OFFICIAL PLAN

"ACT 537"

HAMILTON TOWNSHIP

ADAMS COUNTY, PENNSYLVANIA

AUGUST 1974

Revised September, 1998

Revised November, 1999

GETTYSBURG ENGINEERING COMPANY, INC.
CONSULTING ENGINEERS
40 EAST HIGH STREET
GETTYSBURG, PENNSYLVANIA 17325

OFFICIAL PLAN

"ACT 537"

HAMILTON TOWNSHIP

ADAMS COUNTY, PENNSYLVANIA

AUGUST 1974

GETTYSBURG ENGINEERING COMPANY, INC.
CONSULTING ENGINEERS
40 EAST HIGH STREET
GETTYSBURG, PENNSYLVANIA 17325

TABLE OF CONTENTS

BACKGROUND INFORMATION

Hamilton Township is a member of the North East Adams Regional Planning Cooperative (NEACOG). A Comprehensive Plan was prepared in 1971 under the direction of John Hall of the Planning Consortium. That portion of the Comprehensive Plan concerning Hamilton Township is attached to and made part of this "Official - Act 537 - Sewer and Water Study" for Hamilton Township.

The following is a Table of Contents of those sections of the Comprehensive Plan which the user of this report may find helpful.

PART I

INTRODUCTION

It is the intent of this report to present to the Township Administrators a guideline through which it is anticipated that they will be able to more effectively plan for the introduction of sanitary sewers in Hamilton Township.

In the preparation of this report, we have attempted to classify certain areas of the Township according to their population and housing density so as to determine the immediate or future need for a municipal sewerage system. We have computed cost estimates for the construction of the facilities which should be given consideration for installation in these areas. Throughout this report we have attempted to show the feasibility of having New Oxford Borough and Hampton Village (Reading Township) accept wastewater from the Hamilton Sewerage System. The costs of connection to an existing system are much less than the costs of acquiring and maintaining an independent treatment facility. It should be noted that although Hampton Village does not have a sewerage system as yet, construction is due to start by the end of 1974. Also, New Oxford is in the process of upgrading their existing facilities to accommodate larger flows. Hamilton Township should make every effort possible to cooperate with these neighboring municipalities as they will require the future services of these systems. This approach is in keeping with the regional concept as promoted by Act 537.

It is anticipated that this Official Plan will serve as a guide for the development of wastewater collection facilities in Hamilton Township. It is not a detailed engineering report suitable for final determination concerning facility design. It should also be noted that there may be a large difference between what is desirable and what is practical to install from a financial standpoint. Even though it would be economically impractical to install sewerage facilities in some areas of Hamilton Township at this time, we have still included them in this report. The Official Act 537 Plan should be considered as an initial step toward the effective sewering of the various areas of Hamilton Township.

PART II

EXISTING FACILITIES

A. WATER SUPPLY

At present there are no public water supplies in Hamilton Township. Homes and businesses are supplied by individual wells and springs. New Oxford, East Berlin and Abbottstown Boroughs have public water supply systems which could be extended to serve areas of the Township adjacent to the Boroughs. For more information on water supply see the Comprehensive Plan of Hamilton Township prepared by the Planning Consortium.

B. SANITARY SEWERS

No existing sanitary sewer collection or treatment facilities are located in Hamilton Township. The Borough of New Oxford maintains a 10" interceptor line from their Borough along Route 30 to just west of Cross Keys which could be utilized by the Township. East Berlin Borough maintains sewer collection lines which could also be extended to serve adjacent areas in Hamilton Township when future development warrants sewer facilities. Hampton Village in neighboring Reading Township and Abbottstown Borough are in the process of acquiring sewerage services which Hamilton Township could utilize. Hamilton Township administrators should also cooperate with Berwick Township as they plan sanitary sewer service in the Cross Keys areas as proposed by their Official Act 537 Plan. The following feasibility study will show how Hamilton Township relates to these adjacent municipalities.

C. ON LOT DISPOSAL OF SEWAGE

At present all sewage in the Township is disposed by means of individual septic systems. Soils in the Township vary in their ability to absorb, dilute, and dispense septic tank effluents. A complete soil survey conducted by the U.S. Dept. of Agriculture Soil Conservation Service shows that Hamilton Township is dominated by a series of soils of the Penn-Lansdale-Abbottstown Association with the North West area around Conewago Creek composed of the Penn-Reading-Croton Association.

These associations are gently to moderately sloping with shallow to moderately deep shaly soils and are well drained. Because of a low permeability of the sub-soils about 70% of the Township indicates severe limitations for on lot disposal of sewage.

Development is limited because of Pennsylvania Department of Environmental Resources controls which require soils to be suitable for the installation of individual septic systems. Inefficient discharge of effluents is not only a health hazard but a detriment to the natural environment which is essential to life itself.

For more detailed information on soils, see Hamilton Township's Comprehensive Plan and the Adams County Soil Survey prepared by the U.S. Dept. of Agriculture.

PART III

FEASIBILITY

There are three areas in the Township which should be considered for installation of sewer facilities. These include Route 94 from the 700 Road to Cross Keys, the Dick's Dam area, and the area near Cross Keys as it is shown in Berwick Township's Act 537 Plan. There are no existing industrial wastes in Hamilton Township at this time, therefore, for the purpose of this study, all flows will be based on a domestic loading.

A. PA. ROUTE 94 AREA

The Route 94 area encompasses the 700 Road, Pa. Route 94 from 700 Road to Cross Keys, and part of the Pine Run Road. An eight inch collector line would collect sewage from the houses on 700 Road to Pa. Route 94. A series of collector lines and lift stations with force mains would then carry the sewage South along Pa. Route 94 to Cross Keys, accepting wastewater along the way. The Pine Run Road would be serviced by an 8" collector which flows east to an unnamed tributary of Pine Run, where a lift station pumps it back up to Pa. Route 94. The area from Cross Keys to the Pine Run Road is serviced by a collector which flows toward Pine Run Road; all sewage from this system is pumped back up to

Cross Keys via a 4" force main to the 10" interceptor which New Oxford Borough maintains to the Brethren Home. See Plate "A" for the location of these proposed lines.

Table 1 is a tabulation of estimated construction costs of this system. Table 2 shows two methods of financing based on an Environmental Protection Agency grant of 75%. Annual income requirements are shown with and without a $10.00 front foot assessment. This area to be served has a total of 100 homes and each would be charged a monthly rental to cover yearly expenses.

ALTERNATE SYSTEM

A new type system which is being used to provide sewer facilities is the low pressure sewer system utilizing grinder pumps. Pressure sewer systems are systems in which sewage is handled in a manner similar to municipal water systems, i.e., in small diameter pipes kept full and under pressure. In such systems, wastes from individual homes are collected in a holding tank and periodically discharged into the system through a grinder-pump unit which sheds or grinds the solids and provides the pressure head required for flow. In current practice the normal operating pressure is limited to about 35 PSI and light-weight plastic pipe is used throughout the system. In contrast, water distribution systems operate at pressures up to 80 PSI and use metal or heavy-weight plastic pipe.

