurance (not specific to plant)	80%

and related percentages are adopted:

A. Operate and maintain the wastewater treatment plant and make such alterations, repairs, replacements, renewals, and improvements thereto, and to keep the equipment and facilities therein as may be necessary to keep the treatment plant in good repair and efficient operating condition and to meet the standards prescribed by the DEP, United States Environmental Protection Agency, and any other state or Federal governmental authority having

12.2. Covenants of Authority: In addition to the covenants under Section 12.1, Authority covenants and agrees that it will, at all times:

D. Make available at all reasonable times to the other parties or their agents, servants, employees, and representatives access to all records insofar as the same relate to matters covered in this Agreement. Each party also agrees that the other parties, their agents, servants, employees, and representatives shall have access to the physical facilities of the other parties hereto at reasonable times in order to assure compliance with the terms and provisions of this Agreement.

C. From time to time, make all necessary repairs, renewals, and replacements thereof, and all improvements thereto in order to maintain adequate service.

B. Continuously operate its wastewater system, subject to "force majeure" or all orders, directives, and regulations of the Chester County Health Department, DEP, the Environmental Protection Agency, and any existing or successor agencies with authority to regulate and control the operations of the respective sewer systems.

A. Maintain its wastewater system in good repair, working order, and condition.

12.1. Covenants of both East Coventry and Authority: East Coventry and Authority covenant and agree with the other that each will, at all times:

Covenants of the Parties

ARTICLE XII

Conveyance of Land by East Coventry to Authority

ARTICLE XI

B. Adopt and enforce Ordinances, Resolutions, Rules, Regulations, and Permits governing wastewater connections and the admission of wastewater into the East Coventry collection system, which Ordinances, Resolutions, Rules, Regulations, and Permits shall be at least as stringent as existing and future Ordinances, Resolutions, Rules, Regulations, and Permits of North Coventry and the Authority. Copies of all such Ordinances, Resolutions, Rules, Regulations, and Permits shall be supplied to Authority within ninety (90) days after enactment by East Coventry of an Ordinance or Regulation.

A. Charge to its customers sewer rates and charges which will provide receipts of revenues sufficient, together with other funds available, to make all payments required to be made by East Coventry under the provisions in this Agreement.

12.3. East Coventry covenants and agrees that East Coventry will, at all times:

D. Construct all new manholes, pumping stations, and other facilities of the Authority's system in such a manner that the same shall be protected from physical damage by the 100-year flood, as determined by the Federal Emergency Management Agency. Pumping stations shall remain fully operational and accessible during the 25-year flood. Manholes subject to flooding shall be protected with solid (no vent holes in cover, no through pick holes) watertight covers.

C. Maintain proper books of account and records relating to the operation of the treatment plant and employ an independent Certified Public Accountant or firm of accountants registered in the Commonwealth of Pennsylvania to perform the functions and duties required by this Agreement. Such accountant(s) will furnish to Authority and East Coventry, not more than one hundred eighty (180) days after the close of the Authority's fiscal year, a statement and report showing the Net Operating Costs of the treatment plant and the proper allocation thereof between the parties and any capital costs incurred and the proper sharing of those costs.

B. At all times during the term of this Agreement, for the purpose of performing and carrying out the duties imposed upon the Authority's Engineer by this Agreement, employ as consulting engineers, an independent agency or firm or an independent professional engineer having a favorable reputation for skill and experience in the construction and operation of sewer systems and registered in the Commonwealth of Pennsylvania. The Authority's Engineer shall make and file annually with East Coventry a written report upon the treatment plant and the operation thereof during the prior fiscal year, setting forth its recommendations for the ensuing year and an Estimate of Operating Costs for the treatment plant for the ensuing year. In addition, the Engineer shall provide a copy of the Authority's Chapter 94 Annual Wasteload Management Report to East Coventry by March 31. Until notice to the contrary, the Authority's Engineer shall be Spotts, Stevens and McCoy, Inc., of Reading, Pennsylvania.

jurisdiction thereof. Operation of the plant shall be under the supervision of a treatment plant operator(s) certified by the Commonwealth of Pennsylvania.

East Coventry agrees to provide the above information for any later expansions of the East Coventry collection system, within ninety (90) days of the completion of the expansion.

13.1. Upon completion of the East Coventry collection system, East Coventry shall provide, without cost to Authority, one complete set of reproducible as-built drawings of the East Coventry collection system, for the use of Authority, showing complete information as to location, grade and depth of lines, location of manholes, design and location of pump stations, and, also, specifications and technical documents for all equipment installed as a part of the same, and other similar relevant information.

As-Built Drawings

ARTICLE XIII

Report.

F. Provide to Authority by January 31 of each year information as required by Authority to facilitate preparation of the Authority's Chapter 94 Annual Wasteload Management Report.

E. Require each non-residential sewerage establishment to meter its wastewater flow and/or water consumption as of the date that such user connects to the East Coventry collection system.

D. Adopt, by Ordinance, recognized plumbing standards at least as stringent as those adopted by North Coventry, the standards of BOCA Plumbing Code, and develop certain standards for the installation of "grease interceptors and oil separators";

C. Construct all manholes, pumping stations facilities, and other facilities of the East Coventry collection system in such a manner that the same shall be flood-protected or protected from physical damage by the 100-year base flood, elevation as determined by the Federal Emergency Management Agency. Pumping stations shall remain fully operational and accessible during the 25-year flood. Manholes subject to flooding shall be protected with solid (no vent holes in cover, no through pick holes) watertight covers.

and/or any other statute, administrative regulation, Ordinance, Code, or Order, East Coventry shall indemnify and save Authority harmless from any and all costs, expenses, and fines incurred and resulting therefrom, including any and all legal and administrative expenses incurred in defense of such action.

15.2. East Coventry shall be financially responsible for all losses incurred by Authority as a result of East Coventry's exceeding of the Flow Discharge Criteria contained in this Agreement, and East Coventry does hereby further indemnify and hold harmless Authority against any and all costs, expense, loss, damage, financial liability, fines, and penalties, including any and all legal and administrative expenses incurred by Authority in regard thereto, that may be incurred by or imposed upon Authority by DEP, EPA, or any other regulatory body with jurisdiction thereof, resulting in whole or in part by reason of wastewater being discharged from East Coventry into the Authority's treatment facilities in violation of any of the Flow Discharge Criteria of this Agreement or any other terms, conditions, or limits set forth in this Agreement.

15.3. East Coventry agrees to indemnify and save harmless the Authority against all costs, losses, or damage on account of any injury to persons or property occurring in the performance of this Agreement due to the negligence of East Coventry or its agents or employees.

15.4. Authority agrees to indemnify and save harmless East Coventry against all costs, losses, or damage on account of any injury to persons or property occurring in the performance of this Agreement due to the negligence of Authority or its agents or employees.

ARTICLE XVI

Disputes and Arbitration

16.1. In addition to any action that may be brought at law or in equity in a Court of competent jurisdiction, the parties hereto agree that if, at any time, a dispute shall arise between them concerning factual determinations under the terms of this Agreement, the matter of dispute may, by consent of both parties, be:

A. Referred to three (3) registered consulting engineers registered in the State of Pennsylvania, one to be appointed by Authority, one to be appointed by East Coventry, and one to be appointed by the two appointees so selected.

B. Provided, however, that in the event such appointees cannot agree on the third arbitrator, the President Judge of the Court of Common Pleas of Chester County, Pennsylvania, shall, upon petition of both parties, appoint the third arbitrator.

C. If the parties have mutually agreed to submit a matter to arbitration, the Decision or Award of the majority of such arbitrators shall be final and binding upon the parties hereto,

18.3. Force Majeure. Notwithstanding any other provision of this Agreement, no party to this Agreement shall be responsible in damages to any other for any failure to comply with this Agreement resulting from an act of God or not, sabotage, public calamity, flood, strike, acts of

18.2. Inspection. Each party to this Agreement shall provide the others, from time to time, all information relevant and appropriate to the proper administration of their respective responsibilities under this Agreement, or in respect to the interpretation hereof, as, and in such form and detail as, may be reasonably requested, and each shall, at all reasonable times and from time to time, permit their representatives to examine and inspect their respective records and physical facilities relevant to the subject matter of this Agreement.

18.1. Insurance, Repairs, and Reconstruction. The Authority will insure, or cause to be insured, the Authority's wastewater treatment plant with a responsible company or companies authorized and qualified to do business under the laws of the Commonwealth of Pennsylvania, against loss or damage by fire and such other risks (including public liability) and casualties and in such amounts as are usually carried on like properties in said Commonwealth and as approved by the Authority's Engineer. Such insurance policies shall be non-assessable. Immediately upon the occurrence of any loss or damage to any part of said Authority's wastewater treatment plant which is covered by insurance, the Authority will commence and promptly complete, or cause to be so commenced and promptly completed, the repairing, replacement, or reconstruction of the damaged or destroyed property according to plans and specifications prepared by the Authority's Engineer and shall collect and apply, or cause to be applied, the proceeds of such insurance to the cost of such repair, replacement, or reconstruction.

Miscellaneous

ARTICLE XVIII

17.1. Term of this Agreement. This Agreement shall be effective from the date of signing by all parties until terminated by mutual written consent of North Coventry, Authority, and East Coventry.
17.2. Amendment. This Agreement may be amended from time to time by written consent of the parties to this Agreement.

Term of Agreement; Amendments

ARTICLE XVII

and their respective successors and assigns. East Coventry and Authority shall each pay the costs of its own appointee and one-half of the costs of the third arbitrator.

18.4. Severability. Should any provision hereof for any reason be held illegal or invalid, no other provision of this Agreement shall be affected; and this Agreement shall then be construed and enforced as if such illegal or invalid provision had not been contained herein.

18.5. Headings. The headings in this Agreement are solely for convenience and shall have no effect in the legal interpretation of any provision hereof.

18.6. Effective Date. This Agreement shall become effective as of the date of execution and delivery hereof by the parties hereto.

18.7. Waiver. The failure of a party hereto to insist upon strict performance of this Agreement or of any of the terms or conditions hereof shall not be construed as a waiver of any of its rights hereunder.

18.8. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be regarded for all purposes as an original, but such counterparts shall together constitute but one and the same instrument.

18.9. Successors and Assigns. East Coventry may not voluntarily assign this Agreement without the consent of the Authority, except to a municipality authority incorporated by East Coventry, pursuant to applicable law. Subject to the foregoing, this Agreement shall bind and inure to the benefit of the respective successors and assigns of the parties hereto.

18.10. Supersedes Prior Agreements. This Agreement supersedes and repeals any prior agreement, contracts, and understandings, written or oral, by or among the parties hereto with respect to the subject matter contained herein. This Agreement contains the entire agreement among the parties hereto, and no oral statements or representations or prior written matter not contained in this instrument shall have any force and effect.

18.11. Modification. This Agreement may not be modified or amended except in a writing signed by the parties hereto.

18.12. Pennsylvania Law. This Agreement shall be construed according to, be subject to, and be governed by the laws of the Commonwealth of Pennsylvania.

- Exhibit "A" - Construction Cost Opinion for proposed treatment facilities, updated 12-3-01.
- Exhibit "B" - Site Plan of expansion - to be provided.
- Exhibit "C" - East Coventry sewer service area - to be provided by East Coventry.
- Exhibit "D" - Flow Criteria.
- Exhibit "E" - Prohibited Wastes.
- Exhibit "F" - Items Included in the Current Operating Cost Budget for the Authority's Wastewater Treatment Plant.
- Exhibit "G" - Current Operating Budget for Authority's treatment plant.

List of Exhibits

ARTICLE XIX

APPENDIX H

**Draft Intermunicipal Agreement 2002 (Between East
Coventry Township and North Coventry Municipal
Authority)**

ODONNELL, WEISS & MATTEL, P.C.

AGREEMENT

THIS AGREEMENT, made this day of , A.D. 2002, by and among:

NORTH COVENTRY MUNICIPAL AUTHORITY, a Pennsylvania Municipality Authority, whose office is located at 1485 East Schuylkill Road, Pottstown, North Coventry Township, Chester County, Pennsylvania, (hereinafter referred to as "Authority"); and

NORTH COVENTRY TOWNSHIP, a Pennsylvania Township of the Second Class, whose office is located at 845 South Hanover Street, Pottstown, North Coventry Township, Chester County, Pennsylvania, (hereinafter referred to as "North Coventry"); and

EAST COVENTRY TOWNSHIP, a Pennsylvania Township of the Second Class, whose office is located at 855 Ellis Woods Road, Pottstown, East Coventry Township, Chester County, Pennsylvania, (hereinafter referred to as "East Coventry"),

WITNESSETH:

WHEREAS, Authority has constructed, owns, and is operating a municipal wastewater collection system, a wastewater treatment plant, and related facilities in North Coventry Township, Chester County, Pennsylvania; and

WHEREAS, the Authority's wastewater treatment plant has received a Permit from the Pennsylvania Department of Environmental Protection (hereinafter referred to as "DEP") to treat up to 1,500,000 gallons of wastewater per day; and

WHEREAS, East Coventry and North Coventry are located in the northern portion of Chester County, both having a northern border along the Schuylkill River, and both sharing a common municipal boundary line; and

WHEREAS, East Coventry has adopted an Act 537 Sewage Facilities Plan, identifying a need for wastewater treatment plant capacity for 510,000 gallons of wastewater per day from portions of East Coventry Township which are experiencing malfunctioning on-site sewer systems and demands for new development; and the Pennsylvania Department of Environmental Protection has approved East Coventry Township's Act 537 Plan Special Study. (Comment: A copy is to be provided to Authority); and

WHEREAS, Authority and North Coventry have determined that the currently remaining treatment capacity of the Authority's wastewater treatment plant must be retained for property owners within North Coventry Township; and

WHEREAS, East Coventry has agreed to provide all construction and non-construction costs, as well as all other related expenses, for the Authority's expansion of the Authority's

existing wastewater treatment plant to provide for 510,000 gallons per day of additional wastewater treatment capacity (hereinafter referred to as "Treatment Plant Expansion Project" or "Project"); and

WHEREAS, Authority and North Coventry have agreed that Authority should construct the required additional facilities for the Treatment Plant Expansion Project to increase the Authority's Permit by 510,000 gallons per day and to provide for treatment of up to 510,000 gallons of wastewater per day from East Coventry; and

WHEREAS, in addition to paying all of the costs for the Treatment Plant Expansion Project, (estimated at \$2,353,000.00) which represents only a minor expansion of the Authority's facilities because existing treatment units and infrastructure can be utilized for the additional capacity, East Coventry has agreed to pay its proportionate share of the net costs for the use of the Authority's existing treatment facilities and infrastructure, with East Coventry's proportionate share being One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00); and

WHEREAS, East Coventry will be constructing its own wastewater collection system within East Coventry Township for the conveyance of wastewater to the Authority's wastewater treatment plant; and

WHEREAS, the parties further wish to establish the sharing of the operation and maintenance costs of the Authority's expanded wastewater treatment plant after the completion of the Project; and

WHEREAS, the parties wish to establish the sharing of the costs of future repairs, replacements, and upgrades to the Authority's wastewater treatment plant after completion of the Project.

NOW, THEREFORE, the parties hereto, intending to be legally bound, agree as follows:

ARTICLE I

Definitions

1.1. The following terms and phrases shall have the following meanings for the purpose of this Agreement, unless the context clearly otherwise requires.

NEED DEFINITIONS FOR THIS AGREEMENT AND EXHIBITS

ARTICLE II

Act 537 Plan Revisions

2.1. North Coventry agrees that the Authority should prepare and present to North Coventry a revision to North Coventry's Act 537 Sewage Facilities Plan for adoption, providing for Authority's wastewater treatment plant capacity to be increased to 2,010,000 gallons per day and to provide for the Authority's wastewater treatment plant to treat up to 510,000 gallons per day of wastewater from East Coventry.

2.2. East Coventry agrees to revise its Act 537 Sewage Facilities Plan to provide for up to 510,000 gallons per day of wastewater from East Coventry to be treated at the Authority's wastewater treatment plant, upon the capacity of the Authority's wastewater treatment plant being increased to 2,010,000 gallons per day, and upon the completion of the Treatment Plant Expansion Project.

~~2.3. East Coventry agrees to pay all costs incurred by North Coventry and Authority in planning and revising North Coventry's Act 537 Sewage Facilities Plan, and these costs shall be a part of the non-construction costs hereinafter required to be paid by East Coventry to Authority.~~

2.3. Each party agrees to further amend its Act 537 Plans to be consistent with any approvals required by the Pennsylvania Department of Environmental Protection. Each party shall endeavor to achieve approval by the Pennsylvania Department of Environmental Protection of the capacities stated above.

2.4. Each party shall attempt to implement its Act 537 Selected Plan Alternative in accordance with the proposed schedule found in Section 4.12 of this Agreement.

2.5. Each party to this Agreement agrees to prepare and submit an application for a Fifty Per Cent (50%) reimbursement provided by the Pennsylvania Department of Environmental Protection for preparation of Act 537 Plans and Special Studies.

2.6. East Coventry agrees to pay all costs incurred by North Coventry and Authority in planning and revising North Coventry's Act 537 Sewage Facilities Plan as the Plan relates to East Coventry Township. East Coventry shall have the opportunity to review and comment on the North Coventry/Authority Engineer's estimated cost to prepare an Act 537 Plan for North Coventry. These costs shall be a part of the non-construction costs hereinafter required to be paid by East Coventry.

ARTICLE III

Treatment Plant Expansion

3.1. Authority agrees that, provided East Coventry performs all of its obligations under this Agreement and pays to the Authority all amounts required under this Agreement, and upon obtaining the required approvals of DEP, the Authority will construct an expansion of the Authority's wastewater treatment plant, as described in this Agreement, and Authority will, upon completion of the Treatment Plant Expansion Project, accept and treat, in accordance with applicable regulations and permits, an amount of wastewater from East Coventry not to exceed an Annual Average Daily Flow, "AADF", of 510,000 gallons of wastewater per day, subject to the terms of this Agreement.

ARTICLE IV

Procedures to Implement Treatment Plant Expansion

4.1. The Authority's Engineer, Spotts, Stevens and McCoy, Inc., has prepared an opinion of estimated expansion project costs to increase the plant capacity for the Authority's wastewater treatment plant to 2,010,000 gallons per day. This opinion was last revised on December 3, 2001, to increase the total estimated Treatment Plant Expansion Project costs to \$2,353,000.00. A copy of the December 3, 2001, cost opinion is attached hereto as Exhibit "A" and made a part hereof. The estimated Project costs listed below shall be revised in accordance with the Act 537 Plans of North Coventry and East Coventry Townships as approved by the Pennsylvania Department of Environmental Protection. The components of the cost opinion are as follows:

Opinion of probable construction costs	
Major process units	\$1,475,200.00
Bonds and insurance (2%)	29,504.00
Mobilization, demobilization (1.5%)	22,128.00
General conditions (4%)	<u>59,008.00</u>
Total Opinion of probable construction costs	\$1,585,840.00
20% construction contingency	317,160.00
Non-construction (budget value only)	<u>450,000.00</u>
 Total estimated expansion project costs	 \$2,353,000.00

4.2. The costs associated with increasing the capacity of the Authority's treatment plant consist of both construction and non-construction costs. Non-construction costs include, but are not limited to, planning, legal, design, preparation of this Agreement, permitting, bidding, redesign and rebidding (if necessary), construction observation, contract administration, testing, start-up, auditor's fees, permit fees, and all other similar Project expenses.

4.3. East Coventry is to be solely responsible for the payment of all actual construction and non-construction costs of the Treatment Plant Expansion Project, which may be greater than or less than the estimated Project costs stated above in Section 4.1. The estimated expansion project costs identified above are cost opinions currently based on limited detail. East Coventry will be responsible for the payments due for all change orders and all other costs and expenses that arise during the course of the expansion Project. Neither North Coventry nor the Authority will be responsible for the payment of any of the Treatment Plant Expansion Project costs.

4.4. East Coventry will pay Authority Three Hundred Thousand Dollars (\$300,000.00) at the time of the signing of this Agreement, which amount is meant to be used for the payment of the engineering and other non-construction costs of the Treatment Plant Expansion Project anticipated through the time of the receipt of construction bids. This amount is to be placed in a separate construction fund by Authority and is to be used by Authority for the payment of actual invoices and costs incurred in proceeding with the engineering fees, legal fees, permits, and administration costs of the Treatment Plant Expansion Project. Payments will be made upon approval by Authority of Requisitions submitted. Copies of approved Requisitions with supporting documentation will be provided to East Coventry.

4.5. After the execution of this Agreement and the Authority's receipt of the Three Hundred Thousand Dollars (\$300,000.00) required in Item Section 4.4 above, the Authority's Engineer will begin the preparation of the requirements for DEP approval, design for bidding, and the bidding and contract drawings, specifications, and documents for the Treatment Plant Expansion Project, in accordance with the preliminary Anticipated Implementation Schedule in Section 4.12 hereafter. ~~Updated cost opinions shall be provided by Authority to East Coventry at~~

the following stages of the expansion Project: Updated estimates of project costs (i.e. updated construction cost opinions, plus updated estimates of non-construction costs) shall be provided by Authority to East Coventry at the following stages of the Expansion Project:

_____ A. 30 days after completion of Preliminary Design Report. The Report will be based upon the Part I NPDES discharge permit issued by the Pennsylvania Department of Environmental Protection;

_____ B. 30 days after submittal of the Water Quality Management Receipt of Part 2 Permit application to the Pennsylvania Department of Environmental Protection; and completion of plans and specifications;

_____ C. 30 days prior to advertising for Receipt of bids;

_____ D. 30 days after receipt of bids.

_____ East Coventry will be given the opportunity to review the design and bidding documents. East Coventry may make suggestions concerning these documents, but the decision concerning the final design, specifications, and bidding documents shall be made solely by Authority.

4.6. After receipt of bids, and provided that the total of the construction contract bids received from the apparent lowest responsible bidders does not exceed One Hundred Twenty ~~Ten~~ Per Cent (1210%) of the last updated opinion of probable construction costs issued by the Authority's Engineer prior to bidding, East Coventry will deliver to the Authority cash in the amount of One Hundred Ten Per Cent (110%) of the total of the construction contract bid amounts for all of the required construction contracts. This payment is to be made by East Coventry to the Authority no later than forty (40) days after the receipt of the bids.

4.7. If, after receipt of bids, the total of the construction contract bids received from the apparent lowest responsible bidders does exceed One Hundred Twenty ~~Ten~~ Per Cent (1210%) of the last updated opinion of probable construction costs issued by the Authority's Engineer prior to bidding, Authority and East Coventry shall review the bids received and collectively evaluate what revisions may be possible to reduce the cost of the construction contracts. If the reduction in the costs of the construction contracts can be accomplished without rebidding the construction contracts, East Coventry will deliver to the Authority cash in the amount of One Hundred Ten Per Cent (110%) of the total of the construction contract bid amounts for all of the construction contracts no later than forty (40) days after the receipt of bids.

_____ If it is necessary to redesign and rebid the construction contracts, a revised opinion of probable construction costs shall be issued by the Authority's Engineer. After receipt of the "rebid", and provided that the total of the construction contracts bids received from the apparent lowest responsible bidders does not exceed on rebidding. East Coventry agrees that it will proceed with the expansion Project by payment of cash in the amount of One Hundred Ten Per

Cent (110%) of the revised opinion of probable construction costs issued by the Authority's Engineer prior to the "re-bidding", contract bids received from the apparent lowest responsible bidders upon rebidding. This payment to be made to the Authority no later than forty (40) days after the receipt of the construction contract bids received upon the rebidding. East Coventry will deliver to the Authority cash in the amount of One Hundred Ten Per Cent (110%) of the total of the construction contract bid amounts for all of the required construction contracts. This payment is to be made by East Coventry to the Authority no later than forty (40) days after receipt of bids.

If, after receipt of the "re-bid", the total of the construction contract bids received from the apparent lowest responsible bidders does exceed One Hundred Ten Per Cent (110%) of the revised opinion of probable construction costs issued by the Authority's Engineer prior to re-bidding, East Coventry agrees that it will either:

A. Proceed with the Expansion Project by payment of cash in the amount of One Hundred Ten Per Cent (110%) of the construction contract bids received from the apparent lowest responsible bidders upon re-bidding. This payment is to be made to the Authority no later than forty (40) days after receipt of the construction contract bids received upon re-bidding, or

B. Stop any further connections to East Coventry's collection system that discharge into the Authority's system, until the Treatment Plant Expansion Project is funded at One Hundred Ten Per Cent (110%) of the total construction contract bid amounts. (Note: the solution to the eventual funding may be the result of further redesign, further re-bidding, and/or further negotiation and cost sharing between the parties, or other alternatives, etc.)

4.8. At the same time as East Coventry is required to pay the One Hundred Ten Per Cent (110%) of the construction contract bid amounts to the Authority under the preceding paragraphs, East Coventry will deliver to the Authority cash in the amount of One Hundred Fifty Thousand Dollars (\$150,000.00), which is to be applied by the Authority toward the payment of any non-construction costs which remain unpaid and toward the non-construction costs which will be incurred in the construction phase of the Treatment Plant Expansion Project.

4.9. ~~The amounts paid by East Coventry to the Authority under Sections 4.6, 4.7, and 4.8 will be placed in the construction fund account by the Authority, and will be used by the Authority for the payment of construction costs, non-construction costs, change orders, and related Treatment Plant Expansion Project expenses. Payments will be made from the construction fund account upon the approval by the Authority of Requisitions submitted. Copies of approved Requisitions will be provided to East Coventry. If, during the construction phase of the Treatment Plant Expansion Project, the amount remaining in the construction fund account is less than the amount at any time or times determined by the Authority's Engineer to be needed to complete the wastewater Treatment Plant Expansion Project, East Coventry will pay to Authority the additional amount or amounts determined by the Authority's Engineer and the Authority to be necessary. The additional amount(s) are to be paid by East Coventry within thirty (30) days~~

of the notification from the Authority to East Coventry of the additional amount(s) which are, from time to time, necessary.

4.9. The amounts paid by East Coventry to the Authority under Sections 4.6, 4.7, and 4.8 will be placed in the construction fund account by the Authority, and will be used by the Authority for the payment of construction costs, non-construction costs, change orders, and related Treatment Plant Expansion Project expenses. The construction fund account shall be an interest-bearing account, with interest being used for the Project costs. Payments will be made from the construction fund account upon the approval of the Authority of Requisitions submitted. Copies of Requisitions with supporting documentation scheduled for action by the Authority will be provided to East Coventry seven (7) days prior to the Authority meeting where action is scheduled to be taken on the Requisitions.

The Authority's Engineer shall monitor the balance remaining in the construction fund account, and compare the remaining balance with the amount of work, including change orders, remaining to complete the Project. If, during the construction phase of the Treatment Plant Expansion Project, the amount remaining in the construction fund account is less than the amount at any time or times determined by the Authority's Engineer to be needed to complete the wastewater Treatment Plant Expansion Project, East Coventry will pay to Authority the additional amount or amounts determined by the Authority's Engineer and the Authority to be necessary. The additional amount(s) are to be paid by East Coventry within thirty (30) days of the notification from the Authority to East Coventry of the additional amount(s) which, from time to time, are necessary.

4.10. After final payment to all of the construction contractors, completion of the Treatment Plant Expansion Project, the Authority's Engineer will issue a Report of Final Project Costs, Certificate of Completion that the Project has been completed and that all expenses of this Project have been paid. Provided that all payments required by this Agreement have been made by East Coventry to Authority, after approval by the Authority of the Report of Final Project Costs, any balance remaining in the construction fund account, including remaining interest, if any, shall thereafter be paid returned to East Coventry.

4.11. After the Certificate of Substantial Completion has been issued by the Authority's Engineer and approved by the Authority, East Coventry will be a bulk customer of the Authority's expanded wastewater treatment plant, subject to the limitations in this Agreement. The Authority shall, at all times, be the sole owner of the original treatment plant facilities and of all of the additional treatment plant facilities constructed during the Treatment Plant Expansion Project.

4.12. Anticipated Implementation Schedule. A preliminary schedule for implementing the Project is included in this Section. The schedule is labeled "preliminary" at this time because the full scope of some activities is not fully known, nor is the response time from governmental and regulatory agencies known. The schedule is subject to change as the Project develops.

Task	Estimated Duration (months)	Cumulative Time (months)
<u>Intermunicipal Agreements executed</u>	---	---
<u>Prepare and submit Act 537 Plan(s) of Study</u>	1	---
<u>Pa. DEP approval of Act 537 Plan(s) of Study</u>	2	start of time
<u>Prepare Act 537 Plan(s) for Plant Expansion</u>	3	3
<u>Pa. DeP review and approval of Act 537 Plan(s)</u>	4	7
<u>Design, permit applications, bid documents (12)</u>	---	---
<u>Preliminary Design Report</u>	4	11
<u>30% Design Review</u>		11
<u>60% Design Review</u>		14
<u>Submit Part 2 Permit Application to Pa. DEP</u>		16
<u>95% Design Review</u>		18
<u>DEP review complete, all permits issued</u>	4	20
<u>Finalize Plans, Specifications, and Bid Documents</u>	1	21
<u>Authorization to advertise for bids</u>	1	22
<u>Copy, distribute documents, receive bids</u>	2	24
<u>Review bids, and bid recommendation</u>	1	25
<u>Notice to East Coventry of required funds</u>	---	25
<u>Receipt of project funds from East Coventry (40 days)</u>	1.3	27
<u>Issue Notice of Award to low bidders</u>	1	27
<u>Preparation, review, execution of contract documents</u>	2	29
<u>Issue Notice to Proceed</u>		30
<u>Construction (14)</u>	---	30
<u>30% Construction review</u>		34
<u>60% Construction review</u>		38
<u>Substantial Completion, Certificate of Substantial Completion to be issued, full East Coventry allocation available</u>		42
<u>Final inspection, final payment to contractors</u>		44
<u>Project complete, Report of Final Project Costs to be issued, unused project funds returned</u>		45

ARTICLE V

Payment to Authority for Share of Existing Facilities

5.1. The Authority has determined that the net cost basis of the Authority's existing treatment plant facilities is Five Million Three Hundred Seventy-four Thousand Dollars (\$5,374,000.00). This cost basis is calculated based upon the actual expenditures at the treatment plant since 1960 and escalated to March, 2001 values, as provided in Exhibit G.

5.2. In addition to all amounts required to be paid by East Coventry to Authority for the Treatment Plant Expansion Project, East Coventry agrees to pay to Authority One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) on or before thirty (30) days after the issuance of the Certificate of Substantial Completion by the Authority's Engineer of the ~~completion of the Treatment Plant Expansion Project~~. This payment represents East Coventry's contribution toward the portion of the Authority's existing wastewater treatment plant anticipated to be used by East Coventry. The required payment of One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) is based upon East Coventry's allocation of 510,000 gallons of available treatment capacity per day of the 2,010,000 gallons per day total treatment plant capacity available after completion of the Treatment Plant Expansion Project. East Coventry's 25.4% of \$5,374,000.00 equals \$1,364,996.00, which is rounded to \$1,365,000.00. In accordance with the provisions of Paragraph 7.4 of this Agreement, payments by East Coventry for sewer permits under that Paragraph will be credited against this amount.

5.3. The payment by East Coventry of One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) is a fixed cost, and is not subject to further cost escalation after execution of this Agreement.

5.4. All of the Authority's existing treatment plant facilities shall continue to be solely owned by the Authority. No payments made by East Coventry pursuant to any provision of this Agreement shall entitle East Coventry to ownership of the existing or expanded treatment plant, or any interest therein, except for the treatment capacity as expressly granted to East Coventry pursuant to this Agreement.

ARTICLE VI

East Coventry Sewer System

6.1. East Coventry shall, at its sole cost and expense, construct its own wastewater collection facilities within East Coventry Township. The East Coventry wastewater collection system shall be solely owned by East Coventry, and East Coventry will be responsible for the proper repair and maintenance of the East Coventry wastewater collection system.

6.2. East Coventry's Engineer shall inspect the construction of the East Coventry wastewater collection system, and shall, upon completion of each section of construction of the East Coventry conveyance/collection system, issue a written Certificate of Completion for each section of the construction which could discharge wastewater for treatment to East Coventry and the Authority that the East Coventry wastewater collection system has been properly completed and is available for conveyance of wastewater to the Authority's wastewater treatment plant.

6.3. East Coventry's wastewater collection system shall connect to the Authority's treatment plant facilities at a location or locations approved by the Authority.

6.4. East Coventry service area is the East Coventry Act 537 Plan sewer service area as approved by the Pennsylvania Department of Environmental Protection generally north of Pigeon Creek within the East Coventry Township boundaries irrespective of any plan attached as an exhibit to define initial sewer construction, provided that East Coventry doesn't exceed the limitations of this Agreement or any modifications thereto.

ARTICLE VII

Acceptance of East Coventry Sewage Flows Prior to Completion of Treatment Plant Expansion Project

7.1. Upon the approval by the DEP of both the North Coventry Act 537 Plan revision and the East Coventry Act 537 Plan revision, permitting the expansion of the Authority's wastewater treatment plant facilities to treat 2,010,000 gallons per day, and permitting the Authority to accept up to 510,000 gallons per day of wastewater from East Coventry, as well as upon the approval of any other regulatory agencies necessary (including zoning and development plan approvals for the Treatment Plant Expansion Project), and upon the receipt of the Certificate of Completion by East Coventry's Engineer that the East Coventry wastewater collection system has been properly completed, the Authority agrees to begin accepting wastewater from the East Coventry collection system. Purchase by East Coventry of blocks of wastewater capacity in the treatment plant shall be made by East Coventry to Authority in accordance with this Article.

7.2. The Authority has previously established 300 gallons per day as the equivalent flow for each residential unit or for each EDU. East Coventry agrees with the use of 300 gallons per day per EDU for the period prior to the completion of the Treatment Plant Expansion Project.

7.3. East Coventry may purchase sewer connection permits from the Authority in minimum blocks of 50 EDU's. East Coventry shall pay to the Authority Two Hundred Eighty-seven Thousand Five Hundred Dollars (\$287,500.00) in cash, for the purchase of each block of 50 EDU's. Upon payment for each block of 50 EDU's, the Authority shall issue a bulk sewer permit to East Coventry for these 50 EDU's. The sewer permit issued will also state the total number of EDU's currently purchased by East Coventry Township up to the date of that permit.

7.4. The payments made by East Coventry to the Authority for sewer permits under this Article shall be credited by the Authority, without any credit for interest thereon, first against the One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) required to be paid by East Coventry as its contribution under Article V of this Agreement. If the payments by East Coventry to the Authority for sewer permits under this Article exceed the One Million Three Hundred Sixty-five Thousand Dollars (\$1,365,000.00) required to be paid under Article V, the additional sewer payments made by East Coventry shall be deposited into the construction fund account and credited by the Authority, without any credit for interest thereon, against the payments required to be made by East Coventry for the Project construction costs and the Project non-construction costs required to be made by East Coventry under Sections 4.6, 4.7, and 4.8 of this Agreement.

7.5. East Coventry, in its sole discretion, shall allocate the EDU's which East Coventry has purchased to property owners within East Coventry Township. Until completion of the Treatment Plant Expansion Project, East Coventry shall give no allocation to industrial users discharging process wastewater that would require pre-treatment of sewage effluent and wastewater in accordance with the United States Environmental Protection Agency (U.S. EPA) guidelines, procedures and categorical standards published in 40 CFR and future revisions thereto.

7.6. By the 10th day of each month, East Coventry will provide the Authority with a written report of the number of single family units and other EDU's which have been connected to the East Coventry wastewater collection system during the previous month and the date of each connection based upon "Use and Occupancy Permits" as have been issued for the particular uses connected to the East Coventry Township collection and conveyance system. Sewer rental bills during the first quarter that an EDU is connected will be pro-rated on a daily basis in that quarter, beginning with the date that the East Coventry Township's Use and Occupancy Permit was issued. Connections made during the first fifteen (15) days of a month will be billed as though connected for the entire month. Connections made during the remainder of a month will be billed at one-half of a month. Quarterly bills for all connections made to the East Coventry wastewater collection system will be sent as a bulk bill to East Coventry on or about the 15th day following each calendar quarter. In computing the bill to East Coventry, the amount of the quarterly sewer rental for each EDU connected to the East Coventry wastewater collection system will be the same amount charged by the Authority to its customers (currently Ninety Dollars {\$90.00} per quarter). These quarterly EDU charges to East Coventry shall continue until the Authority's Engineer has issued the Certificate of Substantial Completion for that the Treatment Plant Expansion Project has been completed. (Comment: Need payment terms here.)

7.7. Until such time as East Coventry has funded the construction costs and the remaining non-construction costs for the Treatment Plant Expansion Project, as required in Sections 4.6, 4.7, and 4.8 above, the number of sewer permits available for purchase by East Coventry shall be limited to 250,650 EDU's.

7.8. If the total of the construction contract bids received from the apparent lowest responsible bidders exceeds ~~One Hundred Twenty Ten Per Cent (1210%)~~ of the last updated opinion of probable construction costs issued by the Authority's Engineer prior to bidding, East Coventry's right to purchase sewer connection permits shall cease and shall resume only at such time as East Coventry has funded the construction costs and the remaining non-construction costs for the Treatment Plant Expansion Project, as required in Sections 4.7 and 4.8 above. no additional purchases of sewer connection permits by East Coventry from the Authority may be made. Additional purchases by East Coventry of sewer permits under this Article VII may thereafter resume only at such time as East Coventry has paid to the Authority One Hundred Ten Per Cent (110%) of the total of the construction contract bids received from the apparent lowest responsible bidders.

7.9. Until such time as the Certificate of Substantial Completion has been issued by the Authority's Engineer for the Treatment Plant Expansion Project, the number of EDU's available for purchase by East Coventry shall be limited to 800 EDU's.

7.10. Until such time as the Certificate of Substantial Completion of the Treatment Plant Expansion Project has been issued, it is recognized that the capacity for the Authority's treatment plant to accept wastewater from East Coventry Township could be limited by committed EDU's within North Coventry Township and the actual flows recorded at the Authority's wastewater treatment plant. Each time that East Coventry requests the purchase of sewer connection permits under Section 7.3 above, the Authority, in its sole discretion, will determine if additional sewer permits can be sold to East Coventry in accordance with this Article. For any sewer permit purchase request from East Coventry prior to the issuance of the Certificate of Substantial Completion for of the Treatment Plant Expansion Project, a determination must be made by the Authority that the unreserved capacity within the treatment plant exists for that number of equivalent EDU's requested by East Coventry. Capacity for wastewater from East Coventry within the treatment plant is considered reserved only after the required cost for the sewer permits requested has been paid. Approval for all sewer connections to the East Coventry wastewater collection system for treatment at the Authority's existing wastewater treatment plant must also be issued by DEP, when necessary. East Coventry releases Authority, and its Board members, from any and all claims, actions, causes of action, of any kind whatsoever, both in law or in equity, that East Coventry now has or may have, should the Authority be unable to accept wastewater flow from East Coventry in accordance with this Agreement because of delays in the completion of the construction of the expansion of the Authority's treatment plant, the certification that the treatment plant has been completed, or because of a prohibition, ban, or restriction from accepting new connections to the Authority's sewer treatment plant imposed by the County of Chester, the Commonwealth of Pennsylvania, the DEP, the Environmental Protection Agency, or any other department or agency of the Commonwealth of Pennsylvania or the United States of America, or any governmental unit, agency, or subdivision thereof, whatsoever. All projections and evaluations shall be performed by the Authority or its Engineer in accordance with Title 25, Chapter 94, of the Pennsylvania Department of Environmental Protection Rules and Regulations in effect at the time the evaluation is performed.

~~7.11. If it is determined:~~ At any time that the ~~total actual capacity of the treatment plant, after completion of the Project, is re-permitted at a higher capacity, as certified by the Authority's Engineer, exceeds the design or rated capacity of such treatment plant,~~ then the excess of such total actual capacity over the designed ~~and~~ ~~or~~ rated capacity shall be allocated ~~Seventy-four five and Six-Tenths Per Cent (754.6%) to Authority and Twenty-five and Four-Tenths Per Cent (25.4%) to East Coventry.~~ Likewise, after the completion of the Project, if the total actual ~~treatment plant~~ capacity shall be less than the design or rated capacity of the upgraded treatment plant ~~due to a change in regulations to more stringent effluent standards or to other causes beyond the control of the Authority,~~ then such reduced capacity shall be similarly allocated, ~~Seventy-four five and Six-Tenths Per Cent (754.6%) reduction to Authority and Twenty-five and Four-Tenths Per Cent (25.4%) reduction to East Coventry,~~ as a reduction in the respective capacities after the completion of the Project.

ARTICLE VIII

Flow Metering and Wastewater Sampling

~~8.1. All wastewater flow discharged from the East Coventry collection system into the Authority's wastewater facilities shall be metered. Flow meters shall be the continuous measuring type that establish daily flow measured as gallons per day, and that include a totalizer and recording chart.~~

~~8.2. The East Coventry sewer service area, under consideration in this Agreement, is proposed to be connected to the Authority's wastewater facilities at only one location. That location is at the Authority's wastewater treatment plant. A magnetic flow meter will be installed on the discharge pipe from the East Coventry's collection system, where the pipe enters the wastewater treatment plant. The magnetic flow meter will include a totalizer, recording chart, and meter bypass for maintenance of the meter. The cost of the flow meter is included in the cost for the Treatment Plant Expansion Project.~~

~~8.3. The flow meter will be calibrated and certified by the Authority on at least a semi-annual basis. The Authority will be responsible to schedule the calibration. The actual costs of calibration and certification will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and the Authority.~~

~~8.4. The flow meter shall be owned by the Authority, and the Authority shall be responsible for the operation, maintenance and replacement of the flow meter. The actual costs of operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.~~

~~8.5. In the event the flow meter is out of service, an estimate of flow will be performed by the Authority based on flow records of the recent past. The estimate will incorporate sound~~

engineering principles, and be adjusted as necessary to account for any unique circumstances. Unique circumstances that would require an adjustment to historical flow records would include items like extreme wet weather events (hurricane, flood), the recent addition of a large number of connections in East Coventry that would not be reflected in the historical flow records, or other circumstances. If the East Coventry sewer service area is serviced by a water system, water meter readings may be utilized to perform the estimate. The Authority will provide an explanation and calculations for any estimated flows.

8.6. East Coventry connections to the Authority's system at additional point(s) other than contemplated in Section 3.2, can only be made upon approval of the Authority. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described above. Design and specifications for additional flow meters shall be submitted to the Authority for review and approval. The costs for flow meters at additional connection points than that described in Section 3.2 shall be paid entirely by East Coventry. Once construction is certified to be complete by the Engineer for East Coventry, and the meter is installed, calibrated and certified, the Authority will assume responsibility thereafter for calibration and any future maintenance or replacement. The actual costs of calibration, operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.

8.7. If wastewater flows are insufficient at future point(s) of connection to provide an accurate measurement on a flow meter, the amount of flow shall be determined by the Authority. First, the Authority will determine the number of EDU's connected in the non-metered sewer service area of East Coventry. The number of EDU's will be based on the Authority's adopted "Schedule of EDU's for Type of Use". Next, the number of EDU's will then be multiplied by the Authority's then-prevailing unit rate of flow for an EDU (currently, the Authority has established 300 gallons per day as the equivalent flow for each residential unit or for each EDU). The resultant product will be the calculated average daily wastewater flow from the non-metered sewer service area in East Coventry.

The calculated average daily wastewater flow will then be added to the metered flow from the East Coventry collection system to determine the total flow from the East Coventry collection system that is discharged into the Authority's wastewater facilities. This value for total flow will be used in Article 19 to calculate the charges for treatment of East Coventry wastewater.

8.8. Samples of wastewater discharged by East Coventry to the Authority's wastewater facilities may be sampled and analyzed by the Authority on a random basis to insure compliance with the terms of this Agreement. However, compliance with the allowable discharge criteria shall be the responsibility of East Coventry. The costs of sampling and laboratory analysis will be included in the operation costs of the treatment plant.

8.1. All wastewater flow discharged from one party's system into another party's system shall be metered. Flow meters shall be the continuous measuring type that establishes daily flow measured as gallons per day, that include a totalizer and recording chart and may utilize digital recording of flow data with telemetering.

A. All flow that is pumped or flow that is under pressure in a pipeline shall utilize a magnetic flow meter having a minimum system accuracy at the metering point of plus or minus three per cent of actual flow (metering system includes primary measuring element, transmitter, totalizer, recorder and re-transmitter.)

B. All flow that is not pumped, and is conveyed by gravity, shall utilize an area-velocity flow meter having a minimum system accuracy at the metering point of plus or minus five per cent of actual flow (metering system includes primary measuring element, transmitter, totalizer, recorder and re-transmitter). In addition to the area-velocity flow meter, the installation shall include a standard flume (Palmer Bowlius, Parshall or other non-clog design) which shall be used as a calibration standard for the area-velocity flow meter. For installations where flows are large enough to obtain meaningful data, the flume shall be utilized as the primary measuring device.

Flow meter system accuracy shall be determined as the square root of the sum of the squares of the accuracy statement of each individual component of the system. All flow meter installations shall be installed in accordance with the manufacturer's recommendations and good design practice. Based on the type of meter installation, these recommendations may include requirements for smooth, tranquil upstream flow conditions, smooth, level flow through flumes, free discharge from flumes, minimum length of straight pipe upstream of the primary measuring device, NEMA 4X classification, and corrosion resistance. Flow meter requirements are subject to change to incorporate future improvements in technology and the most recent specifications from the manufacturer.