The grinder pumps are combination sewage grinders and centrifugal pumps which are submersible. They are installed in a holding tank either in the basement or outside the home. Each home would have its own individual pump where practical. A cluster of up to six homes can be joined to one larger tank and pump. An individual unit would cost each homeowner approximately $2000 while a cluster system would cost approximately $6500 installed.

There are certain advantages to this type system. The most outstanding advantage is that sewer lines need not be installed to flow by gravity, but can be laid just below frost line to follow the slope of the land. There is practically no infiltration on a pressure

system. The cost of the collection lines are generally lower than a conventional gravity system because of smaller diameter pipe and the shallow depth.

Of course, there are disadvantages to these pressure systems. The grinder pumps have only recently been developed, and although early indications point to a long and maintenance free life, only time will tell just how long one might expect a pump to function properly before repairs or replacements are needed.

Also, when a cluster system is used an agreement must be written to insure that payment for electricity and maintenance is divided equally among the users. The initial cost to the homeowner is obviously high, but because of the lower cost of installation, the monthly service rental would be kept to a minimum.

While Pennsylvania does not as yet have a pressure system in operation, Pennsylvania DER is writing specifications for their installation. There have been installations in other states and grant monies have been received for installation of these systems from the appropriate state governments, EPA and FHA. It is this consultant's belief that when it is feasible to use the conventional gravity system or when there is little difference in costs, the conventional system should be used to eliminate the many pumps which could pose a problem with maintenance.

The Pa. Route 94 area could possibly benefit from this system. We have shown the construction costs and financing on Table 3.

B. THE DICK'S DAM AREA

The Dick's Dam area is a problem area. It is a densly populated strip development in which sewage systems could pollute not only wells but Conewago Creek. We have included the Reading Township side of Conewago Creek because it is a similar problem area and this outlook, as stated above, is in keeping with the regional concept.

An eight inch collector line would come down the Reading Township side of Conewago Creek and cross over the creek in the vicinity of the bridge at L.R. 01023, the Dick's Dam Road. This collector would then continue down the creek to a 10" interceptor near the dam where it would connect into the Hampton Village Sewage system of Reading Township.

Table 4 is a tabulation of estimated construction costs of this system. Table 5 shows two method of financing based on an Environmental Protection Agency Grant of 75%. Annual income requirements are shown with and without a $10.00 per foot front assessment. There are 58 homes along this system and each would be charged a monthly rental to cover yearly expenses.

C. CROSS KEYS - U.S. ROUTE 30 AREA

That area of Hamilton Township along U.S. Route 30 from Cross Keys to Kelly Road would be serviced by collector lines along U.S. Route 30. These lines would be part of the regional system which would service those portions of Berwick Township, Oxford Township, and Hamilton Township which lie in the Cross Keys area. (See Plate "A" for the location of these lines.) As the majority of the area to be serviced is in Berwick Township this area would not be serviced until Berwick Township finds it feasible to do so.

It will be necessary for Hamilton Township, Berwick Township, and Oxford Township to form a joint authority or other develop sewer services jointly for this area as many parts of the sewage system will service two and sometimes all the townships.

For more complete information on the Cross Keys area, refer to the Berwick Township Official Act 537 Plan as prepared by Gettysburg Engineering Company.

D. ABBOTTSTOWN AREA

Hamilton Township has no development, in the vicinity of Abbottstown, which would require the installation of public sewers. A portion of U.S. Route 30 west of Abbottstown is proposed to be sewered by Berwick Township, which has more density in this area. (See Plate "A"). When this sewer line is installed it will also provide sewer service to that portion of Hamilton Township immediately adjacent to U.S. Route 30.

When Abbottstown constructs public sewers it may encourage development in the area. At that time Hamilton must revise their Act 537 Plan to include the proposed development. It is recommended that Hamilton require developers to bear the cost of installing sewer lines.

As no development exists and no development is contemplated in the vicinity of Abbottstown, it would be very difficult for Hamilton to reserve capacity in Abbottstown proposed treatment facilities. It is generally required that the capital cost for that percent of capacity reserved be payed for by the municipality reserving this capacity. Hamilton Township would have no customers to share this cost.

E. EAST BERLIN AREA

That area of Hamilton Township adjacent to East Berlin Boro is similar to the Abbottstown area. There is no development or contemplated development which requires the need of public sewer services.

East Berlin sewer facilities are not now at capacity and in all probability would be capable of accepting some sewage from the Hamilton Township if the need arises. On this basis we can only recommend that Hamilton Township wait until development is planned and at that time work out an agreement with East Berlin Boro to accept the sewage from the proposed development and revise their Act 537 Plan accordingly.

PART IV

SUMMARY AND CONCLUSIONS

The population of Hamilton Township, while dense in certain areas, is at this time too sparse to warrant sanitary sewerage on the basis of economic feasibility. However, as development continues the economic feasibility of installing sewer lines will increase as the cost can be divided among more users.

Planning must begin now to assure that sewers can be available in the future. There are two major areas in the Township to be serviced. Our summary and conclusions are as follows:

Pa. Route 94 to Cross Keys

This area includes Pa. Route 94 from the 700 Road to Cross Keys. The sewage from this area would discharge into a ten inch interceptor maintained by the Borough of New Oxford. The sewage would be treated at New Oxford's Treatment Plant. As only Hamilton Township would be

serviced by these collector lines, a suggested method of administration would be for Hamilton Township to form it's own authority. It would be this Authorities' responsibility for constructing these sewer lines, contracting for treatment with New Oxford and administration of the facilities.

The construction estimates and user's costs shown on Table 1-2-3 are far in excess of being economically feasible at this time. Development is not sufficient to warrant sanitary sewer service. New development will be needed to make sewerage service in this area possible. Also, New Oxford Borough's Treatment Plant must be upgraded before additional sewage can be treated. It is estimated their plant will be completed in three years.

It is our recommendation that Hamilton Township proceed as follows:

(1) Contact land owners in the areas where sewers are proposed to determine if they are planning to develop and to what extent. Secure an agreement from developers who are requesting sewers that they will develop when sewers become available, and require developers to install dry laid sewer lines to the proposed collector line. This will eliminate the expense of installing sewer lines in new developments and assure that customers will be available when sewer becomes available.

(2) Establish a sewer authority to administrate the construction of sewer lines.

(3) Authorize the Authority to have construction drawings and specifications prepared and apply for grant monies for construction of sewers in the area where development is proposed.

Dick's Dam Area

The construction costs and users fees as shown on Tables 4 and 5 indicate that servicing this area may be feasible. Sewering of this area would not be possible until Hampton Village completes Phase II of their proposed system.

This area of Hamilton Township is a vere severe problem area. Development is about 30% seasonal, consisting overall of 58 dwellings.

The development is very compact with a high percentage of individual sewage system malfunctions. The area is in a flood plain where development normally is discouraged, however, construction of new homes can be permitted with special techniques and materials to lessen damage from flood waters. Also, the higher areas nearby could be encouraged to develop to make sewers feasible.

It is our recommendation that Hamilton Township proceeds as follows:

(1) Become part of the Hampton Village - Reading Township Authority and encourage the Authority to include this area in their Phase II sewage program.

(2) Work with existing land owners and developers to encourage the development of land on the higher elevations along the Conewago Creek. This will increase the density of the area and lower the cost per user.

(3) Secure commitments from developers who are requesting sewers, that they will develop as scheduled as sewers are completed, and require developments to install dry laid sewer lines to the proposed interceptor line. This will assure that sufficient customers will be available to pay for service when sewers are installed.

BUCHART-HORN
CONSULTING ENGINEERS and PLANNERS
612 WEST MARKET STREET · YORK, PENNSYLVANIA 17405
P. O. BOX 1663 PHONE 843-5561 AREA CODE 717

October 17, 1974

Mr. Dean A. Shultz, Vice President
Gettysburg Engineering Co., Inc.
40 E. High Street
Gettysburg, Pennsylvania 17325

RE: Reading Township
Municipal Authority
BH #71675

Dear Dean:

This is with reference to our conversation on October 16, 1974, concerning the connection of 58 equivalent domestic units located in Hamilton Township to the Reading Township plant. You requested an estimate of the treatment and transportation costs which may be charged for connecting to the Reading Township system.

For estimates in your Act 537 study, we suggest you use $3,000 as the amount of the treatment and transportation fee. This figure is approximately 10% of Reading Township's estimated annual costs. This figure is for estimating purposes only and is not the final figure.

Of course, a formal agreement must be negotiated between the Hamilton Township officials and the Reading Township Municipal Authority to establish the actual fee at the time these homes come on line.

Very truly yours,

BUCHART-HORN

Bowman Stevens

Bowman Stevens, P. E.
Financial Analyst

BS/lb

cc: Mrs. Jane Haverstock
John Saylor

ROUTE 94 AND 700 ROAD TO CROSS KEYS

CONSTRUCTION COSTS

COLLECTOR SYSTEM			
15,800 L.F.	8" Sewer Installed	@ 20.00	$316,000.
40 Ea.	Manholes Complete	500.00	20,000.
4,681 C.Y.	Rock Excavation	15.00	70,215.
7,022 S.Y.	Resurfacing	8.00	56,176.
			$462,391.
INTERCEPTOR SYSTEM			
11,000 L.F.	4" Force Main	@ 10.00	$110,000.
4 Ea.	Pumping Station	20,000.00	80,000.
1,630 C.Y.	Rock Excavation	15.00	24,450.
2,440 S.Y.	Resurfacing	8.00	19,520.
			$233,970.
	TOTAL CONSTRUCTION COSTS		$696,361.

TABLE 1

ROUTE 94 AND 700 ROAD TO CROSS KEYS

FINANCING

Construction Costs	$696,361
Engineering, Surveying, Inspection	69,636
Less EPA Funding (75%)	574,497
Financing and Legal Expenses	34,818
Right-of-Way Acquisition	3,000
Construction Contingincies	69,636
Interest During Construction @ 7%	23,123
Bond Discount @ 2.5%	8,258
Amount To Be Financed	$330,335

BOND ISSUE WITHOUT $10.00 FRONT FOOT ASSESSMENT

Amount of 40 Year Bond	$330,335
Annual Cost at $80/1,000	26,426
Plus 10% Coverage	2,642
*Treatment at $135.	13,500
Operating and Administration	2,000
Minimum Annual Income Requirement	44,568

Yearly Service Charge = $\frac{\$44,568}{100 \text{ EDU}}$ = $445.68 per house

BOND ISSUE WITH $10.00 ASSESSMENT

Amount of Financing	$330,335
**Less Five Year Assessment	91,800
Amount of 40 Year Bond	238,535
Annual Cost at $80/1000	19,082
Plus 10% Coverage	1,908
*Treatment at $135/EDU	13,500
Operating and Administration	2,000
Minimum Annual Income Requirement	36,490

Yearly Service Charge = $\frac{\$36,490}{100 \text{ EDU}}$ = $364.90 per house

*Approximate cost New Oxford Borough would charge for treatment of sewage from report prepared for New Oxford Borough by Tracey Engineers, Inc.

**There are 10,200 assessable front feet along this system. Assuming $10.00 per foot and 90% collection, we arrive at $91,800.

TABLE 2

ROUTE 94 AND 700 ROAD TO CROSS KEYS

LOW PRESSURE SYSTEM

CONSTRUCTION COSTS

26,800 L.F.	4" Sewer Line	@ $ 10.00	$268,000
9,462 S.Y.	Resurfacing	8.00	75,696
	TOTAL CONSTRUCTION COSTS		$343,696

FINANCING

Construction Costs	$343,696
Engineering, Surveying, Inspection	34,369
Less EPA Funding (75%)	283,548
Financing and Legal Expenses	17,184
Right-of-Way Acquisition	3,000
Construction Contingencies	34,369
Interest During Construction @ 7%	11,530
Bond Discount at 2.5%	4,118
Amount To Be Financed	$164,718

BOND ISSUE WITHOUT FRONT FOOT ASSESSMENT	
Amount of 40 Year Bond	$164,718
Annual Cost at $80/$1000	13,177
Plus 10% Coverage	1,317
*Treatment at $135.	13,500
Operating and Administration	2,000
Minimum Annual Income Requirement	$ 29,994

Yearly Service Charge = $\frac{\$29,994}{100 \text{ EDU}}$ = $294.94 per house

Plus each home owner supplies his own grinder pump at $2000.

*Approximate cost New Oxford Borough would charge for treatment of sewage from report prepared for New Oxford Borough by Tracey, Engineers, Inc.