Flow Metering of East Coventry Flows Discharged Into Authority System

8.2. The East Coventry sewer service area, under consideration in this Agreement, is proposed to be connected to the Authority's wastewater facilities at only one location. That location is at the Authority's wastewater treatment plant. A magnetic flow meter will be installed on the discharge pipe from the East Coventry's collection system, where the pipe enters the wastewater treatment plant. The magnetic flow meter will include a totalizer, recording chart, and meter bypass for maintenance of the meter. The cost of the flow meter is included in the cost for the Treatment Plant Expansion Project.

8.3. Upon completion of construction, the Authority will own any flow meters that measure flow from East Coventry into the Authority system. The Authority shall be responsible to schedule with the meter manufacturer or other qualified testing agent, on at least a semi-annual basis, the calibration of the flow meter. Copies of the meter calibration certification shall be sent to East Coventry. East Coventry may contest the meter calibration certification report

within thirty (30) days of receipt of the meter calibration report. If the meter calibration certification report is not contested within the thirty (30) days, the report shall be deemed accepted, and not subject to further dispute.

8.4. The flow meter shall be owned by the Authority, and the Authority shall be responsible for the operation, maintenance, and replacement of the flow meter. The actual costs of operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.

8.5. In the event the flow meter is out of service, an estimate of flow will be performed by the Authority based on flow records of the recent past. The estimate will incorporate sound engineering principles, and be adjusted as necessary to account for any unique circumstances. Unique circumstances that would require an adjustment to historical flow records, would include items like extreme wet weather events (hurricane, flood), the recent addition of a large number of connections in East Coventry that would not be reflected in the historical flow records, or other circumstances. If the East Coventry sewer service area is serviced by a water system, water meter readings may be utilized to perform the estimate. The Authority will provide an explanation and calculations for any estimated flows.

8.6. East Coventry connections to the Authority's system at additional point(s) other than contemplated in Section 8.2 can only be made upon approval of the Authority. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described above. Design and specifications for additional flow meters shall be submitted to the Authority for review and approval. The costs for flow meters at additional connection points than that described in Section 8.2 shall be paid entirely by East Coventry. Once construction is certified to be complete by the Engineer for East Coventry, and the meter is installed, calibrated, and certified, the Authority will assume responsibility thereafter for calibration and any future maintenance or replacement. The actual costs of calibration, operation, maintenance and replacement of the flow meter will be included in the operating and maintenance costs of the treatment plant to be shared by East Coventry and Authority in accordance with this Agreement.

8.7. If wastewater flows are insufficient at future points of connection to provide an accurate measurement by a flow meter, the amount of flow shall be determined by the Authority. First, the Authority will determine the number of EDU's connected in the non-metered sewer service area of East Coventry. The number of EDU's will be based on the Authority's adopted "Schedule of EDU's for Type of Use". Next, the number of EDU's will then be multiplied by the Authority's then prevailing unit rate of flow for an EDU (currently, the Authority has established 300 gallons per day as the equivalent flow for each residential unit or for each EDU). The resultant product will be the calculated average daily wastewater flow from the non-metered sewer service area in East Coventry.

The calculated average daily wastewater flow will then be added to the metered flow from the East Coventry collection system to determine the total flow from the East Coventry collection system that is discharged into the Authority's wastewater facilities. This value for total flow will be used in Article 10 to calculate the charges for treatment of East Coventry wastewater.

The Authority has previously established 300 gallons per day as the equivalent flow for each residential unit or for each EDU. After completion of the Expansion Project, East Coventry may request the use of a different value, and the Authority will consider the request. Any request to use a different value should include documentation that incorporates sound engineering principles. An example method to calculate the gallons per day for an EDU would be to divide the total recorded daily flow through an individual collection system flow meter by the number of residential units connected to and flowing through that individual flow meter.

8.8. Samples of wastewater discharged by East Coventry to the Authority's wastewater facilities may be sampled and analyzed by the Authority on a random basis to insure compliance with the terms of this Agreement. However, compliance with the allowable discharge criteria shall be the responsibility of East Coventry. The costs of sampling and laboratory analysis will be included in the operation costs of the treatment plant.

Flow Metering of Authority Flows Discharged into the East Coventry Collection System

8.9. There is no sewer service area in North Coventry under consideration at this time that is proposed to be connected to any East Coventry collection system. If, however, at some future time, due to topography, cost effectiveness, etc., a sewer service area from North Coventry is connected to an East Coventry collection system, all wastewater flow discharged from North Coventry into the East Coventry collection system shall be metered. Meter requirements shall comply with Section 8.1.

8.10. Upon completion of construction, East Coventry will own any flow meters that measure flow from Authority into the East Coventry system. East Coventry shall be responsible to schedule with the meter manufacturer or other qualified testing agent, on at least a semi-annual basis, the calibration of the flow meter. Copies of the meter calibration certification shall be sent to Authority. The Authority may contest the meter calibration certification report within thirty (30) days of receipt of the meter calibration report. If the meter calibration certification report is not contested within the thirty (30) days, the report shall be deemed accepted, and not subject to further dispute.

8.11. The flow meter shall be owned by East Coventry, and East Coventry shall be responsible for the operation, maintenance, and replacement of the flow meter. The actual costs of operation, maintenance, and replacement of the flow meter shall be the responsibility of the Authority and invoiced in arrears quarterly by East Coventry.

8.12. In the event the flow meter is out of service, an estimate of flow will be performed by East Coventry based on flow records of the recent past. The estimate will incorporate sound

engineering principles, and be adjusted as necessary to account for any unique circumstances. Unique circumstances that would require an adjustment to historical flow records would include items like extreme wet weather events (hurricane, flood), the recent addition of a large number of connections in North Coventry that would not be reflected in the historical flow records, or other circumstances. If the Authority sewer service area is serviced by a water system, water meter readings may be utilized to perform the estimate. East Coventry will provide an explanation and calculations for any estimated flows.

8.13. Authority connections to the East Coventry system can only be made upon approval of East Coventry. A flow meter will be required at each point(s) of connection. The flow meter shall be similar in all respects to the meter described in Section 8.1. Design and specifications for flow meters shall be submitted to East Coventry for review and approval. The costs for flow meters shall be paid entirely by Authority. Once construction is certified to be complete by the Engineer for Authority and the meter is installed, calibrated and certified, East Coventry will assume responsibility thereafter for calibration and any future maintenance or replacement. The actual costs of calibration, operation, maintenance, and replacement of the flow meter will be the responsibility of Authority and invoiced in arrears quarterly by East Coventry.

8.14. If wastewater flows are insufficient at future points of connection to provide an accurate measurement by a flow meter, the amount of flow shall be determined by East Coventry. First, East Coventry will determine the number of EDU's connected in the non-metered sewer service area of Authority. The number of EDU's will be based on the Authority's adopted "Schedule of EDU's for Type of Use". Next, the number of EDU's will then be multiplied by the Authority's then prevailing unit rate of flow for an EDU (currently, the Authority has established 300 gallons per day as the equivalent flow for each residential unit or for each EDU). The resultant product will be the calculated average daily wastewater flow from the non-metered sewer service area in North Coventry.

The calculated average daily wastewater flow will then be added to the metered flow (if any) from the Authority collection system to determine the total flow from the Authority collection system that is discharged into the East Coventry wastewater conveyance facilities. This value for total flow will be deducted from East Coventry total wastewater flow used in Article 10 to calculate the charges for treatment of East Coventry wastewater.

The Authority has previously established 300 gallons per day as the equivalent flow for each residential unit or for each EDU. If, in the future, connections from an Authority sewer service area are connected to the East Coventry collection system, the Authority may request the use of a different value, and East Coventry will consider the request. Any request to use a different value should include documentation that incorporates sound engineering principles. An example method to calculate the gallons per day for an EDU would be to divide the total recorded daily flow through an individual collection system flow meter by the number of residential units connected to and flowing through that individual flow meter.

8.15. Samples of wastewater discharged by Authority to the East Coventry collection system may be sampled and analyzed by East Coventry on a random basis to insure compliance with the terms of this Agreement. However, compliance with the allowable discharge criteria shall be the responsibility of Authority. The costs of sampling and laboratory analysis will be the responsibility of the Authority if the Authority is not in compliance with the standards contained in this Agreement. If the Authority is in compliance with the standards in this Agreement, then the costs shall be borne by East Coventry.

ARTICLE IX

Flow Allocation and Allowable Strength of Wastewater

9.1. Upon completion of the Treatment Plant Expansion Project and issuance of a Certificate of Substantial Completion by the Authority's Engineer ~~that all expenses of the Project have been paid~~, the Authority will allocate 510,000 gallons per day (gpd) of wastewater treatment capacity to East Coventry. East Coventry agrees that its flow is limited to specific Discharge Criteria, both flow and qualitative, as defined in Exhibit "D", attached hereto and made a part hereof. Further, East Coventry agrees that it will not discharge any Prohibited Wastes as defined in Exhibit "E", attached hereto and made a part hereof.

9.2. The allocation of 510,000 gpd is subject to regulatory action and acts of nature, and therefore shall not be construed to be an absolute value. Changes in the discharge criteria of the treatment plant, or changes in the definition of standard strength domestic wastewater by DEP or other regulatory agencies, may result in a lesser allocation. Acts of nature, beyond the control of the Authority, including hurricanes, floods, tornadoes, etc., may temporarily delay East Coventry's full use of the allocated capacity.

9.3. Compliance with all the Discharge Criteria shall be the sole responsibility of East Coventry. On a quarterly basis, the Authority will share flow metering data, and will share the results of any periodic sampling that is conducted.

9.4. The Authority will notify East Coventry, in writing, when the flow from East Coventry is measured at 85% of its Annual Average Daily Flow as shown on Exhibit "D". Upon notification, East Coventry shall implement a Wasteload Management Program to monitor and, if necessary, restrict additional connections to its system in order to meet East Coventry's responsibility that the Flow Criteria listed in Exhibit "D" are not exceeded. The Authority will provide similar notice to East Coventry when the flow from East Coventry is measured at 85% of its maximum monthly average flow, maximum weekly average flow, maximum daily flow, or peak instantaneous flow as shown on Exhibit "D". Upon notification, East Coventry agrees to investigate and, thereafter, report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to not exceed the Flow Criteria.

9.5. The Authority will notify East Coventry, in writing, when the flow from East Coventry is measured at 95% of its Annual Average Daily Flow as shown on Exhibit "D". To prevent an overload and/or permit violation to the treatment plant, East Coventry shall request approval from the Authority before allowing any additional connections to the East Coventry collection system after this notification. The Authority will provide similar notice to East Coventry when the flow from East Coventry is measured at 95% of its maximum monthly average flow, maximum weekly average flow, maximum daily flow, or peak instantaneous flow as shown on Exhibit "D". Upon notification, East Coventry agrees to investigate and, thereafter, report to the Authority, within sixty (60) days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to not exceed the Flow Criteria.

9.5. Upon notification, East Coventry agrees to investigate and thereafter report to the Authority, within 30 days of the date of the Authority's notice, East Coventry's plan to manage/reduce flows in order to maintain compliance with the Flow Criteria.

A. For circumstances where the approaching or exceeding of the Flow Criteria is not attributable to infiltration/inflow problems, East Coventry shall minimize and/or cease further connections and begin sewage planning to determine future treatment capacity needs.

B. For circumstances where infiltration/inflow problems are suspected, East Coventry will initiate corrective action (investigation, design, bidding, enforcement, etc.) within 120 days of notice from the Authority. East Coventry will correct the problem, and return to compliance with the Flow Criteria, within 180 days of the notice. An extension of time may be considered by the Authority where East Coventry can demonstrate that an extraordinary repair effort is required.

9.6. The Authority will notify East Coventry, in writing, if the monthly flow from East Coventry exceeds the maximum monthly average flow and/or exceeds the annual average daily flow, as shown on Exhibit "D", for a period of ninety (90) consecutive days.

A. Upon notification, East Coventry agrees to:

(1) Stop any further connections to the East Coventry system, and

(2) Investigate and thereafter submit to the Authority, within one hundred twenty (120) days of the date of the Authority's notice, an Overload Remediation Plan to manage/reduce flows in order to maintain compliance with the Flow Criteria. Said Overload Remediation Plan shall include an implementation schedule showing the dates on which each step of the plan will be undertaken. Activities include, but may not be limited to, planning, design, financing, and construction, as may be necessary to provide the required capacities and/or eliminate the excess flows.

The Plan shall be reviewed by the Authority, and if deemed acceptable, a limited number of connections may be allocated to East Coventry during the implementation of the Overload Remediation Plan.

B. If, upon completion of the Overload Remediation Plan, East Coventry is able to demonstrate a reduction of flows, then restrictions/prohibitions to further connections, that were temporarily instituted by East Coventry, may be removed.

C. If, upon completion of the Overload Remediation Plan, East Coventry is not able to demonstrate a reduction of flows, then further connections to the East Coventry system shall be prohibited until such time as additional treatment capacity has been made available at the plant and provisions have been made to increase the flow allocation to East Coventry. If the East Coventry flow exceeds the Flow Criteria, the Authority will notify East Coventry, and a twenty per cent (20%) penalty will be added to the East Coventry estimated quarterly treatment charge. ~~The penalty will be increased by an additional twenty per cent (20%) of the quarterly treatment charge for each quarter that East Coventry fails to initiate corrective action.~~

D. If, one hundred eighty (180) days after notification, the East Coventry flow exceeds the Flow Criteria, an additional twenty per cent (20%) penalty will be added to the quarterly treatment charge. The penalty will be increased by an additional twenty per cent (20%) of the quarterly treatment charge for each consecutive quarter thereafter that East Coventry fails to comply with the Flow Criteria.

E. East Coventry agrees to pay any fines that are imposed by DEP or any other governmental agency due to violations at the treatment plant that are attributable to East Coventry's exceeding the Flow Criteria.

F. In addition to the penalty provisions of this Article, if, at any time, the flow from East Coventry's wastewater collection system exceeds the Flow Criteria, Authority, to the extent permitted by law, may pursue any one or more of the following additional remedies:

(1) Require East Coventry to purchase reserve capacity, if the Authority determines that such capacity exists, and the Authority is willing to sell such capacity, with the price being established by the Authority;

(2) Pursue an injunction or any other equitable remedy in any Court or agency of competent jurisdiction;

(3) Pursue damages or any other legal remedy in any Court of competent jurisdiction; or

(4) Pursue any other remedy or administrative order available at law, in equity, or administrative proceeding or otherwise.

9.7. The Authority will advise East Coventry, in writing, if the Authority's random sampling of the discharge from East Coventry does not comply with the Qualitative Criteria on Exhibit "D", or if the discharge contains any Prohibited Waste listed on Exhibit "E". Upon notification, East Coventry shall identify and eliminate the source of the Prohibited Waste.

A. The Authority will impose a surcharge for any non-conforming wastewater discharged from East Coventry to the Authority's system. The surcharge will be based on a composite flow proportioned sample taken at the point of connection to the Authority's system. The surcharge will be calculated based upon the following formula:

$$\% \text{ Surcharge} = 0.5(\text{BOD}_5 - 204) + 0.4(\text{TSS} - 240) + 0.05(\text{NH}_3\text{-N} - 30) + .05 (P - 10)$$

~~where,~~ The percent surcharge is to be added applied to the treatment charge for that billing period.

Note to formula: If, in the application of the above formula, the concentration for any parameter is less than the 1, zero shall be used in the calculation. The concentrations used in the formula shall be the mean values for any samples analyzed for that period.

____ Payment of the surcharge shall not be deemed as acceptance of a non-conforming waste by the Authority. In addition to the payment of the surcharge, East Coventry agrees that if repeated assessments of the surcharge occur, the Authority may require pre-treatment by East Coventry, may refuse further connections by East Coventry, or may compel East Coventry to terminate the particular discharger(s) from discharging into the East Coventry system ~~discontinuance of use of the treatment plant by East Coventry~~ in order to prevent discharges deemed harmful or to have a deleterious effect upon the treatment plant or receiving stream.

____ B. The surcharge formula specified in 9.7A applies to non-conforming waste that exceeds normal strength sanitary sewage. East Coventry further agrees to pay any charges for any other non-conforming waste that contains any one or more of the prohibited substances listed in Exhibit "E" which can be shown as being directly attributable to East Coventry wastewater passing through one of the East Coventry connection points. Additional charges may include fines, repairs to the treatment process, additional laboratory expenses, additional sludge disposal expenses, legal expenses, engineering expenses, etc.

____ 9.8. The discharge of any industrial wastewater into the Authority's sanitary sewer system, pump stations or treatment plant is prohibited, except as provided for below in this Section. Industrial wastes are typically more concentrated in nature, and contain toxins that are not amenable to biological treatment and/or may inhibit the normal biological process. East Coventry agrees to prohibit the discharge into the East Coventry collection system of all industrial wastewaters, unless written approval for such discharge is obtained from the Authority, and East Coventry adopts pretreatment standards in compliance and with approval of EPA, DEP, the Authority, and other appropriate agencies. East Coventry agrees that if any form of industrial wastewaters are accepted in the future by the Authority, East Coventry will pay all the costs for

additional sampling, treatment, and administrative charges for monitoring and processing of any industrial wastewaters discharged to East Coventry's collection system.

9.9. Private or Bulk Dumping Prohibited. East Coventry agrees that it shall not permit the dumping of bulk wastewater, septage, sludge, or other wastes into its wastewater collection system by private haulers or other persons engaged in the business of transporting wastewater, septage, sludge, or other wastes.

ARTICLE X

Charges for Treatment of East Coventry Wastewater

10.1. Upon completion of the Treatment Plant Expansion Project and issuance of a Certificate of Substantial Completion by the Authority's Engineer ~~that all expenses of the Project have been paid~~, East Coventry and the Authority will share the annual operating costs for the wastewater treatment plant in proportion to the volume of wastewater discharged by each party into the wastewater treatment plant. Quarterly billings to East Coventry based upon proportionate flow shall commence on the next calendar quarter after the Certificate of Substantial Completion is issued.

10.2. The Authority will separate its operating costs between treatment plant costs and collection system costs.

10.3. This Agreement envisions East Coventry connecting and discharging directly at the treatment plant and not utilizing any portion of the Authority's collection system. Under this concept, only East Coventry's proportionate share of the operating costs for the treatment plant would be assessed to East Coventry. If, however, East Coventry connects to the Authority's collection system at some future time, charges for use of the Authority's collection system may be applied, and East Coventry agrees to pay the charges.

10.4. The Authority's fiscal year is from February 1 to January 31. On an annual basis, the Authority will prepare an Estimate for the Operation Costs for the wastewater treatment plant for the upcoming year. The Estimate of Operation Costs will be forwarded to East Coventry. Based on the Estimate, and the anticipated connections to the East Coventry collection system during the upcoming year, East Coventry can establish an estimated user charge for its connections. East Coventry shall receive the Estimate for Operating Costs on or before February 28 of each year. On or before November 1 of each year, the Authority shall provide East Coventry with a Preliminary Estimate of Operating Costs based upon information then available, for East Coventry's use in preparing its budget in accordance with the Township Code.

10.5. On a quarterly basis, the Authority will review the flow meter records, and calculate East Coventry's percentage share of the total flow recorded at the treatment plant. East Coventry's percentage share will be multiplied by the 25% of the Estimate of Operation Costs for the wastewater treatment plant. The product of this multiplication will be the estimated quarterly charge for treatment of East Coventry wastewater.

10.6. Based on the resultant charge in Section 10.5, the Authority will invoice East Coventry fifteen (15) days after the close of each calendar quarter, an estimated quarterly treatment charge, for treatment services provided during the previous quarter.

10.7. Payment for treatment services shall be made by East Coventry within forty-five (45) days of receipt of the Authority's invoice. Any amount not paid by East Coventry within forty-five (45) days of the date of the invoice, will have a penalty of Fifteen Per Cent (+5%) of the amount due added, and the amount due and penalty thereafter will be further subject to interest at the rate of Six Per Cent (6%) per annum until paid. Penalties and interest, if any, for bills remaining unpaid or delinquent, as the case may be, shall, in the future, be determined and added to such bills in the same manner and amounts applicable to all users of the Authority's wastewater system, as determined by the Authority, from time to time.

10.8. At the end of the Authority's fiscal year, an audit of the operation and maintenance costs will be performed by an independent certified public accountant. The operating and maintenance costs will be reduced by any operating grants received by the Authority. Based upon the audit of the previous year's operating costs for the wastewater treatment plant, and based on the total flows recorded discharged from each party, a reconciliation calculation will be performed to determine if there was any underpayment or overpayment on the amount due from East Coventry, based on actual operating expenses. East Coventry will be invoiced for any underpayments, with penalty and interest at the rates specified in Section 10.7. Overpayments will be applied to future invoices.

10.9. A listing of the items that are typically included in the operating cost of the wastewater treatment plant are included in Exhibit "F". A copy of the Current Operating Budget is attached as Exhibit "C", and a copy of each year's operating budget shall be forwarded to East Coventry by February 28 of each year.

_____ A. The listing of items is not fixed, and items may be added or deleted as circumstances dictate.

_____ B. The parties acknowledge that not all costs for the operation of the treatment plant can be readily segregated, so, to simplify the calculations for cost sharing, the following items

and related percentages are adopted:

<u>Item</u>	<u>Portion Allocable to Treatment Plant</u>
(1) Routine engineering services to Authority	50%
(2) Routine legal services to Authority	50%
(3) Wages, taxes, benefits paid to Authority operating personnel	80%
(4) Wages, taxes, benefits paid to Authority administrative personnel	50%
(5) Administrative expenses	50%
(6) General Insurance (not specific to plant)	80%

C. The parties acknowledge that in the initial period after the Treatment Plant Expansion Project is completed, East Coventry may only have a small number of connections discharging to the treatment plant. The proportioning of operating costs based only on the East Coventry share of total plant flow, creates a disproportionate burden on the Authority. Certain expenses are incurred regardless of the amount of wastewater discharged. These "fixed" expenses will increase with the completion of the Treatment Plant Expansion Project and will increase with the additional treatment facilities required to be maintained and available for service. The parties agree that the following phased contribution toward fixed costs is agreed upon:

<u>East Coventry Average Annual Daily Flow</u>	<u>East Coventry's annual Contribution to Fixed Costs</u>
Less than 25,000 gpd	\$15,000?
25,000 gpd to 75,000 gpd	\$ 7,500?
75,000 gpd to 125,000 gpd	\$ 3,750?
Over 125,000 gpd	\$ 0

D. The Authority's budget for the current fiscal year is attached to this Agreement.

10.10. In the event of a dispute regarding treatment charges, East Coventry shall provide written objection to the Authority. The parties agree to review the calculations and attempt to resolve the dispute. Unresolved issues shall be settled in accordance with Article XVI. East Coventry shall continue to make full payment for each invoice until such time as the dispute is resolved. In the event East Coventry is correct in its assessment of treatment charges, all overpayments shall be subject to simple interest at the rate of Six Per Cent (6%) per annum.