TABLE 3

DICK'S DAM AREA

CONSTRUCTION COSTS

COLLECTOR SYSTEM

5,600 L.F.	8" Sewer Installed	@ 20.00	$112,000
14 Ea.	Manholes Complete	500.00	7,000
1,500 C.Y.	Rock Excavation	15.00	22,500
220 S.Y.	Resurfacing	8.00	1,760
			$143,260

INTERCEPTOR SYSTEM

2,200 L.F.	10" Sewer Installed	25.00	$ 55,000
6 Ea.	Manholes Complete	500.00	3,000
650 C.Y.	Rock Excavation	15.00	9,750
			$ 67,750
	TOTAL CONSTRUCTION COSTS:		$211,010

TABLE 4

DICK'S DAM AREA

FINANCING

Construction Costs	$211,010
Engineering, Surveying, Inspection	21,101
Less EPA Funding (75%)	174,083
Financial and Legal Expenses	10,550
Right-of-Way Acquisition	3,000
Construction Contingencies	21,101
Interest During Construction - 1 year @ 7%	7,168
Bond Discount at 2.5%	2,560
Amount To Be Financed	$102,407

BOND ISSUE WITHOUT $10.00 ASSESSMENT	
Amount of 40 Year Bond	$102,407
Annual Cost of Bond @ $80/$1000	8,192
Plus 10% Coverage	819
*Treatment and Transportation	3,000
Operating and Administration	2,000
Minimum Annual Income Requirement	$ 14,011

Yearly Service Charge = $\frac{\$14,011}{58}$ = $241.57 per EDU

BOND ISSUE WITH $10.00 ASSESSMENT	
Amount of Financing	$102,407
**Less Five Year Assessment	47,700
Amount of 40 Year Bond	54,707
Annual Cost of Bond at $80/$1,000	4,376
Plus 10% Coverage	437
*Treatment and Transportation	3,000
Operating and Administration	2,000
Minimum Annual Income Requirement	$ 9,813

Yearly Service Charge = $\frac{\$9,813}{58}$ = $169.19 per EDU

*Approximate cost Hampton Village would charge for transportation and treatment as per letter from Bowman Stevens, P.E. of Buchart-Horn Engineering dated October 17, 1974. It is this consultant's belief that this figure is unrealistically low.

**There are 5,300 assessable front feet along this system. Assuming $10.00 per foot and 90% collection, we arrive at $47,700.

TABLE 5

HAMILTON MAY 1987

Part I - Introduction

A. Purpose

This study has been undertaken pursuant to a Department of Environmental Resources Order dated November 1, 1985. That order in part required that "Hamilton Township shall revise its Official Plan and submit the same to the Department ...". This plan, which is obviously intended to respond to the above quoted order, is also intended to serve the development goals of Hamilton Township. An effort has been made herein to analyze and plan for municipal sewage facilities in the areas of the Township for which municipal sewers were planned in the 1974 Official Plan. This earlier plan proposed implementation schedules for the Pa Route 94 area, the Dick's Dam area and the Cross Keys - Route 30 area.

B. Scope

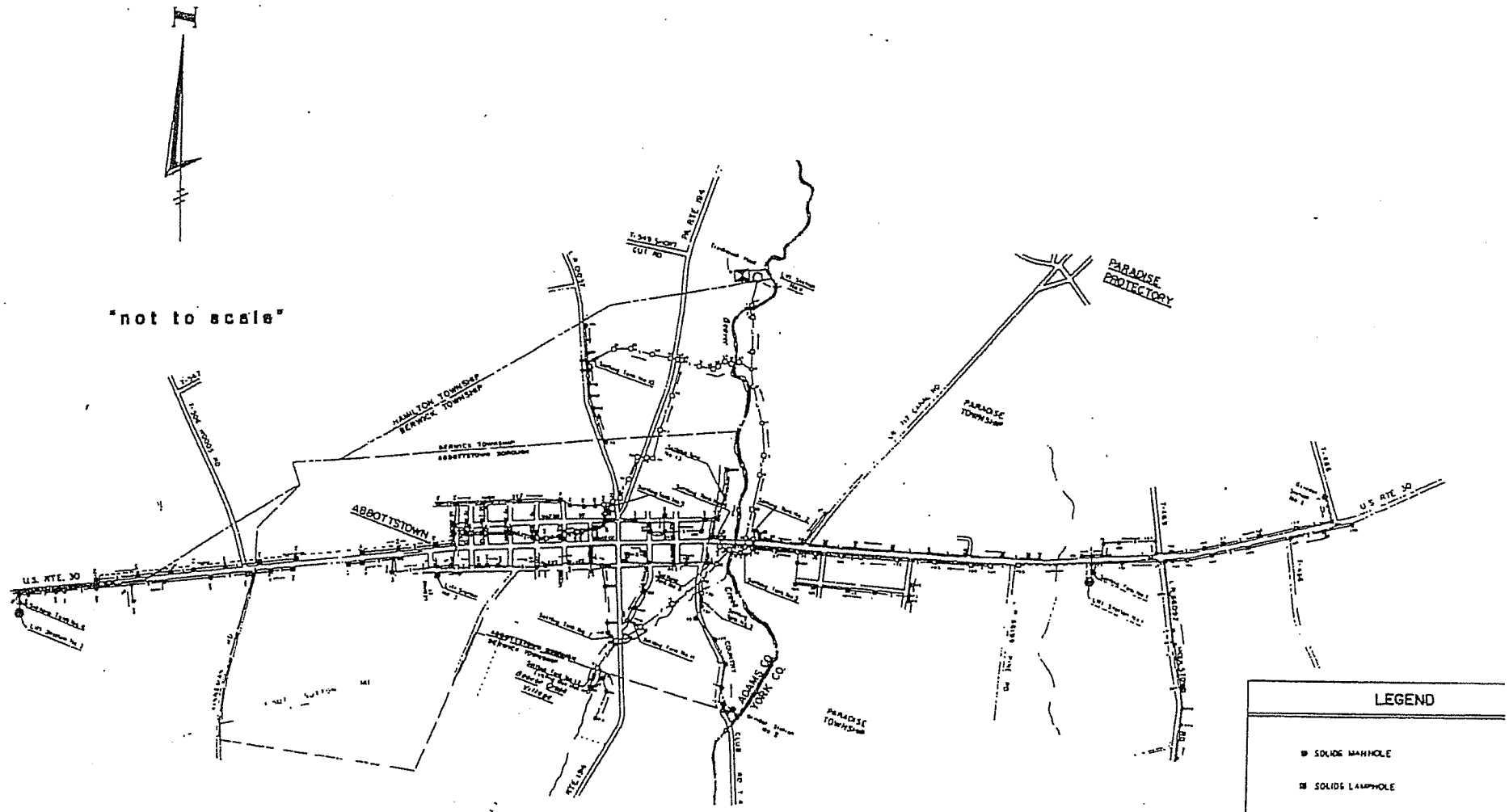
This study as was the 1974 plan, is intended to provide recommendations relative to the installation of municipal sewer facilities in the several areas of the Township which were outlined in the earlier Act #537 Plan. There are in particular three areas, the Dick's Dam area, the Pa Route 94 area and the Cross Keys - U.S. Route 30 area, where developmental pressures as well as the need to correct existing waste disposal problems indicate a need for an updated analysis relative to municipal sewers.

A fourth area, referred to in the earlier Act #537 Plan as the Abbottstown area is dependant on the progress and success of the currently proposed Abbottstown - Paradise Joint Sewage System which is illustrated on the attached Figure I. There has been only minimal development along U.S. Route 30 west of the Borough of Abbottstown. However, the proposed Abbottstown - Paradise Joint Sewage System is planned to install sewers along U.S. Route 30 potentially serving portions of Hamilton Township and the more densely developed Berwick Township in this area.

It is likely that when the proposed Abbottstown - Paradise system is constructed its existance may encourage development along its lines. As such development occurs Hamilton Township will utilize its existing subdivision and zoning controls to require developers to interconnect with the Abbottstown system including bearing the expense of the installation of any facilities necessary to make such interconnection.

In as much as very little development currently exists in this area of Hamilton Township, no reserve capacity has been established in the Abbottstown conveyance and treatment facilities. Therefore, any connecion of Hamilton Township sewage generators to the Abbottstown facility will be contingent upon the availability of capacity within the Borough's system. It is assumed that since Hamilton Township has not participated in the capital development for the Abbottstown - Paradise Joint Sewage System any serice provided to Hamilton Township development may be at user rates somewhat higher than that paid by residents of Abbottstown Borough and Paradise Township.

The fifth area of Hamilton Township discussed in the earlier Act # 537 Plan was that area of the Township adjacent to the Borough of East Berlin.



PROPOSED ABBOTTSTOWN - PARADISE -JOINT SEWER AUTHORITY-

SANITARY SEWERAGE SYSTEM

Figure 1

Hamilton Township's strategy for this area remains the same as outlined in the earlier plan.

In the development of this updated Act #537 Plan not only was protection of the environment and public safety a primary concern, but so too was the limit to which local residents can participate in providing the finances necessary to construct, operate, and maintain adequate municipal sewerage facilities. Establishing planning objectives and being able to meet those objectives may prove to be greatly different in their degree of difficulty, when attempting to achieve each.

The reduction in the scope and funds available from the United States government through the Environmental Protection Agency's construction grants program will prove to be a real hinderance for municipalities such as Hamilton Township in their efforts to obtain municipal sewerage facilities.

Part II - Analysis

A. Waste Water Contribution Criteria

For the purposes of this study a liquid waste contribution of 100 gallons per capita per day has been used for the domestic contribution. The contribution of a dwelling has been taken as 330 gallons per day. A field survey has been made in order to locate the various commercial establishments within the study areas. The waste water contribution for such establishments has been computed using Pennsylvania Department of Environmental Resources criteria, where available. These commercial flows have been converted into equivalent dwelling units.

In this study, in order to convert daily flows to peak flows, a factor of 4 has been used for laterals, and 2.5 for main, trunk, and outfall sewers.

B. Facilities Criteria

In this study, all liquid waste facilities conform to the Commonwealth of Pennsylvania Department of Environmental Resources regulations and manuals.

C. Possible Arrangements in Governmental Structure

1. General

In Pennsylvania, the two primary forms of Governmental Organizations which are empowered to finance, construct, and operate sewage facilities are:

a. An Authority created by one or more municipalities.

b. Municipal governmental bodies either unilaterally, or in concert with other Boroughs, Townships, Cities, etc.

AMENDMENT TO

HAMILTON TOWNSHIP ACT 537 PLAN

ROUTE 94 STUDY AREA

Prepared for

HAMILTON TOWNSHIP BOARD OF SUPERVISORS

ADAMS COUNTY, PENNSYLVANIA

October, 1997

Revised September, 1998
Revised November, 1999

Engineer's Project No. 2997.6.01.00

C. S. DAVIDSON, INC.
Consulting Engineers
38 North Duke Street
York, PA 17401

Phone: (717) 846-4805
Fax: (717) 846-5811

S:\WPDATA\TAY\1913pjs.wpd

TABLE OF CONTENTS

IMPLEMENTATION SCHEDULE

FOR

HAMILTON TOWNSHIP ACT 537 PLAN AMENDMENT

Event	Date
• Township Adoption of Act 537 Plan Revision	December 2, 1997
• Submission of Act 527 Plan Revision to PA DEP for review and approval	January 8, 1998
• PA DEP Approval of Act 537 Plan Revision	November, 1998
• Township Adoption of On-Lot Sewage Disposal Ordinance, Well Drillers Ordinance, Planning Module Requirements and Public Education Program	March, 1999

VOID
TO BE REVISED

S:\WPDATA\Tay\1913pjs.wpd

IMPLEMENTATION SCHEDULE

FOR

HAMILTON TOWNSHIP ACT 537 PLAN AMENDMENT

Event	Date
• Township Adoption of Act 537 Plan Revision	December 2, 1997
• Submission of Act 527 Plan Revision to PA DEP for review and approval	January 8, 1998
• PA DEP Approval of Act 537 Plan Revision	November, 1998
• Township Adoption of On-Lot Sewage Disposal Ordinance, Well Drillers Ordinance, Planning Module Requirements and Public Education Program	March, 1999

I. RESOLUTION FOR PLAN REVISION
PA DEP APPROVAL LETTER
TOWNSHIP CONCURRENCE LETTER

RESOLUTION FOR PLAN REVISION

RESOLUTION OF THE SUPERVISORS OF HAMILTON TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA (hereinafter "the municipality").

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 Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the municipality 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 municipality, and

WHEREAS, Hamilton Township Board of Supervisors of Adams County, Pennsylvania has prepared an Amendment to the Act 537 Plan which assesses the sewage disposal needs in the area along Route 94 (Carlisle Road), just North of Cross Keys in Hamilton Township, and

WHEREAS, Hamilton Township finds that the Facility Plan described above conforms to applicable zoning, subdivision, other municipal ordinances and plans and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED that the Supervisors of the Township of Hamilton hereby adopts and submits to the Department of Environmental Protection for its approval as an amendment to the "Official Plan" of the municipality, the above referenced Facility Plan. The municipality hereby assures the Department of the complete and timely implementation of the said plan as required by law. (Section 5, Pennsylvania Sewage Facilities Act as amended).

I, _____, Secretary, Hamilton Township Board of Supervisors, hereby certify that the foregoing is a true copy of the Township's Resolution No. _____, adopted _____, 1999.

AUTHORIZED SIGNATURE TOWNSHIP SEAL

_____

S:\WPDATA\TAY\1913pjs.wpd

II. EXECUTIVE SUMMARY

II. Executive Summary

In February, 1996, Hamilton Township was directed by the Pennsylvania Department of Environmental Protection (DEP) to study the area along Route 94 (Carlisle Road), just north of Cross Keys, to assess the sewage disposal needs. This area was chosen to be studied due to a history of on-lot disposal system malfunctions. The study identifies specific areas that have sewage disposal needs.

Information was obtained regarding the study area via a mail survey, well sampling (nitrates and coliforms) and on-lot disposal system inspections performed by the Township's Sewage Enforcement Officer.