ARTICLE XI

Conveyance of Land by East Coventry to Authority

ARTICLE XII

Covenants of the Parties

12.1. Covenants of both East Coventry and Authority: East Coventry and Authority covenant and agree with the other that each will, at all times:

- A. Maintain its wastewater system in good repair, working order, and condition.
- B. Continuously operate its wastewater system, subject to "force majeure" or all orders, directives, and regulations of the Chester County Health Department, DEP, the Environmental Protection Agency, and any existing or successor agencies with authority to regulate and control the operations of the respective sewer systems.
- C. From time to time, make all necessary repairs, renewals, and replacements thereof, and all improvements thereto in order to maintain adequate service.
- D. Make available at all reasonable times to the other parties or their agents, servants, employees, and representatives access to all records insofar as the same relate to matters covered in this Agreement. Each party also agrees that the other parties, their agents, servants, employees, and representatives shall have access to the physical facilities of the other parties hereto at reasonable times in order to assure compliance with the terms and provisions of this Agreement.

12.2. Covenants of Authority: In addition to the covenants under Section 12.1, Authority covenants and agrees that it will, at all times:

- A. Operate and maintain the wastewater treatment plant and make such alterations, repairs, replacements, renewals, and improvements thereto, and to keep the equipment and facilities therein as may be necessary to keep the treatment plant in good repair and efficient operating condition and to meet the standards prescribed by the DEP, United States Environmental Protection Agency, and any other state or Federal governmental authority having

jurisdiction thereof. Operation of the plant shall be under the supervision of a treatment plant operator(s) certified by the Commonwealth of Pennsylvania.

B. At all times during the term of this Agreement, for the purpose of performing and carrying out the duties imposed upon the Authority's Engineer by this Agreement, employ as consulting engineers, an independent agency or firm or an independent professional engineer having a favorable reputation for skill and experience in the construction and operation of sewer systems and registered in the Commonwealth of Pennsylvania. The Authority's Engineer shall make and file annually with East Coventry a written report upon the treatment plant and the operation thereof during the prior fiscal year, setting forth its recommendations for the ensuing year and an Estimate of Operating Costs for the treatment plant for the ensuing year. In addition, the Engineer shall provide a copy of the Authority's Chapter 94 Annual Wasteload Management Report to East Coventry by March 31. Until notice to the contrary, the Authority's Engineer shall be Spotts, Stevens and McCoy, Inc., of Reading, Pennsylvania.

C. Maintain proper books of account and records relating to the operation of the treatment plant and employ an independent Certified Public Accountant or firm of accountants registered in the Commonwealth of Pennsylvania to perform the functions and duties required by this Agreement. Such accountant(s) will furnish to Authority and East Coventry, not more than one hundred eighty (180) days after the close of the Authority's fiscal year, a statement and report showing the Net Operating Costs of the treatment plant and the proper allocation thereof between the parties and any capital costs incurred and the proper sharing of those costs.

D. Construct all new manholes, pumping stations, and other facilities of the Authority's system in such a manner that the same shall be protected from physical damage by the 100-year flood, as determined by the Federal Emergency Management Agency. Pumping stations shall remain fully operational and accessible during the 25-year flood. Manholes subject to flooding shall be protected with solid (no vent holes in cover, no through pick holes) watertight covers.

12.3. East Coventry covenants and agrees that East Coventry will, at all times:

A. Charge to its customers sewer rates and charges which will provide receipts of revenues sufficient, together with other funds available, to make all payments required to be made by East Coventry under the provisions in this Agreement.

B. Adopt and enforce Ordinances, Resolutions, Rules, Regulations, and Permits governing wastewater connections and the admission of wastewater into the East Coventry collection system, which Ordinances, Resolutions, Rules, Regulations, and Permits shall be at least as stringent as existing and future Ordinances, Resolutions, Rules, Regulations, and Permits of North Coventry and the Authority. Copies of all such Ordinances, Resolutions, Rules, Regulations, and Permits shall be supplied to Authority within ninety (90) days after enactment by East Coventry of an Ordinance or Regulation.

C. Construct all manholes, pumping stations facilities, and other facilities of the East Coventry collection system in such a manner that the same shall be ~~flood-proofed or~~ protected from physical damage by ~~to~~ the 100-year base flood, elevation as determined by the Federal Emergency Management Agency. Pumping stations shall remain fully operational and accessible during the 25-year flood. Manholes subject to flooding shall be protected with solid (no vent holes in cover, no through pick holes) watertight covers.

D. Adopt, by Ordinance, recognized plumbing standards at least as stringent as those adopted by North Coventry, the standards of BOCA Plumbing Code, and develop certain standards for the installation of "grease interceptors and oil separators".

E. Require each non-residential commercial establishment to meter its wastewater flow and/or water consumption as of the date that such user connects to the East Coventry collection system.

F. Provide to Authority by January 31 of each year information as required by Authority to facilitate preparation of the Authority's Chapter 94 Annual Wasteload Management Report.

ARTICLE XIII

As-Built Drawings

13.1. Upon completion of the East Coventry collection system, East Coventry shall provide, without cost to Authority, one complete set of reproducible as-built drawings of the East Coventry collection system, for the use of Authority, showing complete information as to location, grade and depth of lines, location of manholes, design and location of pump stations, and, also, specifications and technical documents for all equipment installed as a part of the same, and other similar relevant information.

East Coventry agrees to provide the above information for any later expansions of the East Coventry collection system, within ninety (90) days of the completion of the expansion.

and/or any other statute, administrative regulation, Ordinance, Code, or Order, East Coventry shall indemnify and save Authority harmless from any and all costs, expenses, and fines incurred and resulting therefrom, including any and all legal and administrative expenses incurred in defense of such action.

15.2. East Coventry shall be financially responsible for all losses incurred by Authority as a result of East Coventry's exceeding of the Flow Discharge Criteria contained in this Agreement, and East Coventry does hereby further indemnify and hold harmless Authority against any and all costs, expense, loss, damage, financial liability, fines, and penalties, including any and all legal and administrative expenses incurred by Authority in regard thereto, that may be incurred by or imposed upon Authority by DEP, EPA, or any other regulatory body with jurisdiction thereof, resulting in whole or in part by reason of wastewater being discharged from East Coventry into the Authority's treatment facilities in violation of any of the Flow Discharge Criteria of this Agreement or any other terms, conditions, or limits set forth in this Agreement.

15.3. East Coventry agrees to indemnify and save harmless the Authority against all costs, losses, or damage on account of any injury to persons or property occurring in the performance of this Agreement due to the negligence of East Coventry or its agents or employees.

15.4. Authority agrees to indemnify and save harmless East Coventry against all costs, losses, or damage on account of any injury to persons or property occurring in the performance of this Agreement due to the negligence of Authority or its agents or employees.

ARTICLE XVI

Disputes and Arbitration

16.1. In addition to any action that may be brought at law or in equity in a Court of competent jurisdiction, the parties hereto agree that if, at any time, a dispute shall arise between them concerning factual determinations under the terms of this Agreement, the matter of dispute may, by consent of both parties, be:

A. Referred to three (3) registered consulting engineers registered in the State of Pennsylvania, one to be appointed by Authority, one to be appointed by East Coventry, and one to be appointed by the two appointees so selected.

B. Provided, however, that in the event such appointees cannot agree on the third arbitrator, the President Judge of the Court of Common Pleas of Chester County, Pennsylvania, shall, upon petition of both parties, appoint the third arbitrator.

C. If the parties have mutually agreed to submit a matter to arbitration, the Decision or Award of the majority of such arbitrators shall be final and binding upon the parties hereto,

and their respective successors and assigns. East Coventry and Authority shall each pay the costs of its own appointee and one-half of the costs of the third arbitrator.

ARTICLE XVII

Term of Agreement; Amendments

17.1. Term of this Agreement. This Agreement shall be effective from the date of signing by all parties until terminated by mutual written consent of North Coventry, Authority, and East Coventry.

17.2. Amendment. This Agreement may be amended from time to time by written consent of the parties to this Agreement.

ARTICLE XVIII

Miscellaneous

18.1. Insurance, Repairs, and Reconstruction. The Authority will insure, or cause to be insured, the Authority's wastewater treatment plant with a responsible company or companies authorized and qualified to do business under the laws of the Commonwealth of Pennsylvania, against loss or damage by fire and such other risks (including public liability) and casualties and in such amounts as are usually carried on like properties in said Commonwealth and as approved by the Authority's Engineer. ~~Such insurance policies shall be nonassessable.~~ Immediately upon the occurrence of any loss or damage to any part of said Authority's wastewater treatment plant which is covered by insurance, the Authority will commence and promptly complete, or cause to be so commenced and promptly completed, the repairing, replacement, or reconstruction of the damaged or destroyed property according to plans and specifications prepared by the Authority's Engineer and shall collect and apply, or cause to be applied, the proceeds of such insurance to the cost of such repair, replacement, or reconstruction.

18.2. Inspection. Each party to this Agreement shall provide the others, from time to time, all information relevant and appropriate to the proper administration of their respective responsibilities under this Agreement, or in respect to the interpretation hereof, as, and in such form and detail as, may be reasonably requested, and each shall, at all reasonable times and from time to time, permit their representatives to examine and inspect their respective records and physical facilities relevant to the subject matter of this Agreement.

18.3. Force Majeure. Notwithstanding any other provision of this Agreement, no party to this Agreement shall be responsible in damages to any other for any failure to comply with this Agreement resulting from an act of God or riot, sabotage, public calamity, flood, strike, acts of

terrorists, breakdown of the Authority's wastewater treatment plant, or of any party's collection system, or other event beyond its reasonable control. The party having the responsibility for the facilities so affected, however, shall proceed promptly to remedy the consequences of such event, with costs to be shared to the extent provided elsewhere herein.

18.4. Severability. Should any provision hereof for any reason be held illegal or invalid, no other provision of this Agreement shall be affected; and this Agreement shall then be construed and enforced as if such illegal or invalid provision had not been contained herein.

18.5. Headings. The headings in this Agreement are solely for convenience and shall have no effect in the legal interpretation of any provision hereof.

18.6. Effective Date. This Agreement shall become effective as of the date of execution and delivery hereof by the parties hereto.

18.7. Waiver. The failure of a party hereto to insist upon strict performance of this Agreement or of any of the terms or conditions hereof shall not be construed as a waiver of any of its rights hereunder.

18.8. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be regarded for all purposes as an original, but such counterparts shall together constitute but one and the same instrument.

18.9. Successors and Assigns. East Coventry may not voluntarily assign this Agreement without the consent of the Authority, except to a municipality authority incorporated by East Coventry, pursuant to applicable law. Subject to the foregoing, this Agreement shall bind and inure to the benefit of the respective successors and assigns of the parties hereto.

18.10. Supersedes Prior Agreements. This Agreement supersedes and repeals any prior agreement, contracts, and understandings, written or oral, by or among the parties hereto with respect to the subject matter contained herein. This Agreement contains the entire agreement among the parties hereto, and no oral statements or representations or prior written matter not contained in this instrument shall have any force and effect.

18.11. Modification. This Agreement may not be modified or amended except in a writing signed by the parties hereto.

18.12. Pennsylvania Law. This Agreement shall be construed according to, be subject to, and be governed by the laws of the Commonwealth of Pennsylvania.

ARTICLE XIX

List of Exhibits

Exhibit "A" - Construction Cost Opinion for proposed treatment facilities, updated 12-3-01.

Exhibit "B" - Site Plan of expansion - to be provided.

Exhibit "C" - East Coventry sewer service area - to be provided by East Coventry.

Exhibit "D" - Flow Criteria.

Exhibit "E" - Prohibited Wastes.

Exhibit "F" - Items Included in the Current Operating Cost Budget for the Authority's Wastewater Treatment Plant.

Exhibit "G" - Current Operating Budget for Authority's treatment plant.

APPENDIX I

**East Coventry Township Ordinance No. 105 – OLDS
Maintenance**

AN ORDINANCE

AMENDING CHAPTER 18, ENTITLED "SEWERS AND SEWAGE DISPOSAL," OF THE TOWNSHIP OF EAST COVENTRY CODE OF ORDINANCES, ADDING A PART PROVIDING FOR THE MANAGEMENT OF INDIVIDUAL AND COMMUNITY ON-LOT SEWAGE SYSTEMS.

The Board of Supervisors of East Coventry Township, Chester County, Pennsylvania, hereby **ENACTS** and **ORDAINS** as follows:

SECTION 1. Chapter 18, entitled "Sewers and Sewage Disposal," of the Township of East Coventry Code of Ordinances, is hereby amended by adding the following part:

Part 2

Management of Individual and Community On-Lot Sewage Systems

§201. Short Title; Introduction; Purpose.

1. This Part shall be known and may be cited as the "Sewage Management Program Ordinance of East Coventry Township."
2. In accordance with The Clean Streams Law and the Pennsylvania Sewage Facilities Act, the Township has the power and duty to provide for adequate sewage treatment facilities and for the protection of the public health by prohibiting the discharge of untreated or inadequately treated sewage. In particular, the rules and regulations promulgated by PaDEP under the Pennsylvania Sewage Facilities Act and The Clean Streams Law require the Township to assure proper operation and maintenance of sewage facilities within its borders by the establishment of a sewage management program, and the Official Sewage Facilities Plan of the Township states that it is necessary to formulate and implement such sewage management program.
3. The purpose of this Part is to establish and provide for such sewage management program for individual on-lot sewage systems and community on-lot sewage systems within the Township.

§202. Definitions and Interpretation.

1. General.

- A. The captions used in this Part are for convenience only and shall not control or affect the meaning or construction of any or the provisions of this Part.

regulations at 25 Pa. Code Chapters 71, 72 and 73, unless the context clearly indicates otherwise:

COMMUNITY ON-LOT SEWAGE SYSTEM,
HOLDING TANK,
INDIVIDUAL ON-LOT SEWAGE SYSTEM,
INDIVIDUAL SPRAY IRRIGATION SYSTEM,
LOT,
RETAINING TANK,
SEWAGE,
SEWAGE FACILITIES, and
TREATMENT TANK.

B. The following words and phrases, when used in this Part, shall have the following meanings, unless the context clearly indicates otherwise:

AUTHORIZED AGENT - the Code Enforcement Officer, the local agency sewage enforcement officer, an employee of the Township, a professional engineer, a plumbing inspector, or any other qualified or licensed person who is authorized to function within specified limits as an agent of the Township to administer or enforce the provisions of this Part.

BOARD OF SUPERVISORS - the Board of Supervisors of the Township.

CODE ENFORCEMENT OFFICER - the Code Enforcement Officer of the Township.

HEALTH DEPARTMENT - the Chester County Health Department.

HOLDING TANK ORDINANCE - Part 1, entitled "Holding Tanks," of Chapter 18 of the Code of Ordinances of the Township of East Coventry.

LOCAL AGENCY LAW - Subchapter B of Chapter 5 and Subchapter B of Chapter 7 of Title 2 of Pennsylvania Consolidated Statutes, 2 Pa.C.S. §§551-555, 751-754.

MALFUNCTION - a condition which occurs when an on-lot sewage system discharges sewage onto the surface of the ground, into ground waters of the Commonwealth of Pennsylvania, into surface waters of the Commonwealth, backs up into a building connected to the system or in any manner causes a nuisance or hazard to the public health or pollution of ground or surface water or contamination of public or private drinking water wells. A system shall be considered to be malfunctioning if any of the foregoing conditions occurs for any length of time during any period of the year.

OFFICIAL SEWAGE FACILITIES PLAN - the comprehensive plan, including all revisions thereto, for the provision of adequate sewage systems adopted by the Township and submitted to and approved by PaDEP as provided in and by the Pennsylvania Sewage Facilities Act and the regulations of PaDEP promulgated thereunder.

(3) The schedule of inspections for each on-lot sewage system, identified for such periodic inspection, shall be established by the Code Enforcement Officer.

(4) Notification of the owner of the land, on which each on-lot sewage system identified for such periodic inspection is located, of the foregoing inspection policy and of the established inspection schedule for the system, shall be given in writing by the Code Enforcement Officer by any one or more of the following means:

- (i) handing the notification to the owner wherever he may be found;
- (ii) mailing the notification to the owner, by certified mail, postage prepaid, return receipt requested, to the address of the land or to the last known address of the owner as appearing on the most current Chester County Tax assessment records for the land; or
- (iii) leaving the notification for the owner at the address of the land.

B. It shall be the responsibility of the owner of a lot, on which an on-lot sewage system is located, to have the system pumped in accordance with the schedule set forth in §204 of this Part and to otherwise maintain, repair and replace the system as necessary to prevent the malfunctioning of the system. Such pumping and other necessary maintenance, repair and replacement shall be in accordance with the standards provided by the PaDEP rules and regulations at 25 Pa. Code §71.73(b)(2).

C. The construction, repair and/or replacement of on-lot sewage systems shall be subject to the issuance of appropriate permits by the Health Department.

§204. On-Lot Sewage System Maintenance and Operation.

1. Treatment Tank Systems.

A. The owner of a lot, on which is located a treatment tank system existing on the effective date of this Part or installed after the effective date of this Part, shall have the each tank pumped and the contents thereof disposed of at a licensed sewage disposal facility by a septic tank contractor licensed by PaDEP and/or the Health Department at least once every three (3) years, or whenever an inspection of the tank reveals that the tank is filled with solids or scum in excess of one-third of the liquid depth of the tank. The owner shall submit proof of the pumping and disposal to the Code Enforcement Officer in the form of a receipted bill issued by the contractor or such other proof as shall be acceptable to the Code Enforcement Officer. The initial and subsequent three (3)-year pump and disposal periods, as well as the dates by which proof of the pumping and disposal is to be submitted to the Code Enforcement Office, shall be as established under Paragraph B below.

B. The Board of Supervisors shall, by resolution: (i) divide the geographic area of the Township into as many districts as the Board deems appropriate; (ii) designate each such district on a map of the Township; (iii) assign dates to each district on which the initial and subsequent three (3)-year pumping and disposal periods shall commence for treatment tank systems existing in the district on the effective date of this Part and for treatment tank systems installed in the district after the effective date of this Part; and (iv) assign dates to each district by which the proof of the initial and subsequent pumping and disposal of a

D. The Code Enforcement Officer or other authorized agent shall arrange for periodic inspections of such approved and permitted stream discharge systems by PaDEP as required.

4. Individual Residential Spray Irrigation Systems.

A. Each individual residential spray irrigation system shall be operated and maintained at all times in accordance with rules and regulations of PaDEP at 25 Pa. Code §73.167, and through a maintenance agreement between the owner of the lot, on which the system is located, and an individual, firm or corporation experienced in the operation and maintenance of individual residential spray irrigation systems.

B. A copy of the maintenance agreement, for an individual residential spray irrigation system existing on the effective date of this Part, shall be filed with the Code Enforcement Officer within ninety (90) days after the effective date of this Part. A copy of the maintenance agreement, for a system installed after the effective date of this Part, shall be filed with the Code Enforcement Officer within ninety (90) days after such installation. A copy of any revisions or amendments to the maintenance agreement and a copy of any new maintenance agreement shall be filed with the Code Enforcement Officer within thirty (30) days after the effective date of any such revision, amendment, or new agreement.

5. Change of Ownership. Prior to the conveyance of any lot containing an on-lot sewage system, the sewage system shall be pumped and its contents disposed of as required by this §204, unless the owner files with the Township a receipt issued by a septic tank contractor licensed by PaDEP and/or the Health Department demonstrating that the system was pumped out within the six (6)-month period immediately preceding the conveyance. Following the conveyance of the lot, the new owner shall be subject to the provisions of this Part.

6. Classification. If the type of an on-lot sewage system is unknown, the system shall be classified as a treatment tank system.

7. Location of Systems. If the owner of any lot, which is served by or on which is located an on-lot sewage system, demonstrates to the Code Enforcement Officer that the location of the system is unknown to the lot owner, the owner shall then proceed to have the system located and pumped in accordance with the following schedule:

A. The lot owner shall have the on-lot sewage system located by a date established by Code Enforcement Officer;

B. The lot owner shall have the on-lot sewage system pumped within sixty (60) days after the date on which the system is located; and

C. The lot owner shall then have the on-lot sewage system pumped in accordance with the next scheduled pumping cycle as provided in this §204.

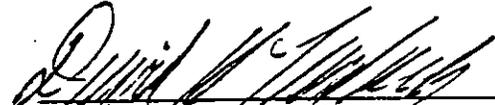
§205. Promulgation of Regulations. In addition to the requirements specified in this §204 and other provisions of this Part, the Board of Supervisors may, by resolution, promulgate such forms and regulations for the administration and enforcement of this Part as the Board shall deem necessary. Failure of a lot owner to receive or secure any required form shall not constitute a defense to the enforcement or penalty provisions of this Part.

illegality or invalidity shall not affect or impair any of the remaining provisions, parts thereof, of this Ordinance. It is the intent of the Board of Supervisors that this Ordinance would have been adopted had such unconstitutional, illegal or invalid provision, or part thereof, not been included herein.

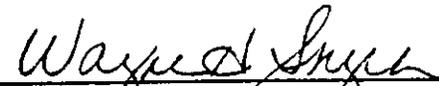
SECTION 3. This Ordinance, including Part 2 added to Chapter 18 of the Township of East Coventry Code of Ordinances, shall become effective five (5) days after enactment hereof.

ENACTED AND ORDAINED this 16th day of October, A.D. 2000.

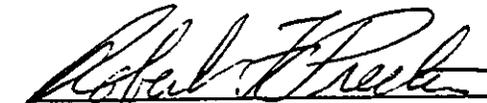
BOARD OF SUPERVISORS OF
EAST COVENTRY TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA



David K. Leinbach, Chairman



Wayne H. Szych, Vice Chairman



Robert F. Preston, Supervisor

ATTEST:



Robert E. Ihlein, Township Secretary

APPENDIX J

Public Notice 2002



649 North Lewis Road
Suite 100
Limerick, PA 19468-1234

(610) 495-0303
(610) 495-5855 (FAX)
Email: info@thearrogroup.com
www.thearrogroup.com

FACSIMILE TRANSMITTAL

TO: Jennifer DeHaven

COMPANY: The Pottstown Mercury

FAX NO.: 610-327-3308

FROM: Bill Bohner

RE: Request for Publication of "Public Notice"

DATE: September 30, 2002

We are transmitting 3 page(s), including the cover sheet. If you do not receive all of the pages, please call as soon as possible.

On behalf of the Board of Supervisors of East Coventry Township, we request the publication of the attached "Public Notice" in the October 4, 2002 edition of the Mercury. Please publish the notice on this day only. The text reads as shown on pages 2 and 3 of this fax.

Please do not hesitate to contact me at 610-495-2102 if you have any questions or if you require additional information. Please provide us with a "Proof of Publication Notice" and bill us for the charges associated with this advertisement. You can send this bill and proof of publication to my attention at the following address:

ARRO Consulting, Inc.
Attn. William L. Bohner, Jr., P.E.
649 North Lewis Road
Suite 100
Limerick, PA 19468-1234

Thank you for your attention concerning this matter.

Sincerely,

Bill Bohner

CONFIDENTIALITY NOTICE: This facsimile contains confidential information which may also be legally privileged and which is intended for the use of the addressee(s) named above. If you are not the intended recipient, or the employee or agent responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile, or the taking of any action in reliance on the contents of this transmittal, may be strictly prohibited. If you have received this facsimile in error, please notify us immediately by telephone and return the entire facsimile to us at the address listed below at our cost via the U.S. Postal Service. Thank you.