Analysis of the obtained information concluded that immediate sewage disposal needs areas were located at Dogwood Court, Gun Club Road and along Route 94 between Cedar Road and Forest Drive. It was also concluded that the remaining portion of the study area could be categorized as a future sewage disposal needs area.

Three (3) alternatives were evaluated for the purpose of providing a public sewer system to the study area. Alternative No. 1 involves the construction of a conventional gravity system and sewage pumping stations which would convey sewage to the New Oxford Municipal Authority's (NOMA's) Wastewater Treatment Plant (WWTP) through Oxford Township's collection system. Alternative No. 2 involves the construction of a conventional gravity system and sewage pumping stations which would convey sewage to Berwick Township's proposed collection system and proposed WWTP. Alternative No. 3 involves the construction of a conventional gravity system and sewage pumping stations which would convey sewage to a proposed Hamilton Township WWTP.

The evaluation of all alternatives based upon the estimated cost per user and the potential for future growth in the Township indicates that the most sensible option is Alterative No. 2. The estimate cost per user for the various combinations of the collection area used to evaluate Alternative No. 1 were less expensive than Alternative No. 2; however, the benefit of conveying the sewage to Berwick

Township's proposed WWTP outweighs the cheaper costs of Alternative No. 1. Alternative No. 1 requires purchasing 90,000 gallons per day (gpd) of capacity from the NOMA WWTP. Future growth within the collection area is likely to exceed the purchased capacity and the availability of additional capacity from the NOMA WWTP is unlikely. Alternative No. 2 requires purchasing an initial 100,000 gpd of capacity from Berwick Township's proposed WWTP. Even though it is likely that future growth will exceed the initial capacity, the possibility for future expansion and additional capacity is more likely with Berwick Township than with NOMA. Alternative No. 3 has been determined to be too costly.

The Township has determined the most effective option is serving the entire collection area with Alternative No. 2. Even though the cost per user per year is estimated at $1,536 compared to $1,420 for serving the entire collection area with Alternative No. 1, the potential for future growth within the collection area makes Alternative No. 2 more ideal in the long term.

III. INTRODUCTION

III. Introduction

In February 1996, Hamilton Township was directed by the Pennsylvania Department of Environmental Protection (DEP) to study the area along Route 94 (Carlisle Pike), just north of Cross Keys (See Exhibit A), to assess the sewage disposal needs. This area was chosen due to a history of on-lot disposal system malfunctions. A *"Plan of Study"* drafted by the Township and its Engineer was approved by DEP in a letter dated April 11, 1996. This *"Plan of Study"* was intended to be consistent with Act 537, Chapter 71, Sections 71.21 and 71.31 of DEP Regulations, and with information contained in the DEP Guide for Preparing Act 537 Update Revisions (February 1998) and Act 537 Sewage Disposal Needs Identifications Guidance (March 1996)

The purpose of this study is to identify and address specific areas that have sewage disposal needs. This study is not only intended to be a logical approach to alternatives and solutions for sewage disposal needs, but also an essential document for needs prioritized funding.

Sources of information relied upon in preparing this study included:

- Pennsylvania Code, Title 25, Chapter 71.
- DEP Guide for Preparing Act 537 Update Revisions (February 1998).
- Act 537 Sewage Disposal Needs Identification Guidance (March 1996).
- "Hamilton Township 1987 Updated Act 537 Plan" prepared by Martin and Martin, Inc., dated May, 1987 (Incorporated by reference).
- Well sampling performed by Enviro-Lab, Inc. from 11/25/96 to 12/5/96.
- On-Lot Disposal Systems (OLDS) field verification performed by the Hamilton

Township's Sewage Enforcement Officer (SEO) on December 10 and 23, 1996.

- Mail-in survey results received in September, 1996.

- Hamilton Township, Adams County Tax Assessment Maps K-9, K-10, and K-11 as indicated in January, 1997.

- Main-in survey results received in October, 1999.

IV. DATA COLLECTED

IV. Data Collected

Mail Survey

A survey form was mailed to each resident in the Hamilton Township Route 94 study area in early September 1996 (See Appendix A). The purpose of the mail survey was to aid in the assessment of each resident's OLDS by collecting valuable information directly from the homeowner (See Exhibit B). As shown in Table 1, 132 survey forms were mailed out and 90 survey forms were returned. This return rate of 68% is well above the required 25% as set forth in the Act 537 Sewage Disposal Needs Identification Guidance (March 1996).

TABLE 1. Route 94 Study Area - Mail Survey Response

# Parcels in Study Area	# Mail Surveys Sent Out	# Responses	% Returned	% Required
132	132	90	68	25

The 90 survey forms returned were reviewed and individually assigned a *"type of response"* based on the following definitions:

Potential Malfunction: Any OLDS installed prior to 1972 (a pre-regulatory system) or any system with unpermitted repairs.

Suspected Malfunction: Any OLDS reportedly exhibiting malfunction characteristics such as, but not limited to, green lush grass in the vicinity of an absorption area, wetness or spongy areas, water ponding, sewage backups, surface discharge of septage, or a combination of malfunction characteristics. Also included is any surface discharge of wash water.

No Apparent Malfunction: No reported evidence of any problems with OLDS.

Undeveloped Land: Survey response indicated parcel as undeveloped land.

Holding Tank: Survey response indicated some type of holding tank in use.

As shown in Table 2, 44.5% of the 90 responses were evaluated as potential malfunctions. The majority of these potential malfunctions are a resultant of their construction prior to OLDS permitting requirements (pre-regulatory systems).

TABLE 2. Route Study Area - Mail Survey Results

Type of Response	# Responses	% of Total Response
Potential Malfunction	40	44.5
Suspected Malfunction	26	29.0
No Apparent Malfunction	16	18.0
No Dwelling/Vacant	5	5.5
Holding tank	3	3.0
Total	**90**	**100.0**

Suspected malfunctions accounted for 29% of the responses, with 44.5% for potential malfunctions, indicating 73.5% of the responses may be contributing to endangering public health in the Route 94 study area.

Well Sampling

Random well sampling was performed in the Route 94 study area from November 25, 1996 to December 5, 1996 (See results in Appendix B). A total of 40 wells (47% of mail survey responses which indicated the use of an OLDS) were sampled and analyzed by ENVIRO-LAB, Inc. for total coliform, fecal coliform, and nitrate-nitrogen (NO_3-N) concentration.