Public Notice

The Board of Supervisors of East Coventry Township, Chester County, Pennsylvania, is hereby giving notice of a 30-day public comment period for its Act 537 Sewage Facilities PLAN/SPECIAL STUDY (a revision to the November 2000 PLAN/SPECIAL STUDY) in accordance with Title 25, Chapter 71.31 Subsection (c) of the Pennsylvania Code. Members of the public may submit written comments on the PLAN/SPECIAL STUDY to the East Coventry Township Board of Supervisors, 855 Ellis Woods Road, Pottstown, PA 19465. The final date for receiving public comments is thirty (30) days from the date this Notice is published.

The planning area of the PLAN/SPECIAL STUDY is the entire portion of the Township north of Pigeon Creek from Parkerford in the east to Mitchell Drive in the west. All commercial and industrial zoning districts, with one exception, and all high density residential zoning districts are located in such portion. The PLAN/SPECIAL STUDY evaluates the feasibility of providing public wastewater collection, conveyance, and treatment with a potential discharge to the Pigeon Creek (which is classified as a "High Quality" stream) or Schuylkill River, conveyance of wastewater to the North Coventry Township Wastewater Treatment Plant, or conveyance of wastewater to the East Vincent Township Wastewater Treatment Plant.

The following is a list of sewage facilities alternatives considered by the PLAN/SPECIAL STUDY:

1. Wastewater management alternatives, including: (a) use of existing wastewater treatment facilities in North Coventry Township and East Vincent Township (b) construction and use of new treatment facility in East Coventry Township in either the Northern Schuylkill River Drainage Basin or Pigeon Creek Drainage Basin; (c) wastewater treatment and year round spray irrigation; (d) wastewater treatment and seasonal or partial spray irrigation; (e) wastewater treatment and subsurface disposal; (f) water conservation methods and inflow programs to reduce waste flows; (g) no action; and (h) individual system repairs modifications and/or reconstruction.
2. Collection system alternatives, including: (a) a collection system in a portion of the planning area, designated as "NORCO SERVICE AREA SOUTH", with final treatment supplied by the North Coventry Township wastewater treatment facility; (b) a collection system in portions of the planning area, designated as "NORCO SERVICE AREA SOUTH", and "NORCO SERVICE AREA NORTH", with final treatment supplied by the North Coventry Township wastewater treatment facility; (c) a collection system in a portion of the planning area, designated as "PARKER FORD SERVICE AREA", with final treatment supplied by the East Vincent Township wastewater treatment facility or North Coventry Township wastewater treatment facility; (d) combining the collection systems described foregoing clauses (a) through (c) and (d) combining the collection system for the entire planning area with final treatment provided at a single facility to be sited at three potential locations in East Coventry Township described in paragraph 4 below.
3. Wastewater treatment alternatives, including: (a) biological treatment systems including three types of suspended growth aerobic biological treatment systems, fixed

growth reactor systems, and wastewater stabilization ponds; (b) sludge treatment and disposal alternatives, including land application for agricultural utilization, disposal on reed beds at the treatment plant, and sludge transportation to another wastewater treatment plant with digesting and dewatering facilities or through a company for disposal; (c) disinfection alternatives, including chlorination, ultraviolet light, ozonation, bromine chloride, and sodium hypochlorite; (d) existing wastewater treatment facilities in North Coventry Township or East Vincent Township.

4. Siting alternatives for a new treatment facility in East Coventry Township, including: (a) a 12-acre site located on Wells Road near the intersection with Linfield Road; (b) a 19-acre site located at the northeast terminus of Anderson Road; and (c) a 13-acre site located on Fricks Lock Road approximately 1000 feet north of its intersection with PA. Route 724.

The major recommendation of the PLAN/SPECIAL STUDY is that the Township require developers in the planning are to: (i) construct and dedicate to the Township portions of the wastewater collection system necessary to service their respective projects, and (ii) jointly construct a central network of pumping stations and forcemains in the Township with adequate capacity to service the needs of their respective projects, existing township residents, and reasonable anticipated development, such that wastewater can be conveyed to the North Coventry Municipal Authority's Wastewater Treatment Plant for treatment. An intermunicipal agreement between the Authority and the Township shall allow for a future treatment capacity 0.510 MGD.

In accordance with 25 Pa. Code Section 71.31(c), East Coventry Township invites and will accept public comments on the PLAN/SPECIAL STUDY, and its proposed adoption, during the 30-day period beginning October 4, 2002, and ending November, 2, 2002, inclusive. Comments must be in writing and received by the Township on or before November 2, 2002, at the Township Building at the address first above indicated. If mailed, comments should be addressed to: Board of Supervisors, East Coventry Township, 855 Ellis Woods Road, Pottstown, PA 19465.

Copies of the PLAN/SPECIAL STUDY may be examined at the Township Building, Monday through Friday (except legal holidays), 8:00 a.m. to 4:30 p.m.

David K. Leinbach
Chairman
East Coventry Township Board of Supervisors

John A. Koury, Jr., Esq.
Solicitor

APPENDIX K

Proof of Publication 2002

APPENDIX L

Township Resolution of Plan Adoption

RESOLUTION NO. 2003-4

Resolution for Plan Revision

**RESOLUTION OF EAST COVENTRY TOWNSHIP, CHESTER COUNTY,
PENNSYLVANIA (hereinafter "the Township").**

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537 known as the "Pennsylvania Sewage Facilities Act", as Amended, and the Rules and Regulations of the Pennsylvania Department of Environmental Protection (PADEP) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, require the Township to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said Plan whenever it is necessary to meet the sewage disposal needs of the Township's service area; and

WHEREAS, the Board of Supervisors of the Township has caused a certain Special Study, entitled "East Coventry Township Wastewater Collection and Treatment Special Study" (the "Special Study"), dated and last revised September 2002, to be developed and prepared as a revision to the official plan of the Township under Act 537 and the PADEP rules and regulations thereunder, with respect to providing public sewer collection and treatment to the following described portion of the Township (the "SUBJECT PORTION OF THE TOWNSHIP"):

ALL THAT CERTAIN portion of East Coventry Township bounded on the north by the Schuylkill River; on the east by East Vincent Township; on the west by North Coventry Township; and on the south by a line, which begins at the point of intersection of the south ridge line of Bickels Run with the North Coventry Township-East Coventry Township boundary line, which then follows such south ridge line easterly to the point of its intersection with Pigeon Creek at or near Ellis Woods Road, and which then follows Pigeon Creek further easterly to the first point of its intersection with the East Vincent Township-East Coventry Township boundary line,

With the service area being north of Pigeon Creek and including the Bickels Run tributary basin within a twenty-year planning horizon; and

WHEREAS, the Board of Supervisors has reviewed, considered, and evaluated the Special Study, finds it adequate to provide for public sewer collection and treatment to the SUBJECT PORTION OF THE TOWNSHIP, and desires to adopt the same as a revision to the official plan of the Township.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Supervisor of East Coventry Township, Chester County, Pennsylvania, as follows:

1. Adoption of SPECIAL STUDY.

The SPECIAL STUDY is hereby adopted as a revision to the official plan of East Coventry Township, with respect to providing public sewer collection and treatment to the SUBJECT PORTION OF THE TOWNSHIP.

2. Selected Alternative.

The alternative developed and evaluated in the SPECIAL STUDY, which East Coventry Township hereby selects, is specifically set forth in the "RECOMMENDATIONS" portion of the SPECIAL STUDY (the "SELECTED ALTERNATIVE"), and is more specifically described as follows:

The SELECTED ALTERNATIVE is to require the proposed development in the Township to construct and dedicate to the Township the portions of the collection system necessary to provide service to their respective projects. Additionally, the SELECTED ALTERNATIVE recommends that the Township enter into an Intermunicipal Agreement with the North Coventry Municipal Authority for wastewater treatment capacity and conveyance capacity in the Authority's system. The Intermunicipal Agreement shall establish the legal requirements such that adequate capacity shall be available to service future development needs, and the needs of the existing Township residents. The treatment allocation shall be 0.510 MGD.

East Coventry Township proposes to implement the SELECTED ALTERNATIVE in accordance with the implementation schedule that is a part of and detailed in the SPECIAL STUDY. East Coventry Township is committed to implement the SPECIAL STUDY and the SELECTED ALTERNATIVE within the time limits established by the implementation schedule.

3. Revisions to the Special Study.

The Special Study, dated and last revised September 2002, shall be revised as follows:

- a. On Page 1, second paragraph and throughout the report, "Gardens at East Coventry" shall be renamed "Orchard Ridge".
- b. On Page 1, second paragraph and throughout the report, "Burkhart-Elliot [sic] Tract" shall be renamed "Coventry Meadows".

- c. On Page 1, second paragraph and throughout the report, the proposed units for the "Burkhart-Elliot [sic] Tract" (renamed "Coventry Meadows") shall be changed from 393 units to 379 townhouses and one single-family dwelling unit, equating to 380 Equivalent Dwelling Units (EDUs).
- d. On Page 1, second paragraph and throughout the report, the number of proposed units for the Coventry Business Park shall be changed from 48 units to 27 lots.
- e. The planning map "Figure 2" presented in the September 2002 revised Plan/Special Study shall be revised to reflect Bickels Run and Pigeon Creek as the planning area boundaries.
- f. On Page 3, a sentence shall be added to the paragraph immediately preceding Table 1 to further clarify the designations of "NORCO South" and "NORCO North".
- g. A footnote shall be added to Table 1, on Page 3, clarifying the reasoning for 0 existing EDUs at 5 years, 185 EDUs at 10 years and 251 EDUs at 20 years.
- h. On Page 5, NO^3 shall be changed to NO_3 and NO^2 shall be changed to NO_2 .
- i. On Page 1 and throughout the report, 30 EDUs shall be included for the Heather Glen development.
- j. On Page 1 and throughout the report, 22 EDUs shall be included for the Strutynski, Jr. Tract.
- k. On Page 1 and throughout the report, 61 EDUs shall be included for the Soltys/Strutynski, Sr. Tract.
- l. Table 1 shall be revised to reflect the revisions to the proposed EDUs as indicated above.
- m. Annual debt service per EDU and Annual O&M expenses per EDU shall be adjusted to reflect the changes made to the total number of proposed EDUs as indicated above.
- n. Items added or changed in the APPENDIX listing in the Table of Contents:

Appendix A

- NORCO Service Area South Cost Estimate
- Parkerford Area Cost Estimate
- Suspended Growth Option 1; Schematic Diagram
- Treatment Option 2; Schematic Diagram
- East Vincent Township Correspondence dated 3/12/01
- Treatment Option 3; Schematic Diagram
- March 18, 1999 Correspondence
- May 27, 1999 Correspondence
- September 28, 1999 Correspondence

Appendix D

- Chester County Planning Commission Comments and Responses 2001/2002

Appendix F

- East Coventry Township Planning Commission Comments and Responses 2001/2002

Appendix J

- Public Notice 2002

Appendix K

- Proof of Publication 2002

Appendix L

- Township Resolution of Plan Adoption

Appendix M

- Public Comments and Responses

Appendix N

- 1997 Act 537 Sewage Facilities

o. Page 1, Paragraph 1:

Changed From:

This Plan identifies two needs areas: The Earl Drive/East Cederville Road Area (Study Area #4) and the Parkerford Area (Study Area #2).

To:

This Plan identifies two needs areas: The Earl Drive/East Cederville Road Area (Study Area #4) and the Parkerford Area (Study Area #2). Refer to Figure 1 in Appendix A.

p. Page 1, Paragraph 2:

Changed From:

Subsequent to the adoption of the 1997 Plan, two previously unidentified subdivision proposals have been brought before the Township. The "Gardens at East Coventry" proposing 276 units, the "Burkhart - Elliot Tract" proposing 393 units and the "Coventry Business Park" proposing 48 units. Both projects are located within Study Area #3, which adjoins Study Area #4 and the North Coventry Wastewater Treatment Plant.

Additionally, the annual user fee calculation for Study Area #4 assumes that the North Coventry Sewer Authority would be willing to finance the project costs and spread the debt service over the entire North Coventry user base. Such an approach would result in an annual user fee \$326 per EDU for East Coventry.

To:

Subsequent to the adoption of the 1997 Plan, the following subdivision proposals have been brought before the Township:

Orchard Ridge (High Associates Tract)	276 units
Coventry Meadows	380 units
Heather Glen (Domin-Allison/Miller)	30 units
Coventry Business Park (Colon Tract)	27 lots
Strutynski, Jr.	22 lots
Soltys/Strutynski, St.	61 lots

The development of Orchard Ridge, Strutynski, Jr., and Soltys/Strutynski, Sr. are located in the NORCO South service area. Coventry Meadows, Heather Glen, and Coventry Business Park are located in the NORCO North service area. Refer to Page 3 of this Plan for further definition of these service areas.

q. Page 3, Top of Page:

Changed From:

The estimated wastewater flows for the study area are contained in Table 1

To:

The estimated wastewater flows for the study areas are contained in Table 1. Refer to Figures 3 through 7 found in Appendix C which delineate the North Coventry (NORCO) North, NORCO South, and Parkerford service areas.

r. Page 3, Table 1, NORCO South Proposed 5 year/10 year/20 year
estimated connections:

Changed From:

276/276/276

To:

359/359/359

s. Page 3, Table 1, NORCO South Potential 5 year/10 year/20 year
Estimated Connections:

Changed From:

0/178/269

To:

0/98/189

t. Page 3, Table 1, NORCO North Proposed 5 year/10 year/20 year
Estimated Connections:

Changed From:

441/441/441

To:

437/437/437

u. Page 3, Table 1, NORCO North Potential 5 year/10 year/20 year
Estimated Connections:

Changed From:

0/65/65

To:

0/69/69

- v. Page 3, Table 1, Parkerford Existing 5 year/10 year/20 year Connections: Page 216 of 239

Changed From:

185/229/342

To:

182/226/339

- w. Page 3, Table 1:

Added the Following Note:

* Note: Currently all "Existing" EDUs utilize on-lot disposal systems for wastewater treatment and disposal. It is anticipated that none of the "Existing" EDUs will be connected to the proposed public sewer system for the NORCO North and NORCO South service areas within the next 5 years. However, it is anticipated that a portion of these same "Existing" EDUs will be connected to the public sewer system by the 10-year planning horizon. And, the remainder of the "Existing" EDUs not connected by the 10-year planning horizon will be connected by the 20-year planning horizon.

- x. Page 5, Last Paragraph:

Changed From:

...capacities of sixty (60) days x 510,000 GPD = 30,600,000 gallons. The size...

To:

...capacities of sixty (60) days x 0.510 GPD = 30,600,000 gallons. The size...

- y. Page 6, Paragraph 1:

Changed From:

... The spray field size and application ranges would be the same as that for....

To:

... The spray field size and application ranges would be the same as that for

z. Page 6, Paragraph 2:

Changed From:

....average percolation rate of 22 minutes per inch and 510,000 gal/day, the size of the disposal area....

To:

....average percolation rate of 22 minutes per inch and 0.510 MGD, the size of the disposal area....

aa. Page 9, Paragraph 3:

Changed From:

The most feasible method of removing organic matter (BOD) and converting ammonia nitrogen to nitrates.....

To:

The most feasible method of removing organic matter and converting ammonia nitrogen to nitrates.....

bb. Page 9, Paragraph 4:

Changed From:

... The suspended organisms metabolize the BOD to simpler compounds, carbon dioxide, and water. These biological solids.....

To:

... The suspended organisms metabolize the microorganisms to simpler compounds, carbon dioxide, and water. These biological solids....

cc. Page 11, Treatment Option 2
Engineer's Opinion of Probable Project Costs
0.510 MGD Sequencing Batch Reactor:

Changed From:

Subtotal Construction Costs	\$2,296,725.00
10% Construction Contingency	<u>\$ 229,670.00</u>
Subtotal	\$2,526,395.00
Land Acquisition	\$ 112,000.00

Legal, Financing, Engineering	\$ 595,000.00
Total Estimated Project Costs	\$3,143,395.00
To:	
Subtotal Construction Costs	\$2,271,725.00
10% Construction Contingency	\$ 227,173.00
Subtotal	\$2,498,898.00
Land Acquisition	\$ 112,000.00
Legal, Financing, Engineering	\$ 505,000.00
Total Estimated Project Costs	\$3,115,898.00

dd. Page 13, Paragraph 1:

Changed From:

....media contacting with the bacteria to achieve the metabiological removal of BOD and ammonia. As with the suspended growth systems,.....

To:

....media contacting with the bacteria to achieve the metabiological removal. As with the suspended growth systems,.....

ee. Page 14, Paragraph 3:

Changed From:

Special reeds used in treatment plants are a form of the fragmite family of plants which can uptake nutrients from sewage sludge.....

To:

Special reeds used in treatment plants are a phragmite which can uptake nutrients from sewage sludge.....

ff. Page 15, Paragraph 7:

Changed From:

In correspondence dated September 28, 1999, the North Coventry Municipal Authority indicated they were not in a position to respond to our request.

To:

In correspondence dated September 28, 1999, the North Coventry Municipal Authority indicated they were not in a position to respond to our request. (Correspondence found in Appendix A)

gg. Page 15, Paragraph 8:

Changed From:

....allocated treatment capacity in the expanded facility. This allocated capacity would be 510,000 gpd.

To:

....allocated treatment capacity in the expanded facility. This allocated capacity would be 0.510 MGD.

hh. Page 15, Paragraph 9, Sub-paragraph 1:

Changed From:

....expansion of the Authority's existing wastewater treatment plant to provide for 510,000 gallons per day (average daily flow) of additional.....

To:

....expansion of the Authority's existing wastewater treatment plant to provide for 0.510 MGD (average daily flow) of additional.....

ii. Page 16, Top – Subparagraph 2:

Changed From:

....expansion project to increase the Authority's permit by 510,000 gallons per day and provide for treatment of up to 510,000 gallons of wastewater per day from East Coventry.

To:

....expansion project to increase the Authority's permit by 0.510 MGD and provide for treatment of up to 0.510 MGD from East Coventry.

jj. Page 16, First Full Paragraph:

Changed From:

Capacity availability and cost was also requested of East Vincent Township in February 1999.....

To:

Capacity availability and cost was also requested of East Vincent Township in March 18, 1999 correspondence (Appendix A).....

kk. Page 16, First Full Paragraph:

Changed From:

..... This letter is found in Appendix A.

To:

..... This letter is also found in Appendix A.

ll. Page 16, Last Paragraph:

Changed From:

....north of its intersection with SR 0724. These sites are indicated on figures 7, 8 and 9 in Appendix "A".

To:

....north of its intersection with SR0724. These sites are indicated on figures 5, 6, and 7 in Appendix C.

mm. Page 17, the First Paragraph under the heading "Annual User Fees":

Changed From:

The following summarizes the capital cost for treatment facilities.

A ² O	Option 1	\$3,281,000
SBR	Option 2	\$3,143,395
Oxidation Ditch	Option 3	\$3,496,850

Of the five options for collection in the NORCO – South.....

To:

The following summarizes the capital cost for treatment facilities.

A ² O	Option 1	\$3,281,000
SBR	Option 2	\$3,115,898
Oxidation Ditch	Option 3	\$3,469,850
Existing Treatment Facility	Option 4	See Previous Section

Of the five options for collection in the NORCO – South.....

mn. Page 17, the Second Paragraph under the heading “Annual User Fees”:

Changed From:

Using the Base Area and Options 2, 3 and 4 yields a collection system cost of \$2,598,482 for a total of 194 existing EDU’s. The proposed Coventry Business Park would yield 48 EDU, Coventry Gardens 276 EDU’s and the Burkhart – Elliot Tract an additional 393 EDU’s for a total of 911 EDU’s. Allowing an annual O&M cost of \$150 per EDU for option 1 and 3 and \$130 per EDU for option 2 would result in the following annual user fees:

To:

Using the Base Area and Options 2, 3, and 4 yields a collection system cost of \$2,598,482 for a total of 182 existing EDUs. The proposed Coventry Business Park would yield 27 EDUs, Orchard Ridge 276 EDUs and Coventry Meadows an additional 380 EDUs, Heather Glen 30 EDUs, Strutynski, Jr. 22 EDUs, and Soltys/Strutynski, Sr. 61 EDUs for a total of 981 EDUs. Allowing an annual O&M cost of \$150 per EDU for options 1 and 3 and \$130 per EDU for option 2 would result in the following annual user fees:

oo. Page 17; Option Costs at Bottom of Page; Option 2:

Changed From:

Option 2

\$ 3,143,395

\$ 2,598,482

\$ 5,741,877

\$ 3,143,395

\$ 2,598,482

\$ 172,959

190

130

320

To:

Option 2

\$ 3,115,898

\$ 2,598,482

\$ 5,714,380

\$ 3,115,898

\$ 2,598,482

\$ 172,959

\$ 176

\$ 130

\$ 306

pp. Page 18; Section Heading:

Changed From:

RECOMMENDATIONS

To:

RECOMMENDATIONS AND SELECTED ALTERNATIVE

qq. Paragraph 3; Page 18:

Changed From:

.....the North Coventry Municipal Authority for wastewater treatment capacity and conveyance capacity in the Authority's system. This Agreement will.....

To:

.....the North Coventry Municipal Authority for wastewater treatment capacity at the Authority's wastewater treatment plant and conveyance capacity in the Authority's system. This Agreement will.....

rr. Implementation Schedule; Pages 18 and 18

Changed From:

- | | |
|---|---------------|
| 1. Submit revised Act 537 Plan to County Planning Commission for review and comment. | October 2002 |
| 2. Submit revised Act 537 Plan to County Health Department for review and comment. | October 2002 |
| 3. Submit revised Act 537 Plan to Township Planning Commission. | October 2002 |
| 4. Advertise revised Act 537 Plan for Public Comment. | October 2002 |
| 5. Respond to Public Comment | November 2002 |
| 6. Respond to County and Township Comments | December 2002 |
| 7. Finalize and Execute Intermunicipal Agreement | December 2002 |
| 8. Pass Resolutions Adopting Revised Act 537 Plan | December 2002 |
| 9. Submit revised Plan to PADEP for Final Review and Approval | December 2002 |
| 10. Receive Approval from PADEP. | January 2003 |
| 11. Begin Preparing Design Plans and Specifications for the Collection and Conveyance System. | January 2003 |
| 12. Submit Part II Application to PADEP. | March 2003 |
| 13. Receive comments from PADEP, Incorporate into Contract Documents and Respond. | May 2003 |
| 14. Receive permit from PADEP. | June 2003 |
| 15. Finalize Contract Documents and prepare for bidding. | June 2003 |
| 16. Advertise for Bids. | July 2003 |

August 2003

September 2003

October 2003

October 2004

17. Receive and Open Bids.
18. Notice of Project Award.
19. Start Construction
20. Substantial Completion

To:

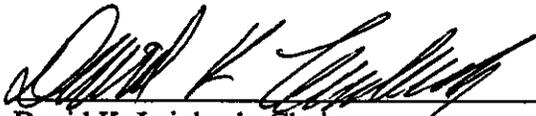
- | | |
|---|----------------|
| 1. Submit revised Act 537 Plan to County Planning Commission for review and comment. | October 2002 |
| 2. Submit revised Act 537 Plan to County Health Department for review and comment. | October 2002 |
| 3. Submit revised Act 537 Plan to Township Planning Commission. | October 2002 |
| 4. Advertise revised Act 537 Plan for Public Comment. | October 2002 |
| 5. Respond to Public Comment | November 2002 |
| 6. Respond to Township Comments | December 2002 |
| 7. Respond to County Comments | January 2003 |
| 8. Pass Resolutions Adopting Revised Act 537 Plan | January 2003 |
| 9. Submit revised Plan to PADEP for Final Review and Approval | January 2003 |
| 10. Begin Preparing Design Plans and Specifications for the Collection and Conveyance System. | January 2003 |
| 11. Receive Act 537 Plan Approval From PADEP | February 2003 |
| 12. Submit Part II Application to PADEP. | March 2003 |
| 13. Finalize and Execute Intermunicipal Agreement | March 2003 |
| 14. Receive comments from PADEP concerning the Part II Permit Application. Incorporate into Contract Documents And Respond. | May 2003 |
| 15. Receive permit from PADEP. | June 2003 |
| 16. Finalize Contract Documents and prepare for bidding. | June 2003 |
| 17. Advertise for Bids. | July 2003 |
| 18. Receive and Open Bids. | August 2003 |
| 19. Notice of Project Award. | September 2003 |
| 20. Start Construction | October 2003 |
| 21. Substantial Completion | October 2004 |

NOW, THEREFORE, BE IT RESOLVED, that East Coventry Township hereby adopts and submits to the Pennsylvania Department of Environmental Protection for its approval, as a revision to the "Official Plan" of East Coventry Township, this SPECIAL STUDY.

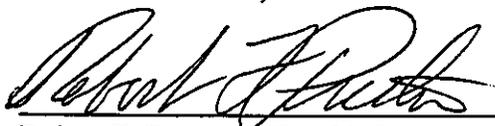
The Township finds that the SPECIAL STUDY described above conforms to applicable zoning, subdivision, other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

RESOLVED AND ADOPTED this 20th day of January A.D. 2002. Page 225 of 239

**BOARD OF SUPERVISORS OF EAST
COVENTRY TOWNSHIP, CHESTER
COUNTY, PENNSYLVANIA**



David K. Leinbach, Chairman

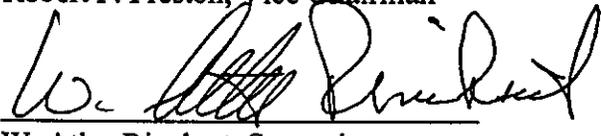


Robert F. Preston, Vice Chairman

ATTEST:



Robert F. Preston, Township Secretary



W. Atlee Rinehart, Supervisor

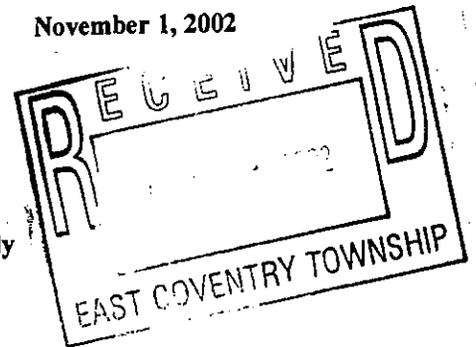
APPENDIX M

Public Comments and Responses

East Coventry Township
Board of Supervisors
855 Ellis Woods Road
Pottstown, Pa. 19465



November 1, 2002



Re: Wastewater Collection and Treatment Special Study

Gentlemen:

As per your published legal notice of October 5, 2002, in the Pottstown Mercury, I would like to submit the following:

I purchased a copy of subject study from your office and I find it difficult to understand, it is lengthy and in some instances not easily understood. I am not a lawyer or an engineer by training, so if I am in error I stand to be corrected.

As per your requirements that comments and questions be in writing, I will list them by number; and I request the courtesy of a written answer.

#1 - Appendix B - Planning area map is not consistent with written description on Page 2 (study area). The base map used for this exhibit appears to be incomplete, at least some if not most of the construction over the past 5 years is not shown.

#2 - Appendix C - Figures 3 through 7 are of quality and scale as to be almost useless.

#3 - Appendix H - Draft agreement, copy appears to be incomplete.

Article XI - missing

Article XIX - exhibits A through G missing

#4 - Question - As per time schedule on pages 18 - 19 do you intend to execute completed inter-municipal agreement without a public review and comment period?

#5 - Question - Do you as per schedule on pages 18 - 19 intend to execute municipal agreement with payment of \$300,000.00 (Three hundred thousand dollars) as noted on page 5 of agreement before receiving final PA DEP approval?

#6 - Question - Do you intend to collect payment of developers EDU'S (711 @ \$5750.00 or \$4,088,250.00) before obligating the township under these agreements.

#7 – Question – Do you intend to form an East Coventry Authority or operate as East Coventry Township. Have you received legal and financial recommendations with obligations and liabilities of each course of action. It appears North Coventry Township has distanced themselves by use of the North Coventry Authority. Are there plans for bonded debt to any part of these proposals? If so, would they be East Coventry General Obligation or Wastewater Revenue?

#8 – Question – Exhibits show a legend for Norco service area North that lines would be constructed by Developer. Is this in addition to any other figures shown in the study and in addition to payment for EDU'S.

#9 – Question – As per #8 above (lines to be paid for be developer) does that apply to all lines shown on Figure 2 now referred to as 5-year-planning area. If not, is there a cost estimate of what costs must be paid by East Coventry taxpayers?

#10 – Question – What is the total cost estimate of the collection system?

#11 – Question – Are costs for all aspects of this study and implementation being accounted for separately including administration, clerical, engineering, and legal; and will these costs be paid by the wastewater operations in their entirety. Have all expenses over the past several years having to do with this study, been separately identified?

#12 – Question – Is there a cost estimate for the Parker Ford area collection system, this area is identified the same as North area as 5-year-planning area. Do you intend to proceed with this at the same time. If you are not planning to do the Parker Ford area first or at the same time, I would appreciate an explanation of why you are not proceeding with the one area of East Coventry that has a documented need for service on a health hazard need.

#13 – Question – I would appreciate an explanation on something I find contradictory. I understand you are soliciting a list of residents who want to hook up to a wastewater service, and I also refer to a newspaper article of last year where a supervisor was quoted (correctly or incorrectly) that hook up would not be mandatory and please correct me if I am in error that all packaged plants (schools, mobile home park, etc.) and community systems must hook up to a municipal system if available. It is also my understanding that any one within 150' must connect.

Reference: Mr. Koury's statement in Item #6 discussion items – sewerage facilities. Township minutes of June 17, 2002.

#14 – Comment – Prior 537 plans were structured to require on-site wastewater systems that would result in less density and no financial burden on East Coventry citizens. I personally feel that these were rejected to maximize financial gain in development.

#15 - Comment – There are 2 letters included in the 537 study packet so I feel free to comment on them. One is dated February 28, 2001, from William H. Fulton, AICP, Chester County Planning Commission to PA DEP stating a policy of county support for grants, etc. for land for spray systems and/or lagoons. It is a shame at that time East Coventry did not ask for the use of one of two large lagoons that are Chester County Property and are far in excess of size requirements for any calculations I find in the study. The study also states that these types of treatment systems were rejected solely on land cost and availability. The second letter is the Township's answer to the above dated March 10, 2001. I won't comment on the testy nature of the letter as that is in the eye of the reader but it does reflect on the Township in general. What I will point out is if the Township had made an effort to acquire the use of a basin, the 5 points outlined in the letter would have been met. You also point out in this letter that "ground water replenishment is not an issue." I imagine you will require the 717 EDU'S for developers to connect to the public water supply, and by my math that should be approximately 215,000 gallons per day. That leaves 295,000 gallons per day, a most significant portion that will probably come from ground water, as history shows a very small percentage of people will pay for public water if they are not forced to. The export of significant amounts of groundwater to the river is a disaster in the making.

#16 – Comment – I am making an assumption that Article XI, that is missing from the copy of the Municipal Agreement has to do with East Coventry Park Land. I have been through the last 6 months of Township minutes and can find no reference to it. If the quote "Executive Session" has to do with the transfer of East Coventry Park Land to North Coventry Municipal Authority, don't you think it is time to make it public. I am attaching a copy of a letter from 1982 that I think is self-explanatory. I would think it prudent that East Coventry seek court approval to sell this land to prevent possible litigation that would be time consuming and very expensive for all concerned.

Further, if a sale does take place what is your intention to do with the proceeds. Have you considered returning that money to the people who gave the land for a different use? Have you considered using the money for other park land or is this to be for other uses. When all is said and done; and if you can justify the selling of this property legally, I would ask how you can morally justify it.

I have a lot more items that I do not understand but I feel the length of this letter might not lead to serious consideration on your part if I go further. I also hope that your request for comments are not just a formality if too many promises and commitments have been made. In closing it should be stated that my wife and I own property in East Coventry that would greatly benefit from your current proposals if we were content to just go along. What we do with our property will have to be decided at a later date.

Thank you for your time,

A handwritten signature in cursive script that reads "Robert H. Turner". The signature is written in black ink and is positioned above the typed name and address.

Robert H. Turner
391 Harley Road
P.O. Box 200
Parker Ford, Pa. 19457

HEYSER LANDSCAPING INC.

400 N. PARK AVENUE • NORRISTOWN, PA. 19403
Area Code (215) 539-6090

June 15, 1982

RECEIVED JUN 17 1982

East Coventry Township
Board of Supervisors
P.O. Box 16
Parker Ford, PA 19457

Gentlemen:

My brother, John E. Heyser, and I own approximately 33 acres of ground on Rt. 724 surrounding the former Marty's Diner.

We would like to meet with the supervisors at the July 12, 1982 meeting to discuss the possibility of us donating the ground to East Coventry Township for recreational purposes.

Please let us know if we can be put on the agenda.

Very truly yours,

HEYSER LANDSCAPING, INC.



William H. Heyser
President

WHH:mcc

copy to Supervisors 6/17/82

November 19, 2002

Mr. Robert H. Turner
391 Harley Road
P.O. Box 200
Parker Ford, PA 19457

RE: East Coventry Township
Act 537 Special Study
Response to Public Comments
ARRO # 5222.12

The ARRO Group, Inc.

ARRO Consulting, Inc.

*ARRO Environmental
Services, Inc.*

Dear Mr. Turner:

Thank you for your comments regarding the East Coventry Township Act 537 Plan/Special Study (Special Study). On behalf of East Coventry Township, we would like to take this opportunity to respond to your comments that raise questions and concerns about various aspects of the Special Study. The following are responses to these questions and concerns. These comments and responses will become a part of the Special Study that is submitted to PA DEP.

649 North Lewis Road

Suite 100

Limerick, PA 19468-1234

610.495.0303

Fax: 610.495.5855

info@thearrogroup.com

www.thearrogroup.com

Comment #1:

Appendix B – Planning area map is not consistent with written description on Page 2 (study area). The base map used for this exhibit appears to be incomplete, at least some if not most of the construction over the past 5 years is not shown.

Response:

The planning area map found in Appendix B of the Special Study has been revised to more accurately reflect the bounds of the planning area as discussed at the June 17, 2002 Board of Supervisors meeting. The description found on page 2 of the Special Study has also been revised to more accurately reflect what is depicted on Figure 2. The background for Figure 2 was derived directly from the USGS Phoenixville and Pottstown Quadrangle Maps. These quadrangle maps were last revised in 1983 and 1973 respectively. The intent of utilizing the USGS backgrounds was to provide a means of showing the location of the proposed public sanitary sewer and the location of proposed residential development.

Comment #2:

Appendix C – Figures 3 through 7 are of quality and scale as to be almost useless.

Response:

The copies included with the Special Study have a background that originates from a scanned image. The backgrounds of the Xerox copies of the originals appear fuzzy. For the submission to PA DEP, each Special Study will have original prints of each Figure (Figures 3 through 7).

ENGINEERING

CONSULTING

OPERATIONS

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Comment #3:

Appendix H – Draft agreement, copy appears to be incomplete.

Article XI – missing

Article XIX – exhibits A through G missing

Response:

Article XI and Article XIX (Exhibits A through G) will be provided as part of the final Intermunicipal Agreement.

Comment #4:

Question – As per time schedule on pages 18 – 19 do you intend to execute completed intermunicipal agreement without a public review and comment period?

Response:

Per the discussion at the November 4, 2002 Board of Supervisors meeting, the Township has conducted a public review and allowed for a comment period for the Act 537 Plan. It is not the intent of the Township to conduct a public review and comment period for the Intermunicipal Agreement.

In reference to the time schedules shown on pages 18 and 19 of the Special Study, the schedule will be revised to reflect that the Intermunicipal Agreement will be executed and adopted after the approval of the Special Study by PA DEP.

Comment #5:

Question – Do you as per schedule on pages 18 – 19 intend to execute municipal agreement with payment of \$300,000.00 (Three Hundred thousand dollars) as noted on page 5 of agreement before receiving final PA DEP approval?

Response:

No. The execution of the Intermunicipal Agreement, with payment of \$300,000 as noted on page 5 of the Agreement, will not occur until after PA DEP approves the Special Study.

Comment #6:

Question – Do you intend to collect payment of developers EDU's (711 @ \$5750.00 or \$4,088,250.00) before obligating the township under these agreements.

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Response:

Yes, the Township does intend to collect payment of developers EDUs before obligating the Township under the Agreement. The exact number of EDUs required to fund the work associated with the Intermunicipal Agreement is currently being negotiated. Before the Intermunicipal Agreement is signed, the Township, through a separate agreement with the sewer consortium, will obtain the monies necessary to fund the work associated with the Intermunicipal Agreement.

Comment #7:

Question – Do you intend to form an East Coventry Authority or operate as East Coventry Township. Have you received legal and financial recommendations with obligations and liabilities of each course of action. It appears North Coventry Township has distanced themselves by use of the North Coventry Authority. Are there plans for bonded debt to any part of these proposals? If so, would they be East Coventry General Obligation or Wastewater Revenue?

Response:

It is the intent of the Township to operate as East Coventry Township and not to form an Authority at this time. The Township wishes to maintain control of the proposed collection and conveyance system.

There are no plans for bonded debt to any part of the sewers to service the developers' proposals. The sewer consortium shall fund design and construction of the collection and conveyance system as well as the wastewater treatment plant expansion. It is possible that bonded debt may be entered into to service areas requiring public sewers after the developers' conveyance system is constructed.

Comment #8:

Question – Exhibits show a legend for Norco service area North that lines would be constructed by Developer. Is this in addition to any other figures shown in the study and in addition to payment for EDU's.

Response:

Please refer to Figure 2, found in Appendix B, which is a compilation of Figures 3-7. The gravity sewer main (shown in green), the force main (shown in red), and the pump stations (shown in red), which are part of the initial collection and conveyance system design, are the responsibility of the developers in terms of payment.

The issue as to who would pay for the black lines shown on Figure 2, which are not a part of the initial collection and conveyance system design, would be addressed on a case-by-case basis in the future. It is the Township's intent to maximize developer

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funding/contributions to the greatest extent for future sewer collection and conveyance systems.

Comment #9:

Question – As per #8 above (lines to be paid for by developer) does that apply to all lines shown on Figure 2 now referred to as 5-year-planning area. If not, is there a cost estimate of what cost must be paid by East Coventry taxpayers?

Response:

Please refer to Figure 2 again, found in Appendix B. As discussed in our response to Comment #8 above, the issue as to who would pay for the black lines shown on Figure 2, which are not a part of the initial collection and conveyance system design, would be addressed on a case-by-case basis in the future, including the 5-year planning area. It is the Township's intent to maximize developer funding/contributions to the greatest extent for future sewer collection and conveyance systems.

Funding for the design and construction of the initial collection and conveyance system (red and green lines on Figure 2), and funding for design and construction the wastewater treatment plant expansion, will be provided entirely by the sewer consortium without any cost to taxpayers.

Secondly, if bonded debt were proposed it would be in the form of "Sewer Revenue Bonds" which would be retired by the users of the public sewer system. The Township would not issue "General Revenue Bonds", which are general obligations of the Township and funded by the taxpayers.

Comment #10:

Question – What is the total cost estimate for the collection system?

Response:

By collection system, we are assuming that you are referring to the colored lines shown on Figure 2. The preliminary construction cost opinion for the collection system is currently anticipated to be approximately \$2,000,000. Please again note that both the design and construction of the collection system will be funded entirely by the developers.

Comment #11:

Question – Are costs for all aspects of this study and implementation being accounted for separately including administration, clerical, engineering, and legal; and will these costs be paid by the wastewater operations in their entirety. Have all expenses over the past several years having to do with this study, been separately identified?

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Response:

It is the intent of the Township to maintain a separate accounting system for the wastewater system including administration, clerical, electrical power, maintenance, repair, chemicals, cleaning, clearing of blockages, as well as other items. It is also the intent of the Township that the costs for the system be paid for by the users of the system.

Comment #12:

Question – Is there a cost estimate for the Parker Ford area collection system, this area is identified the same as North area as 5-year planning area. Do you intend to proceed with this at the same time. If you are not planning to do the Parker Ford area first or at the same time, I would appreciate an explanation of why you are not proceeding with the one area of East Coventry that has a documented need for service on a health hazard need.

Response:

At this time, there is neither a cost opinion prepared for nor plans to proceed with providing public sewer service to the Parkerford area due to the fact that development is not occurring in that area. Should development occur in that area, the Township would have the developer provide a conveyance system for that service area. It is understood that development pressure is beginning to make its presence known in the Parkerford area. Thus the Township will treat these developers the same as they have done for the North Area. We understand that you have acreage for sale in the Parkerford Area. Should you desire public sewer service as a developer, we recommend that you contact the Township and make your desires known.

Please provide the documentation that a health hazard exists in the Parkerford Area. If such a health hazard exists, PA DEP and the Chester County Health Department are responsible for insuring the health hazard is cleaned-up. To the Township's recent knowledge, neither PA DEP nor the Chester County Health Department has issued any orders or directed the owners of such property to correct their systems.

Comment #13:

Question – I would appreciate an explanation on something I find contradictory. I understand you are soliciting a list of residents who want to hook up to a wastewater service, and I also refer to a newspaper article of last year where a supervisor was quoted (correctly or incorrectly) that hook up would not be mandatory and please correct me if I am in error that all packaged plants (schools, mobile home parks, etc.) and community systems must hook up to a municipal system if available. It is also my understanding that any one within 150' must connect. Reference: Mr. Koury's statement in Item #6 discussion items – sewerage facilities. Township minutes of June 17, 2002.

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Response:

The Township is indeed soliciting a list of residents who want to connect to the proposed public sewer system. This is being done so that the Township can determine, from a design standpoint, whether or not it is feasible to accommodate those residents.

The Township is required to enact a Mandatory Connection Ordinance as prescribed by Pennsylvania Law in order to require anyone within 150 feet of a gravity sewer to make a connection. This Ordinance does not apply to connection to force mains. Secondly, any facility that has a permit for operation from the PA DEP, can only be required to connect to a public system by PA DEP either by directing the permittee to connect or the by PA DEP refusing to issue another NPDES permit.

Comment #14:

Comment – Prior 537 plans were structured to require on-site wastewater systems that would result in less density and no financial burden on East Coventry citizens. I personally feel that these were rejected to maximize financial gain in development.

Response:

The East Coventry Township Zoning Ordinance governs the allowable density on any given piece of land. For example, the previous R- 3 Zoning allowed six (6) dwelling units per acre. The East Coventry Township land mass cannot support that density with on-site systems. Thus the Zoning Ordinance, as written, required Public Water and Sewer to support that density. The previous Act 537 Plan provided a hierarchy, from typical on-site system to package WWTPs, to service the sewerage needs for each development. The East Coventry Township Board of Supervisors did not want a “Package WWTP” serving each development, which met the Zoning Ordinance. Therefore, the Board of Supervisors addressed allowable Zoning density through the Act 537 requirements by providing for public sewers to service the developments at no cost to the residents of the Township.

The Zoning Ordinance governs density and the Act 537 Plan is a supporting Act to address sewerage issues created by the density allowed by the Zoning Ordinance. Since the Act 537 Plan is supporting the Zoning Ordinance, it may not be used to control or modify an enacted Zoning Ordinance density or such other issues addressed in the Zoning Ordinance. The Act 537 Plan must be consistent with and support the enacted Zoning Ordinance at the time of its development.

Comment #15:

Comment – There are 2 letters included in the 537 study packet so I feel free to comment on them. One is dated February 28, 2001, from William H. Fulton, AICP, Chester County Planning Commission to PA DEP stating a policy of county support for grants, etc. for land for spray systems and/or lagoons. It is a shame at that time East Coventry did not ask for the use of one of two large lagoons that are Chester County Property and are far in excess of size requirements for any calculations that I find in the study. The

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study also states that these types of treatment systems were rejected solely on land cost and availability. The second letter is the Township's answer to the above dated March 10, 2001. I won't comment on the testy nature of the letter as that is in the eye of the reader but it does reflect on the Township in general. What I will point out is if the Township had made an effort to acquire the use of a basin, the 5 points outlined in the letter would have been met. You also point out in this letter that "ground water replenishment is not an issue." I imagine you will require the 717 EDU's for developers to connect to the public water supply, and by my math that should be approximately 215,000 gallons per day. That leaves 295,000 gallons per day, a most significant portion that will probably come from ground water, as history shows a very small percentage of people will pay for public water if they are not forced to. The export of significant amounts of groundwater to the river is a disaster in the making.

Response:

The East Coventry Township letter of March 10, 2001, essentially speaks for itself without the need for further comment. However it should be noted that the silt basins are currently owned by Chester County, and are being operated as a Park. These basins are below the 100-year flood elevation. All wastewater facilities are to be at least 1 foot greater in elevation than the 100-year flood elevation.

With respect to ground water replenishment, the Zoning Ordinance requires public water to be supplied to each of the proposed developments based on their allowed density. The Board of Supervisors, at a public meeting with Citizens Water Company (now Pennsylvania-American Water Company), specifically questioned the company concerning where the potable water was going to come from. According to the Pennsylvania-American Water Company, the water sources for East Coventry Township lie outside of the Township. No deep wells would be utilized.

Comment #16:

Comment -- I am making an assumption that Article XI, that is missing from the copy of the Municipal Agreement has to do with East Coventry Park Land. I have been through the last 6 months of Township minutes and can find no reference to it. If the quote "Executive Session" has to do with the transfer of East Coventry Park Land to North Coventry Municipal Authority, don't you think that it is time to make it public. I am attaching a copy of a letter from 1982 that I think is self-explanatory. I would think it prudent that East Coventry seek court approval to sell this land to prevent possible litigation that would be time consuming and very expensive for all concerned. Further, if a sale does take place what is your intention to do with the proceeds. Have you considered returning that money to the people who gave the land for different use? Have you considered using the money for other park land or is this to be for other uses. When all is said and done; and if you can justify the selling of this property legally, I would ask how you can morally justify it.