Coliform bacteria are found in the intestinal tracts and fecal discharges of humans and warm-blooded animals. The detection of coliform bacteria in a water supply indicates that it may be unsafe to drink based on US EPA water quality standards. The detection of coliform bacteria is a good indicator that an OLDS is malfunctioning. Out of the 40 wells sampled, 24 wells (60%) had total coliform

present in the water and 3 of these 24 wells (12.5%) were contaminated with fecal coliform. Exhibit C shows the location and results for total and fecal coliform concentrations. Sample locations exhibiting concentrations of total coliform greater than or equal to 50 colonies per 100 ml and/or fecal coliform greater than zero (0) colonies per 100 ml are shown on Exhibit C as centrally located in the same areas of concern previously mentioned.

The detection of NO_3-N in a water supply indicates pollution usually associated with wastewater and/or agricultural runoff. It is reasonably assumed that any well with NO_3-N concentration above 5.0 mg/l may be affected by a malfunctioning OLDS. U.S. Public Health standards for nitrates in potable water is 10 milligrams per liter (mg/l) as NO_3-N. Well sampling locations and results for NO_3-N concentrations are shown on Exhibit D. Out of 40 wells sampled, 13 wells (32.5%) had NO_3-N concentrations between 5.0 - 10.0 mg/l and 3 wells (7.5%) had NO_3-N concentrations greater than 10.0 mg/l. These 16 wells that have relatively high NO_3-N concentrations are centrally located in the same area where the mail surveys and field verifications indicated suspected and confirmed OLDS malfunctions.

Field Verifications of OLDS

In order to ensure an accurate understanding of the area's sewage disposal needs, a random field verification of the surveyed OLDS was performed on December 10 and 23, 1996; Of the 90 mail responses returned, 54 were field verified (60%). These field verifications were performed by two (2) certified Pennsylvania Sewage Enforcement Officers (SEO's) who were authorized to do so by the Township Supervisors. The results of the field verification are shown in Table 3. The 54 field verified OLDS were each assigned a *"type of verification"* based on the following definitions:

Potential Malfunction: Any OLDS that appeared to be operating satisfactorily but was constructed prior to system permitting requirements (pre-regulatory system) or any system with unpermitted repairs.

Suspected Malfunction: Any OLDS exhibiting some malfunction characteristics such as, but not limited to, abnormally green grass in the vicinity of an absorption area, odors, wetness or spongy areas, and water ponding.

Confirmed Malfunction: Any OLDS exhibiting definite malfunction characteristics such as, but not limited to, surface discharge of septage and/or a combination of malfunction characteristics. Also included is the surface discharge of wash water.

No Apparent Malfunction: No apparent evidence of problems with OLDS.

TABLE 3. Route 94 Study Area - Field Verification Results

Type of Verification	# Field Verified	% of Total Verified
No Apparent Malfunction	10	18.5
Potential Malfunction	10	18.5
Suspected Malfunction	18	33.0
Confirmed Malfunction	16	30.0
Total	**54**	**100.0**

Data from the mail survey and field verifications were integrated and illustrated on Exhibit B. This exhibit clearly indicates that the majority of suspected and confirmed OLDS malfunctions are centrally located at Dogwood Court, Gun Club Road, Pine Run Road, and along Route 94 (Carlisle Pike) between Cedar Road and Forest Drive. Isolated from the centrally located malfunctions is 700 Road which exhibited several suspected and confirmed OLDS malfunctions. It should be noted that field conditions during the time of OLDS verification were extremely wet due to excessive precipitation in the months prior.

In conclusion, it is evident from Exhibits B, C and D that the "immediate" sewage disposal needs area is located at Dogwood Court, Gun Club Road, Pine Run Road, and along Route 94 (Carlisle Pike)

between Cedar Road and Forest Drive. It is also evident that the remaining portion of the study area can be categorized as a "future" sewage disposal needs area if it is not feasible to construct facilities in these areas at this time.

V. ALTERNATIVES IDENTIFICATION

V. Alternatives Identification

Wastewater planning in the Route 94 area can be accomplished in various ways. Connection can be made to the New Oxford Municipality Authority WWTP, the proposed Berwick Township WWTP or a proposed Hamilton Township WWTP.

The alternatives evaluated for the purpose of providing a public sewer system to the study area are as follows:

a. Alternative No. 1 - Construct a conventional gravity collection system and pump sewage to Oxford Township's collection system and New Oxford Municipal Authority's Wastewater Treatment Plant.

b. Alternative No. 2 - Construct a conventional gravity collection system and pump sewage to Berwick Township's proposed collection system and wastewater treatment plant.

c. Alternative No. 3 - Construct a conventional gravity collection system and wastewater treatment plant.

The study area was divided into three (3) collection areas. (See Exhibit E) Collection Area No. 1 is located north of Cedar Road and encompasses the 700 Road area. Collection Area No. 2, the most populated area, covers the area between Cedar Road and Berlin Road. Collection Area No. 3 is located between Berlin Road and Route 30. User estimates (EDU's) for the three collection areas are as follows:

Collection Area 1, 2 & 3 - 124.5 EDU's

Collection Area 1 & 2 - 103 EDU's

Collection Area 2 - 85 EDU's

Alternative No. 1 involves the construction of a conventional gravity collection system and sewage pumping stations to convey sewage to a manhole in the Rolling Meadows Mobile Home Park. Exhibit F details the proposed layout for the three collection areas.

Alternative No. 2 involves the construction of a conventional gravity collection system and sewage pumping stations to convey sewage to a pumping station along York Road (Route 30). Exhibit G details the proposed layout for the three collection areas.

Alternative No. 3 involves the construction of a conventional gravity collection system and sewage pumping stations to convey sewage to a proposed wastewater treatment plant located along the Conewago Creek and Carlisle Road (Route 94). Exhibit H details this proposed layout for the three collection areas.

A financial analysis of each Alternative has been completed to determine the most economical way to serve the residents of the Route 94 study area and prepare for future growth.

VI. COST ESTIMATES

VI. Cost Estimates

Cost estimates for each alternative are shown on Tables 4 through 12 on the following pages. The estimates were developed showing the cost for Collection Area 2, Collection Areas 1 & 2 and Collection Area 1, 2, & 3. As shown for all collection areas, the total estimated project cost for Alternative No. 1 is $1,831,000, for Alternative No. 2 is $1,955,000 and for Alternative No. 3 is $2,795,000.