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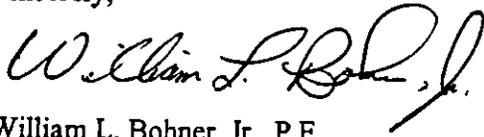
November 19, 2002

Response:

As discussed at the November 4, 2002 Board of Supervisors meeting, the transfer of East Coventry Park Land is a completely separate transaction from any reference in the Intermunicipal Agreement. The land transfer will not be part of the Intermunicipal Agreement.

Thank you again for your attention concerning this important regional sewage facilities plan.

Sincerely,



William L. Bohner, Jr., P.E.

Project Engineer

WLB:car

- c: Board of Supervisors – East Coventry Township
- Township Manager – East Coventry Township
- John A. Koury, Jr., Esq., Township Solicitor – O'Donnell, Weiss & Mattei, P.C.
- Brady L. Flaharty, P.E., Township Engineer – ARRO Consulting, Inc.

East Coventry Township

Parker Ford Area

Act 537 Special Study

August 2021

Rev. July 2025

Engineer's Project No. 10953.04

Prepared By:



ARRO Consulting, Inc.

321 N. Furnace Street, Suite 200

Birdsboro, PA 19508

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EXECUTIVE SUMMARY

This Act 537 Special Study (Special Study) was prepared for East Coventry Township (Township) at the request of the Pennsylvania Department of Environmental Protection (PA DEP) in accordance with Act 537 entitled the Pennsylvania Sewage Facilities Act, Title 25, Chapter 71 of the Pennsylvania Code and the Pennsylvania Department of Environmental Protection Act 537 Plan Content and Environmental Assessment Checklist. This Special Study addresses the requirements necessary to implement public sanitary sewer service to the Parker Ford planning area. (See Appendix E for planning area map)

The Plan is comprised of the following components addressed in the Plan of Study:

- I. Previous Wastewater Planning
- II. Physical and Demographic Analysis
- III. Existing Sewage Facilities in the Planning Area
- IV. Future Growth and Development
- V. Alternatives to provide for new or improved wastewater disposal facilities
- VI. Evaluation of Alternatives
- VII. Institutional Evaluation
- VIII. Selected Wastewater Treatment and Institutional Alternative

The primary focus of the Plan is to evaluate alternatives to provide for public wastewater collection and conveyance facilities to the Parker Ford area located in the southeastern corner of the Township.

To meet the wastewater conveyance needs of the planning area, it is proposed that the Township implement the construction of a regional pump station and force main to serve the planning area and convey the wastewater to the Towpath Park Pump Station and ultimately the North Coventry WWTP.

The Engineer's opinions of probable construction cost (**planning level costs**) for the selected alternative is for the following wastewater collection and conveyance components:

- Construct a regional pump station that will serve the Parker Ford Planning Area.

- Construct a 6-inch force main that will extend from the proposed regional pump station to East Coventry Township's existing pump station at Towpath Park.
- Utilize the currently allocated capacity available to the Township at the North Coventry Wastewater Treatment Plant.

Total Cost (Pump Station and Force Main): \$3,466,501

Total Cost (Collection System):

- **Planning Area (East) Phase I: \$6,032,867**
- **Planning Area (Central) Phase II: \$5,659,640**
- **Planning Area (West) Phase III: \$6,273,211**

The approximate phasing of collection system construction is shown on the Exhibit found in Appendix H.

The infrastructure improvements being proposed can be financed via multiple avenues.

This includes:

- H₂O PA Sanitary Sewer System Grants.
- PA Small Water and Sewer System Grants
- Bank Loan Financing (very low interest rates)

The following is a schedule for implementing the proposed alternative:

Description	Date (months after DEP Approval of Special Study)
Receive PA DEP Approval.	-----
Start Design of the Collection/Conveyance System (Phases I) and the Pump Station.	1
Begin to Address Project Financing Options (Grants for Phase I)	6
Prepare and Submit the Part II Permit Application, CCCD Permit Application, and PADOT Highway Occupancy Permit Application (Phase I).	16
Receive Permit Approvals (Phase I)	24
Complete Project Financing and Finalize Design (Phase I).	30
Initiate Project Bid Phase (Phase I).	40
Start Construction (Phase I)	60
Complete Construction (Phase I)	76
Initiate design for Phases II and III	76

I. PREVIOUS WASTEWATER PLANNING

A. Identify and Discuss Existing Wastewater Planning

1. *Previous Act 537 Planning*

An Act 537 Sewage Facilities Plan, dated January 2003, was prepared for East Coventry Township. This was a Special Study. The primary purpose of the Special Study was to consider the implementation of public collection and conveyance to needs areas of the Township.

Prior to this Special Study, the Township prepared and submitted an Act 537 Plan in 1997. The focus of both the 1997 and 2003 Plans was to provide public wastewater services to identified needs areas in the Township.

2. *Planning Not Done in Accordance with an Approved Implementation Schedule*

There has been no planning by the Township that has not been completed in accordance with an approved implementation schedule.

3. *Additional Planning*

There is no additional planning that is anticipated by the Township above and beyond the planning associated with this Act 537 Special Study.

4. *Planning Via Planning Modules or Addenda.*

Currently, any proposed development must submit planning modules in accordance with prescribed planning requirements to amend the Township's 537 Plan.

II. PHYSICAL AND DEMOGRAPHIC ANALYSIS

A. Identify Planning Area, Municipal Boundaries, and Service Area Boundaries Through Mapping

This Act 537 Special Study is being prepared to address the sewage facilities needs of the Parker Ford planning area currently served by on-lot disposal systems. Parker Ford is located in the southeastern corner of the Township. Refer to the Plan in Appendix E that shows the boundary for the planning area addressed in this Special Study.

B. Identify the Physical Characteristics of the Planning Area

East Coventry Township is located in Chester County, southeast of Pottstown, PA. The topography of the planning area varies from a low elevation of 110 feet near the Schuylkill River to an elevation of 200 feet near Saylor's Mill Road. A topographical map of the area is found in Appendix B.

In addition, the wetlands per the National Wetlands Inventory Map are detailed on the map found in Appendix K.

C. Soils Analysis

In the identified planning area, most areas are served by on-lot disposal systems. A general overview of the soils types for the Parker Ford Area show that most of the soils are very limited or somewhat limited in terms of being able to support on-lot treatment and disposal of domestic wastewater. Color-coded soils mapping found in Appendix A illustrates this.

D. Geological Features of the Planning Area

The primary geologic formation in the planning area is:

1. Brunswick

The Brunswick formation is “characterized by reddish brown shale, mudstone, and siltstone. The topography of this formation is characterized by rolling hills.” (Pottstown Metropolitan Regional Comprehensive Plan).

E. Topography

As referenced in Section II.B. of this Plan, the topography of the planning area varies from a low elevation of 110 feet near the Schuylkill River to an elevation of 200 feet near Saylor’s Mill Road. A topographical map of the area is presented in Appendix B.

F. Potable Water Supply Information

The planning area is served by a mix of private wells and a public water supplier.

G. Wetlands

There are some wetlands within the planning area on the Pigeon Creek. See the map found in Appendix K. The source for the wetlands information is the National Wetlands Inventory Mapping provided by the U.S. Fish and Wildlife Service. Freshwater forested/shrub wetlands are generally located adjacent to and along the Pigeon Creek and the Schuylkill River. It appears that the wetlands, given their location, will be minimally impacted by existing and proposed wastewater facilities.

III. EXISTING FACILITIES IN THE PLANNING AREA

A. Identify and Describe Municipal Sewage Systems in the Planning Area

1. *Location, Size, and Ownership of Facilities*

There are collection/conveyance facilities in developments adjacent to but outside of the planning area. These facilities were addressed as part of the 537 Planning prepared in the early 2000's. The Township owns and maintains their sanitary sewer collection and conveyance systems under Water Quality Management Permit No. 1503417. This collection and conveyance system serves primarily residential areas that cover several watersheds in the northcentral part of the Township. Wastewater in these watersheds flows by gravity to one of five pumping stations which ultimately convey the wastewater to a wastewater treatment plant operated by the North Coventry Municipal Authority.

2. *Narrative and Schematic Diagram of the Basic Treatment Process*

Since the focus of this Special Study is to address the wastewater needs associated with the Parker Ford planning area, a narrative and schematic diagram of the basic treatment process is not applicable.

3. *Description of Problems with the Existing Facilities*

Currently, there are no public wastewater facilities in the planning area. The existing public facilities identified in Section III.A.1., are operating satisfactorily with no malfunctions.

4. *On-Going Upgrades or Expansion of Facilities*

Currently, there are no ongoing upgrades or facility expansions in progress.

5. *Operations and Maintenance Requirements and the Status of Past and Present Compliance*

The Township is the facility permittee and the owner. They perform routine maintenance on the collection and conveyance system to keep the facilities operating satisfactorily.

B. Individual and Community On-Lot Disposal Systems (OLDS)

1. Sewage Needs Identification Guidance Assessment

All properties within the planning area utilize on-lot disposal systems. A sewage need identification survey was completed in accordance with PA DEP guidance. Table 1 in Appendix C provides the results of this survey. The Exhibits also found in Appendix C further summarize these findings.

Statistically, there were 234 surveys that the Township mailed and were received by property owners. Of those surveys, 86 were completed and returned to the Township (37%). Of the returned surveys, 58 systems were field verified (25%) and well water samples taken and analyzed as required.

In general terms, well water sampling revealed that total coliform appears to be prevalent in the planning area. In a number of instances, fecal coliform was detected. The Environmental Protection Agency's (EPA) maximum contaminant level (MCL) for Total and Fecal Coliform is zero. In other words, samples containing levels greater than zero are an indicator of the potential for groundwater contamination. Detected levels of both Total and Fecal Coliform can be attributed to surrounding environmental factors; one of which may be malfunctioning OLDS. Most of the nitrate results reflect levels between 5 mg/L and 10 mg/L. There are a number of instances where nitrate levels exceed 10

mg/L. EPA has stated, “While nitrate does occur naturally in groundwater, concentrations greater than 3 mg/L generally indicate contamination.” EPA also stated, “a more recent nationwide study found that concentrations over 1 mg/L indicate human activity (Dubrovsky et al. 2010)” EPA has set the MCL for nitrates at 10 mg/L. However, EPA has tabulated nationwide concentrations of nitrate concentrations greater than 5 mg/L. This appears to be a strong indication that EPA feels this is a good measure of assessing those areas that have the potential to approach or exceed the MCL for nitrates.

OLDS surveys revealed indicators of systems that have the potential for malfunction due to the age of the system and /or the potential for malfunction due to “observed conditions” in and around these systems (e.g. green/lush grass, spongy areas, ponding, odors). It was observed from the survey results that many systems are 30 years of age or older. Some property owners indicated that they were not certain of the age of their systems. In EPA’s Handbook for Managing Onsite and Clustered (Decentralized) Wastewater Treatment Systems”, it indicates that more than half of the existing systems (nationwide) are more than 30 years old. Surveys indicate at least 10 percent of these systems might not be functioning properly. Age of an OLDS is an indicator of the potential for malfunction especially for those systems that have not been regularly maintained or inspected.

The “observed conditions,” referenced above, are also an indicator of systems that are potentially malfunctioning or suspected of malfunctioning.

Specific statistics to the Parker Ford planning area are (for the OLDS surveys completed and returned to the Township):

1. OLDS that equal or exceed 30 years of age – 44%
2. OLDS that equal or exceed 30 years of age or have an unknown age – 67%
3. OLDS where “observed” conditions are a concern – 24%

Specific statistics to the Parker Ford planning area are (for the well water samples that were taken):

1. Samples indicating Total Coliform – 37%
2. Samples indicating Fecal Coliform – 7%
3. Samples indicating nitrate levels greater than 5 mg/L – 74%
4. Samples indicating nitrate levels greater than 10 mg/L – 9%

Based on these survey results and the predictive indicators established by the EPA, there appears to be a basis for concern relative to continued use of OLDS in the Parker Ford area.

2. Sewage Enforcement Officer Data Review and Mapping Review

Sixty-four of the 86 survey responses indicate that their OLDS are 25+ years old, and this is very likely the trend for the properties that did not respond to the base survey. These older systems are more likely to not be functioning properly due to age and lack of maintenance/attention. Their age also increases their risk for malfunctions moving forward, if they are working properly now.

For the Planning Area as a whole, a large number of the properties are under one (1) acre in size, and many are less than half acre. If a malfunction were to occur on one of these properties, a proper system replacement would be very difficult due to the small property footprints and layouts. Many of the properties close to an acre in size have the principal structure centrally located on the property. This limits the space available if a system malfunction were to require a new absorption area due to the current minimum horizontal isolation distance requirements.

A large portion of the area's properties are thin and long. These layouts make it very difficult to site a new absorption area on the property. When horizontal

isolation distances for property lines and drinking-water wells are taken into account, properly placing an absorption area becomes very difficult. Fifteen (15) of the 86 surveys state that the drinking water well isolation distances are currently considerably under the required horizontal isolation distances for such facilities, and 29 of the 86 surveys state that their drinking water well is at or just beyond the 100-foot minimum. Many of these properties would not be able to maintain this distance if their system were to require a new absorption area.

Another problem compounding the small property concerns is the soils underlying Planning area. While many of the soils are listed as moderately to well drained, a large number of the properties are underlain with soil types with shallow depths to the restrictive layer. These depths typically require an elevated sand mound or an alternative treatment technology. Elevated sand mounds and alternative technologies require large footprints that would be difficult to site on the majority of the properties in the Planning area.

From a theoretical perspective, the nitrate levels measured are also concerning. While four (4) of all the sampled wells measured nitrate levels exceeding 10mg/L, 28 of the tested wells had levels between 5 mg/L and 10 mg/L. Only 11 were measured with concentrations below 5 mg/L. With the large amount of rain experienced in the last year, these concentration levels were most likely reduced because of the larger-than-usual volume of water present in these wells. I suspect that these concentrations would trend towards and exceed the 10 mg/L level with the typical rainfall levels.

Three (3) of the 43 tests detected levels of fecal coliform, and as expected, total coliforms were also detected at these locations. But the larger number of total coliform detections can be associated with a large number pollution sources; not just sewage.

C. Wastewater Sludge and Septage Generation

Septage currently generated by the existing OLDS in the planning area, is managed via the Township's current septage management program.

IV. FUTURE GROWTH AND LAND DEVELOPMENT

A. Identification of Municipal and County Planning Documents

1. *Identify Land Use Plans and Zoning Maps*

The Chester County Comprehensive Plan entitled “Landscapes3” establishes guidelines for the following land use categories.

- Growth Management
- National Resource Protection and Open Space
- Agricultural and Farmland Protection

The categories are used to provide the municipalities with “planning strategies to assist them in implementing their growth boundaries.”

The Township has several municipal planning documents that govern Land Use and Zoning. These include:

- Pottstown Metropolitan Regional Comprehensive Plan (Updated 2015)
- East Coventry Township Comprehensive Plan – Sections 1-8 (Adopted May 2003)
- East Coventry Township Comprehensive Plan – Section 9 (Adopted May 2013)
- Chester County Northern Federation Open Space Plan (Adopted April 2012)
- East Coventry Open Space Recreation and Environmental Resource Plan (Adopted 2017)
- PA Act 209 – Land Use Assumption Report 2009 – 2019

A zoning map showing the designated zoning districts is found in Appendix D.

2. Identify Zoning Regulations That Establish Lot Sizes

The Zoning Ordinance adopted by the Township establishes the criteria for lot sizes for the following zoning districts in the planning area. Zoning mapping is found in Appendix D.

Zoning District	Minimum Lot Area (Based on Single Family Development)
R2 Low Density Residential District	0.75 Acre
R3 Medium Density Residential	0.5 Acre
LI Limited Industrial	3.0 Acres
C Commercial	1.0 Acre

B. Description of Future Growth and Development

1. Areas with Existing Development and Plotted Subdivisions

Existing development and plotted subdivisions are described on the map and table found in Appendix E.

2. Land Use Designations

Land use in East Coventry Township is governed by the Township’s Zoning Ordinance. Land use in the planning area is given the following designations per the zoning ordinance.

- R-2 Low Density Residential
- R-3 Medium Density Residential
- LI Limited Industrial
- C Commercial

3. Future Growth Areas and Projections

For the planning area identified for this Special Study, there are areas that have existing development and areas that are planned for growth. The planned

growth and needs are identified on Table 2 found in Appendix F and on the Exhibit found in Appendix F.

The total average daily wastewater flow needs for the planning area, as identified on the Exhibit found in Appendix F, are 182,570 gpd.

A regional pump station is proposed to serve the planning area. This station will have a peak capacity of: $182,570 \text{ gpd} \times 3.75 \text{ peaking factor} = 684,638 \text{ gpd}$ (475 gpm) A 6-inch force main will be needed.

4. *Subdivision Regulations as they Pertain to Planned Developments*

East Coventry Township has established guidelines for development, use, and protection of land. The guidelines are established in the Township's Zoning Ordinance.

The Zoning Ordinance regulates:

- Building height, area, and location on the lot;
- Flood plains and uses within the flood plains;
- Where certain land uses are allowed to occur in the Township;
- Quality, location, or size of signs;
- Minimum lot areas for various uses.

5. *Required Sewage Planning*

Sections V and VI of this Special Study will examine the technical alternatives necessary to meet the sewage facilities needs of the planning area. Projected wastewater flows for the planning area are classified by origin.

V. ALTERNATIVES TO PROVIDE NEW OR IMPROVED WASTEWATER DISPOSAL FACILITIES

A. Identify Alternatives

1. *Regional Wastewater Treatment Concepts*

There are two (2) potential regional treatment concepts. These include installation of a public collection/conveyance system to convey wastewater to either East Vincent Township for treatment and disposal or to North Coventry Township for treatment and disposal.

East Vincent Township was contacted regarding the availability of treatment capacity and related costs (see letter and reply found in Appendix G). The Township replied to this inquiry and stated that they would be willing to convey and treat wastewater from the Parker Ford planning area. However, this would require upgrades to the existing Veterans Center Wastewater Treatment Plant (325,000 gpd) to accommodate East Coventry Township's projected needs.

There is capacity available at the North Coventry Township WWTP to accommodate 0.184 mgd. East Coventry Township currently has an allocation of 510,000 gpd. Of that allocation; the Township currently utilizes 123,869 gpd.

The 2003 Township-wide Act 537 Plan (as approved by PA DEP) details an Alternative that provides for public sewer service to the Parker Ford area. The plan found in Appendix H provides an update conceptual layout of a proposed public collection and conveyance system.

2. *Extension of Existing Municipal Sewage Facilities to Areas in Need*

Currently, there are no public collection and conveyance facilities that serve the planning area. A "Sewage Need Identification" survey was completed to further assess potential needs. As discussed in Section III of this Plan, the results of this survey is found in Appendix C.

The primary alternative to meet those needs is to implement and extend a public collection and conveyance system to the needs areas and decommission the private on-lot disposal systems. The collection and conveyance system could be extended in phases. Refer to the exhibit found in Appendix H. Phase I would cover the area from Linfield/Bethel Church Roads north to Wells Road. Phase II would cover the area from Wells Road north to Anderson Road. Phase III covers the area from Anderson Road north to Sanatoga Road.

3. *Continued Use of Existing Community Treatment Facilities*

In the planning area, there is one (1) community treatment facility. This system serves the Coventry Terrace Mobile Home Park. It has a capacity of 31,500 gpd and discharges its effluent to the Pigeon Creek. According to the most current discharge monitoring report, their NPDES Permit Number is 0050076.

A file review was completed at PA DEP's offices (records retention) and it was found that treatment plant operation was generally satisfactory. A Notice of Violation (NOV) was issued in 2012. This NOV was issued due to no secondary containment being provided for sodium hypochlorite, thus allowing for release to the surface on ground. It is important to note that the Pigeon Creek has a high quality/trout stocking classification.

4. *New Sewage Systems and Treatment*

This Plan is examining the wastewater needs and the impact of those needs on the planning area.

A number of sewage systems and related treatment options were considered in the approved 2003 Plan and have been considered here as well. These include:

- a. A²O Process
- b. SBR Process
- c. Oxidation Ditch Process

Refer to the exhibit found in Appendix I that shows the conceptual locations for these facilities. They are shown as Treatment sites A, B, and C respectively. Treatment sites A and B are relatively close to the planning area identified in this Special Study. However, both are within the 100 year floodplain. Both sites are within approximately 1/3 to 1/2 miles of the Parker Ford area.

Treatment site C is outside of the 100 year floodplain but is over 2.5 miles from the Parker Ford area.

Environmental constraints to implement the three above treatment options on sites A, B, and C were investigated through the completion of PNDI searches for each option. The Pennsylvania Fish and Boat Commission and the U.S. Fish and Wildlife Service have concluded that the proposed treatment plant sites will impact the Eastern Redbelly Turtle and the Bog Turtle. This could be a significant hurdle for the construction of these facilities. In addition, the PHMC has identified the potential for archaeological resources at each of the proposed treatment plant sites.

5. *Repair and Replacement of Existing Collection and Conveyance System Components*

In the planning area, all properties are served by private on-lot disposal systems, or in the case of the mobile home park, served by a small private collection and treatment system. Repair and replacement of existing collection and conveyance system components is not applicable to this Plan.

6. *Alternative Methods of Collection and Conveyance to Serve Areas in Need*

Most of the proposed collection system will be traditional gravity sewer main. A few locations will require low pressure sewer. Those properties being served by low pressure sewer systems will need to own and maintain their respective grinder pump systems.

B. Use of Individual Disposal Systems

Properties in the planning area are served by private individual on-lot disposal systems. A sewage needs survey was completed in accordance with PA DEP "SEWAGE NEEDS GUIDANCE" documentation. The findings are found in Appendix C.

C. Use of Existing Sewage Treatment Facilities

There are two (2) options to collect and convey wastewater to existing sewage treatment facilities. These include:

- A. Collect and convey wastewater to the North Coventry Township Wastewater Treatment Plant.
- B. Collect and convey wastewater to the Veterans Center Wastewater Treatment Plant located in East Vincent Township.

Currently, East Coventry Township has allocated capacity available in the North Coventry Township facility via Intermunicipal Agreement. That is not the case for the treatment facilities in East Vincent Township.

D. Community Land Disposal

Assessment of alternatives based on the use of community land disposal is not applicable to this Special Study.

E. Retaining Tank

The use of retaining tanks will not be evaluated as part of this Special Study.

F. Septage Management

East Coventry Township, as part of their Township code, has a chapter (Chapter 18) dedicated to "Sewers and Sewage Disposal". Part 2 of this chapter is titled "Management of Individual and Community On-lot Disposal Systems". Refer to Part 2

found in Appendix J. This has been adopted by the Township in an effort to manage on-lot systems throughout the Township as well as within the planning area.

G. Non-Structural Comprehensive Planning Alternatives

It is not anticipated that there will be any modifications to the Township Comprehensive Plan. Non-structural comprehensive planning alternatives shall not be addressed as part of this Special Study.

H. No Action Alternative

1. *Water Quality and Public Health*

If a public wastewater collection and conveyance system is not implemented, water quality and public health may be impacted. OLDS that are malfunctioning or have the potential to malfunction would continue to be utilized and could impact local groundwater conditions.

2. *Growth Potential*

Growth potential is governed by the local zoning ordinance and by availability of developable land. Lack of a public collection and conveyance system will not impact growth potential. However, the potential for availability of public sanitary sewer may be found as favorable to some developers.

3. *Community and Economic Conditions*

No action to providing public collection and conveyance facilities could play a role in the decision-making process for local businesses to relocate to or from the Parker Ford area.

4. *Recreational Opportunities*

A no-action alternative for this Special Study would not have an impact on recreational opportunities.

5. *Drinking Water Sources*

If a public collection and conveyance system is not constructed, OLDS that are malfunctioning or have the potential to malfunction would continue to be utilized and could impact local groundwater conditions.

6. *Other Environmental Issues*

If the proposed collection and conveyance system are not constructed, it does not appear that other environmental issues would be impacted.

VI. EVALUATION OF ALTERNATIVES

A. Consistency Determination

1. *Clean Stream Law*

The construction of upgrades to the conveyance facilities in the planning area does not conflict with the Clean Stream Law. Flow generated by the planning area will ultimately be treated at the North Coventry Township WWTP and disposed of in accordance with requirements and NPDES limits set forth by PA DEP.

2. *Chapter 94 Report*

The East Coventry Township 2017 Chapter 94 Report indicates that the North Coventry WWTP has capacity and reserved allocation to meet current flow needs based on the needs identified in this Special Study.

The Chapter 94 Report shows that the Township currently utilizes 123,869 gpd at the North Coventry plant. Flows projected for the planning area equate to 182,570 gpd (127 gpm). These projections fall within the Township's remaining allocation (510,000 allocated – 123,869 used = 386,131 gpd available at that facility).

3. *Clean Water Act (Title II)*

This Act and the Federal Water Quality Act establish specific planning requirements for wastewater facilities planning. These requirements only apply to municipalities intending to apply for financial assistance from the Federal Government for the construction of sewage facilities. Since the funding of the construction of the alternatives would be through financial contributions by the municipality, this analysis is not applicable.

4. Comprehensive Plans

The Chester County Planning Commission (CCPC) Comprehensive Plan, entitled “Landscapes3,” was adopted in November of 2018. The alternatives to provide public sanitary sewer service to accommodate needs areas in the planning area is consistent with the implementation strategy, policies and goals of the current Landscapes3 as shown in the Utilities and Infrastructure section of the plan.

East Coventry Township adopted the Pottstown Metropolitan Regional Comprehensive Plan in June 2015.

In September 2002, Chester County adopted a water resources management plan, titled ‘**Watersheds**’. This is an element of the County’s Comprehensive Plan. In Part 4 of the Plan (Goals and Objectives – Achieving the Vision), Goal 7 describes the need to integrate utility and municipal planning to meet future water supply and wastewater needs.

It further discusses the need to delineate municipal planned public water/wastewater service areas and evaluate infrastructure alternatives. This Special Study is consistent with the objectives set forth in Watersheds.

5. Antidegradation Requirements Contained in Chapters 93, 95 and 102 of the Clean Water Act

Implementation of any of the alternatives for this Special Study will not impact the antidegradation requirements contained in Chapters 93, 95, 102 of the Clean Water Act.

6. State Water Plans

There are no anticipated conflicts with the State Water Plan for this submission.

7. *Pennsylvania's Prime Agricultural Land Policy*

East Coventry Township is committed to protecting prime agricultural land within the Township's boundaries.

For the planning area in this Special Study, the Township's Zoning Ordinance and Comprehensive Plan give the land area residential, office/business park, open space, village mixed use, and frontage commercial designations. The development of this land is consistent with its land use designation.

It should be noted that the Chester County Planning Commission's agricultural conservation easement plan indicates that there are no agricultural conservation easements in planning area. This plan was developed by the Chester County Department of Open Space Preservation utilizing information from the County Agricultural Preservation Board and the Chester County Bureau of Land Records. The latest update is January 2014.

8. *County Stormwater Management Plan*

A County-wide PA Act 167 Stormwater Management Plan (SWMP) has been completed and approved for Chester County. The Pigeon Creek Watershed is a part of this Plan. PA DEP approved it July 2013. The Pigeon Creek is designated as a high-quality trout stocking stream. From a consistency perspective, it appears that the concept to provide sewer service to existing and potential development is consistent with the SWMP. This Special Study planning area falls within the Pigeon Creek Watershed and the prescribed system improvements not only to accommodate existing and future flows but provide for minimizing inflow and infiltration of stormwater into the sanitary sewer system.

9. *Wetlands Protection*

There are some wetlands within the planning area along the Pigeon Creek. See the map found in Appendix K. The source for the wetlands information is the National Wetlands Inventory Mapping provided by the U.S. Fish and Wildlife Service. Freshwater forested/shrub wetlands are generally located adjacent to and along the Pigeon Creek and the Schuylkill River. It appears that the wetlands, given their location, will be minimally impacted by existing and proposed wastewater facilities.

10. *Protection of Threatened, Rare, and Endangered Plant and Animal species (PNDI)*

A Pennsylvania National Diversity Inventory (PNDI) search (Appendix L) was conducted for the areas of proposed infrastructure. The PA Fish and Boat Commission and the U.S. Fish and Wildlife Service have concluded that proposed treatment plant sites will impact the Eastern Redbelly Turtle and the Bog Turtle respectively. There do not appear to be impacts from the proposed pump station and collection and conveyance system.

11. *Historic and Archaeological Resource Protection*

The Pennsylvania Historic and Museum Commission (PHMC) were contacted to determine if there were any potential conflicts with proposed infrastructure. PHMC identified the potential for archaeological resources at each of the proposed treatment plan sites (See Appendix M). There is a potential conflict at the proposed pump station site, but not with the proposed collection system.

B. *Resolution of Inconsistencies*

Upon review of the constraints discussed in items 1 through 11, there appear to be conflicts with the PNDI and PHMC search results primarily for the options that propose new wastewater treatment facilities. To resolve these inconsistencies, we propose that the focus be put toward implementing a public collection/conveyance system, along

with a new pump station that will pump wastewater to an existing wastewater treatment facility. The PHMC does indicate that a Phase I archaeological survey should be performed at the proposed pump station site. This survey will be completed during the preliminary design phase of the project.

C. Alternative Evaluation with Respect to Applicable Water Quality Standards and Effluent Limitations

The planned alternatives to provide a sanitary sewer collection and conveyance system for this planning area will not impact water quality standards or effluent limitation. Wastewater will be discharged to the existing public collection and conveyance system. Ultimately, wastewater will be treated at the North Coventry Township WWTP.

D. Preliminary Cost Opinions

Planning-level cost opinions were developed for the primary alternatives discussed in Section V. These cost opinions reflect the following:

Treatment/Conveyance Options:

Potential Treatment Site A:

- A²O Process \$5,381,000
- Sequencing Batch Reactor Process \$5,110,000
- Oxidation Ditch Process \$5,691,000
- Pump Station \$ 660,000
- Force Main \$ 260,000

Potential Treatment Site B:

- A²O Process \$5,381,000
- Sequencing Batch Reactor Process \$5,110,000
- Oxidation Ditch Process \$5,691,000
- Pump Station \$ 660,000
- Force Main \$ 390,000

Potential Treatment Site C:

• A ² O Process	\$5,381,000
• Sequencing Batch Reactor Process	\$5,110,000
• Oxidation Ditch Process	\$5,691,000
• Pump Station	\$ 660,000
• Force Main	\$1,890,000

North Coventry Township (North Coventry WWTP):

• Treatment Plant (Existing)	\$ 0.00
• Pump Station	\$ 660,000
• Force Main	\$2,340,000

East Vincent Township (Veterans Center WWTP):

• Treatment Plant (Expansion)	\$3,500,000
• Pump Station	\$ 660,000
• Force Main	\$ 468,000

Cost Comparison Treatment/Pump Station/Force Main:

Site A – Total = \$6,030,000*

[Treatment + Pump Station + Force Main]

Site B – Total = \$6,160,000*

Site C – Total = \$7,660,000*

** Using SBR as the process since it is the least expensive of the treatment options.*

Site North Coventry WWTP – Total = \$3,000,000

Site East Vincent WWTP – Total = \$4,628,000

The collection system has been broken into sub areas. The collection system cost opinions are:

Total Cost (Pump Station and Force Main): \$3,466,501

Total Cost (Collection System):

- Planning Area (East) Phase I: \$6,032,867
- Planning Area (Central) Phase II: \$5,659,640
- Planning Area (West) Phase III: \$6,273,211

Note: Only those structures that are within 150 feet of the proposed public sewer will be required to connect. The mobile home park’s WWTP is outside of the 150 foot connection radius along with many of the units in the MHP. The WWTP would not have to be decommissioned immediately. Refer to: East Coventry Township - Chapter 18: Sewers and Sewage Disposal, § 18-303: Connection With and Use of Public Sewers. <https://ecode360.com/31111921>

Tapping Fees and Rates: Tapping fee (for the total projected EDUs of 454 (existing plus future) would be \$65,806 per EDU. This includes the Special Purpose portion of the Tapping Fee as well as the East Coventry base portion of the Tapping Fee. The user rates would be:

EAST COVENTRY TOWNSHIP - SEWER RATE PROJECTIONS											
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
All Customers Contribute to PF	\$185	\$261	\$299	\$321	\$360	\$386	\$441	\$441	\$441	\$450	\$456
Non-PF Customers if Only PF Customers Contribute to PF	\$185	\$205	\$205	\$205	\$205	\$205	\$205	\$205	\$205	\$205	\$205
PF Customers if Only PF Customers Contribute to PF	\$185	\$185	\$185	\$300	\$532	\$648	\$879	\$996	\$1,228	\$1,228	\$1,227

Note - Projections are estimated and subject to material change based on variety of factors.

E. Analysis of Available Funding Methods

This section of the Plan addresses methods available to finance the proposed Phases. Three (3) financing alternatives exist for this particular project.

1. *Municipal Bond Issue*

a. *General*

There are several types of bonds; some are taxable and some are tax-exempt. However, the general classification of municipal bonds usually refers to tax-exempt bonds. There are three (3) types of municipal bonds generally used in financing public works.

- *General Obligation Bonds* are tax-free bonds that are secured by the pledge of the full faith, credit, and taxing power of the issuing agency. This means that this type of bond is backed by all of the taxes on real estates and personal property within the jurisdiction of the issuing agency. It involves minimum risk to the investor and therefore requires a lower rate of interest than other types of bonds.
- ▶ *Dedicated Tax Bonds* are payable only from the proceeds from a special tax and are not guaranteed by the full faith, credit and taxing power of the issuing agency. Examples of special dedicated taxes are the special assessments against property which is adjacent to and the principal beneficiary of the improvement, and gasoline taxes used to finance highway construction.
- ▶ *Revenue Bonds* are payable from revenues derived from the use of the improvement such as tolls, sewer bills, or rents paid by the users of the improvement and do not otherwise represent an obligation of the issuing agency. Revenue bonds are not

ordinarily subject to statutory or constitutional debt limitations. They are often issued by commissions, authorities, and other public agencies created for the specific purpose of financing, constructing, and operating essential public projects.

Typically, municipal bonds are sold to an investment-banking firm, which then resells the bonds to individual investors. The advantage of municipal bonds to the investor is their tax-free status. A bond discount (a percentage of the total bond issue) serves as the investment banker's commission. Before bonds are sold, they must be rated on the basis of risk to the investor by a rating agency such as Standard and Poor's or Moody's. The higher the rating, the lower the risk to the investor and, consequently, the lower the interest rate paid on the bond.

The legal instrument, which sets the rules that must be observed by the issuing agency, is the Trust Indenture. The Trust Indenture is prepared by the Bond Counsel and must be printed along with the bonds. Due to specific requirements as to the denominations of the bonds and methods and materials for printing, printing costs can be substantial. A trustee is required to administer the bond issue and insure the terms of the Trust Indenture are observed. This results in an Annual Trustee Fee. Investment bankers indicate that it does not pay to extend the term beyond 25 years because the interest rate increases dramatically.

b. Advantages of Municipal Bond Issue Funding

- ▶ This program affords long-term fixed rate financing.
- ▶ Tax-exempt municipal bonds are in high demand.
- ▶ There is local investment opportunity.
- ▶ Municipal credit is established.

- ▶ It retains flexibility for future borrowing.

c. *Disadvantages of Municipal Bond Issue Funding*

- ▶ A cover may be required.
- ▶ A Debt Service Reserve Fund is generally required.
- ▶ There are trustee fees and costs of preparing a Trust Indenture.

2. Bank Loan

Another financing option for the implementation of this project is the bank loan.

There are four (4) basic categories of bank loans. These are:

- ▶ Real Estate Loans (Mortgage)
- ▶ Participation and Interbank Loans
- ▶ Installment Loans (Personal)
- ▶ Municipal Infrastructure

Of the four (4) types, a municipal infrastructure loan would be the most applicable to this project.

Loans may be made on a demand or time basis. A demand basis loan allows the bank to call for repayment at any time, or the borrower can repay when convenient. A time basis loan provides for a specific loan maturity date.

The credit is extended on the basis of an analysis of all available information pertaining to the customer and the bank's confidence in that customer's ability and willingness to repay.

For this planned project, it appears that it would be prudent to seek a time basis loan. An interest rate offering would be established, and an amortization schedule set. Interest rates are very low at this time and makes this a very attractive financing option.

Advantages of the Bank Loan Financing

- ▶ Ability to shop around for a loan structure that best fits the customer's needs.
- ▶ Flexibility in establishing repayment schedules.
- ▶ Working with and through a local financial institution.
- ▶ Municipal credit is established.
- ▶ Ability to obtain fixed rate financing.

Disadvantages of Bank Loan Financing

- ▶ Interest rates are charged for loan repayment.
- ▶ Processing fees may be required.
- ▶ Processing and issuances fees may be expensive.

3. Pennsylvania Infrastructure Investment Authority (PennVest Authority)

General

The PennVest Authority was formed by the Commonwealth of Pennsylvania. Its legislative intent was to recognize that the health of millions of citizens of the Commonwealth is at risk due to substandard and deteriorated water and wastewater systems.

Advantages of the PennVest Authority Funding

- The interest rates available even in the highest bracket are less than market value for a Municipal Bond Issue.
- Program management is greatly influenced by PADEP, which is the same agency that approves the Township's Act 537 Plan.
- Issuance (financial services) costs are relatively low compared to issuance costs of a municipal bond issue.

Disadvantages of the PennVest Authority Funding

- Compare the interest rate and terms of the loan or bond issue. Is it to the Township's advantage to seek a loan? Bear in mind that the program was conceived to assist communities with high unemployment rates and low average family incomes. East Coventry Township may not qualify for financial assistance.
- How long can the Township wait to start construction? Would it qualify for emergency funding? Would the Township qualify for a letter of no prejudice if construction were started?
- There can be delays in obtaining the PennVest Authority check. A line of credit may be needed.
- The Township may need to tolerate and afford the governmental requirements, such as meeting certain additional planning requirements, documentation, record keeping, filing, etc.
- The application process may be lengthy due to there being only two (2) PennVest Authority Board meetings each year and an increasing backlog of applications to be processed.
- There is much competition for the low interest funding.
- Municipal guaranty is required.
- Future borrowing by the Township may be limited by required loan documents.
- PA DEP may not approve design for financing and, after great delay, the financing process would have to be restarted through a second alternative method of financing.

4. Direct Funding by the Township

A fourth financing option for the implementation of this project is direct funding by the Township. This would involve capital expenditures by the Township from its own capital funds.

Advantages of Direct Funding

- Avoid any third-party involvement. Payment for services can be made directly to the manufacturer or contractor by the Township.
- There are no interest rate charges.
- Bank processing and issuance fees are avoided.
- Remove the burden of having to wait for financing, making stop-gap payments, and completing all of the paperwork that goes with obtaining a grant, loan, or other financial assistance.

Disadvantages of Direct Funding

- There are no disadvantages to this method of financing aside from making sure that capital will be available.

5. Funding Through Grants

Another financing option is to seek grants for the implementation of the project. Funding through grants and the opportunity to utilize these monies can be rather variable depending on whether or not certain programs are funded by the State at any given time. The Commonwealth Financing

Authority, in conjunction with the Department of Community and Economic Development, will issue notices letting applicants know when grant programs are in effect and applications for grant monies can be submitted.

Advantages of Direct Funding

- There are no interest or rate charges.
- Multiple processing fees are avoided.

- Avoids the delays and the potential uncertainty associated with a PennVest loan.
- Monies are available at no interest and no repayment is required.

Disadvantages of Direct Funding

- Application documentation must be prepared.
- Availability of grant monies can vary from year to year depending on the State budget.
- There is uncertainty as to whether or not a municipality's grant application will be accepted.
- There typically is a one-time processing fee.

6. Sale of the System

A final financing option for the implementation of this project is sale of the system by the Township. Given the difficulty and timing constraints to win grants to fully pay for the project and the Township's financial constraints, the Township could sell its sanitary sewer system and the responsibility to provide sewers to Parker Ford area to an outside entity, who will fully fund the project.

F. Immediate or Phased Implementation

Phased implementation will be as shown in the implementation schedule and shown on the graphic found in Appendix H.

G. Ability of the Township to Implement the Alternative

The Township is well established and has the ability to implement the technical alternatives presented in this Plan.

VII. INSTITUTIONAL EVALUATION

A. Analysis of the Township, Past Actions, and Present Performance

1. *Financial and Debt Status*

The Township is a well-established entity that will be able to oversee the implementation of the proposed technical alternative. Financially, through the funding mechanisms identified above, the construction of the proposed conveyance facilities can be accomplished. Ultimately, the Township will take dedication of these facilities and will be required to operate and maintain them. The funds for facility O&M are planned to originate from the Township's Sewer Fund.

2. *Available Staff and Administrative Resources*

The Township is governed by a five-member Board of Supervisors elected at-large, who each serve six-year terms that include executive and legislative responsibilities. Others associated with the Township are:

- ▶ Township Manager
- ▶ Director of Public Works
- ▶ Solicitor
- ▶ Consulting Engineer

The Township has the necessary staff and administrative resources already in place. No further evaluation of staffing and resources is necessary at this time.

3. *Existing Legal Authority*

As provided for under Pennsylvania Law, the Township has the necessary legal authority to oversee the implementation of the technical alternatives presented in this Special Study.

B. Institutional Alternatives Necessary to Implement the Technical Alternative

1. *Need for a New Authority*

East Coventry Township does not have an Authority in place at this time. It is not deemed necessary that a new Authority be established to meet the needs of the alternatives identified in this Special Study. The Township and public works personnel are capable of implementing the identified alternatives.

2. *Function of the Authority*

This is not applicable given that there is no sewer authority in place at this time.

3. *Cost of Administration*

This is not applicable given that there is no sewer authority in place at this time.

C. Administrative and Legal Activities to be Completed and Adopted to Ensure the Implementation of the Technical Alternative

1. *Legal Authorities of Incorporation*

No new wastewater Authorities of Incorporation are necessary and there will be no changes to the Township's structure to implement these projects.

2. *Required Ordinances, Standards, Regulations, and Intermunicipal Agreements*

East Coventry Township entered into a Capacity Reservation Agreement with North Coventry Township providing for an allocation of 510,000 gpd at the North Coventry Township WWTP. To date, in accordance with Chapter 94 Reporting, the Township currently uses 118,500 gpd of that allocated capacity.

3. *Provisions of Rights-of-Way, Easements, and Land Transfers*

Proposed wastewater collection and conveyance system components will extend primarily through the streets and public rights of way. As the need arises, to acquire an easement from property owners, it will be broached at that time.

4. *Other Sewage Facilities Plan Adoptions*

It is not anticipated that other sewage facilities plans will need to be adopted as part of this planning process.

5. *Legal Documents*

Revisions to intermunicipal agreements are not necessary for this Special Study.

6. *Dates and Timeframes of 1 Through 5 Above*

The dates and timeframes for the items in this section are found in the implementation schedule in the Executive Summary of this Plan.

D. *Selected Institutional Alternative*

No changes are needed to the existing municipal structure.

VIII. SELECTED WASTEWATER TREATMENT AND INSTITUTIONAL ALTERNATIVE

A. Identify the Chosen Technical Alternative

The selected alternative which best meets the wastewater treatment needs of the proposed and existing development in the planning area is:

Alternative #2:

Construct a public collection system (in phases) along with a regional pump station and force main. Collected wastewater shall be conveyed to the North Coventry Township WWTP for treatment and disposal.

1. Existing Wastewater Disposal Needs

Within the planning area, wastewater disposal needs are currently met through the use of individual on-lot disposal systems and in the case of the Coventry Terrace mobile home park, a package wastewater treatment plant. Given the age of some of the existing OLDS and given that some OLDS have given indications of potentially failing, other means for collection, conveyance, and treatment of wastewater must be implemented.

2. Future Wastewater Treatment Needs

Future wastewater disposal needs, identified in Section IV of this Plan show that in order to serve existing development, and future development, a central regional pump station will be needed to convey wastewater to the North Coventry WWTP.

3. Operations and Maintenance Considerations

The proposed wastewater facilities will be owned and operated by East Coventry Township upon completion. Operations and maintenance of the new facilities will be the responsibility of the Township which currently operates and maintains existing wastewater facilities within the Township.

4. *Cost Effectiveness*

In accordance with the cost opinions for the alternatives presented in Section VI of this study, the construction of a public collection system, along with a pump station to convey wastewater to the North Coventry WWTP is the most cost affective approach. Since this WWTP already exists and plant capacity is available to East Coventry Township, additional capital funds to construct new facility, expand an existing facility, or purchase treatment capacity, will not be necessary. Construction of the regional pump station can follow under the purview of the Township. The environmental benefits of regionalizing the conveyance system and connecting existing OLDS to the public sewer system outweigh the financial implications.

5. *Available Management and Administrative Systems*

The Township has the management and administrative staff in place to implement the selected alternative.

6. *Available Financing Methods*

Of the financing methods discussed in Section VI, each method can provide the necessary funding for the selected alternative. Refer to Section VIII.B. for the selected capital financing plan.

7. *Environmental Soundness*

Environmentally, the North Coventry Township WWTP can adequately treat the projected average and peak flows within the permitted concentration limits.

B. *Selected Capital Financing Plan*

Given the difficulty and timing constraints to win grants to fully pay for the project and the Township's financial constraints, the Township has decided to sell its sanitary sewer system and the responsibility to provide sewers to Parker Ford area to PA American, who will fully fund the project.