Table 4 - Estimated Project Costs

Alternative # 1 - Collection Areas 1, 2 & 3

Flow to Oxford Twp. Collection System and NOMA Wastewater Treatement Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$35,000.00	$35,000.00
Maintenance and Protection of Traffic	LS	1	$15,000.00	$15,000.00
Clearing and Grubbing	LS	1	$5,000.00	$5,000.00
Boring and jacking 24" dia. casing pipe	LF	80	$400.00	$32,000.00
Select Material Stone Backfill	TON	7,700	$10.00	$77,000.00
Soil Erosion & Sedimentation Control	LS	1	$15,000.00	$15,000.00
Finish Grading and Seeding	LS	1	$20,000.00	$20,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	1,575	$26.00	$40,950.00
6" Dia. PVC Pipe(boring)	LF	1,040	$75.00	$78,000.00
8" Dia. PVC Pipe	LF	16,600	$34.00	$564,400.00
8" x 6" wyes	EA	107	$40.00	$4,280.00
1/8" bends	EA	107	$10.00	$1,070.00
4" Dia. PVC pressure pipe	LF	7,300	$18.00	$131,400.00
Manholes	EA	58	$900.00	$52,200.00
Standard Fame and Cover	EA	58	$200.00	$11,600.00
Cleanouts	EA	107	$75.00	$8,025.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	3,420	$15.00	$51,300.00
Trench Paving (Driveway)	SY	550	$12.00	$6,600.00
	Subtotal			**$1,448,825.00**
	Contingency(+/-10%)			**$144,175.00**
	Estimated Construction Cost			**$1,593,000.00**
	Estimated Design Cost(+/-15%)			**$238,000.00**
	Estimated Total Project Cost			**$1,831,000.00**

Table 5 - Estimated Project Costs

Alternative # 1 - Collection Areas 1 & 2

Flow to Oxford Twp. Collection System and NOMA Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$30,000.00	$30,000.00
Maintenance and Protection of Traffic	LS	1	$12,000.00	$12,000.00
Clearing and Grubbing	LS	1	$4,000.00	$4,000.00
Boring and jacking 24" dia. casing pipe	LF	80	$400.00	$32,000.00
Select Material Stone Backfill	TON	7,700	$10.00	$77,000.00
Soil Erosion & Sedimentation Control	LS	1	$12,000.00	$12,000.00
Finish Grading and Seeding	LS	1	$16,000.00	$16,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	1,455	$26.00	$37,830.00
6" Dia. PVC Pipe(boring)	LF	880	$75.00	$66,000.00
8" Dia. PVC Pipe	LF	12,300	$34.00	$418,200.00
8" x 6" wyes	EA	95	$40.00	$3,800.00
1/8" bends	EA	95	$10.00	$950.00
4" Dia. PVC pressure pipe	LF	7,300	$18.00	$131,400.00
Manholes	EA	43	$900.00	$38,700.00
Standard Fame and Cover	EA	43	$200.00	$8,600.00
Cleanouts	EA	95	$75.00	$7,125.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	3,420	$15.00	$51,300.00
Trench Paving (Driveway)	SY	500	$12.00	$6,000.00
	Subtotal			**$1,252,905.00**
	Contingency(+/- 10%)			**$125,095.00**
	Estimated Construction Cost			**$1,378,000.00**
	Estimated Design Cost(+/- 15%)			**$206,000.00**
	Estimated Total Project Cost			**$1,584,000.00**

Table 6 - Estimated Project Costs

Alternative # 1 - Collection Area 2

Flow to Oxford Twp. Collection System and NOMA Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$24,000.00	$24,000.00
Maintenance and Protection of Traffic	LS	1	$10,000.00	$10,000.00
Clearing and Grubbing	LS	1	$3,000.00	$3,000.00
Boring and jacking 24" dia. casing pipe	LF	80	$400.00	$32,000.00
Select Material Stone Backfill	TON	4,510	$10.00	$45,100.00
Soil Erosion & Sedimentation Control	LS	1	$10,000.00	$10,000.00
Finish Grading and Seeding	LS	1	$13,000.00	$13,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	895	$26.00	$23,270.00
6" Dia. PVC Pipe(boring)	LF	800	$75.00	$60,000.00
8" Dia. PVC Pipe	LF	9,700	$34.00	$329,800.00
8" x 6" wyes	EA	71	$40.00	$2,840.00
1/8" bends	EA	71	$10.00	$710.00
4" Dia. PVC pressure pipe	LF	6,300	$18.00	$113,400.00
Manholes	EA	35	$900.00	$31,500.00
Standard Fame and Cover	EA	35	$200.00	$7,000.00
Cleanouts	EA	71	$75.00	$5,325.00
Pump Stations	EA	2	$100,000.00	$200,000.00
Trench Resoration Payment Items				
Trench Paving	SY	2,020	$15.00	$30,300.00
Trench Paving (Driveway)	SY	460	$12.00	$5,520.00
	Subtotal			**$946,765.00**
	Contingency(+/-10%)			**$94,235.00**
	Estimated Construction Cost			**$1,041,000.00**
	Estimated Design Cost(+/-15%)			**$156,000.00**
	Estimated Total Project Cost			**$1,197,000.00**

Table 7 - Estimated Project Costs

Alternative # 2 - Collection Areas 1, 2 & 3

Flow to Berwick Township Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$35,000.00	$35,000.00
Maintenance and Protection of Traffic	LS	1	$15,000.00	$15,000.00
Clearing and Grubbing	LS	1	$5,000.00	$5,000.00
Boring and jacking 24" dia. casing pipe	LF	160	$400.00	$64,000.00
Select Material Stone Backfill	TON	8,600	$10.00	$86,000.00
Soil Erosion & Sedimentation Control	LS	1	$15,000.00	$15,000.00
Finish Grading and Seeding	LS	1	$20,000.00	$20,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	1,575	$26.00	$40,950.00
6" Dia. PVC Pipe(boring)	LF	1,040	$75.00	$78,000.00
8" Dia. PVC Pipe	LF	18,100	$34.00	$615,400.00
8" x 6" wyes	EA	107	$40.00	$4,280.00
1/8" bends	EA	107	$10.00	$1,070.00
4" Dia. PVC pressure pipe	LF	7,000	$18.00	$126,000.00
Manholes	EA	63	$900.00	$56,700.00
Standard Fame and Cover	EA	63	$200.00	$12,600.00
Cleanouts	EA	107	$75.00	$8,025.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	3,820	$15.00	$57,300.00
Trench Paving (Driveway)	SY	450	$12.00	$5,400.00
	Subtotal			**$1,545,725.00**
	Contingency(+/-10%)			**$154,275.00**
	Estimated Construction Cost			**$1,700,000.00**
	Estimated Design Cost(+/-15%)			**$255,000.00**
	Estimated Total Project Cost			**$1,955,000.00**

Table 8 - Estimated Project Costs

Alternative # 2 - Collection Areas 1 & 2

Flow to Berwick Township Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$30,000.00	$30,000.00
Maintenance and Protection of Traffic	LS	1	$12,000.00	$12,000.00
Clearing and Grubbing	LS	1	$4,000.00	$4,000.00
Boring and jacking 24" dia. casing pipe	LF	160	$400.00	$64,000.00
Select Material Stone Backfill	TON	8,600	$10.00	$86,000.00
Soil Erosion & Sedimentation Control	LS	1	$12,000.00	$12,000.00
Finish Grading and Seeding	LS	1	$16,000.00	$16,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	1,455	$26.00	$37,830.00
6" Dia. PVC Pipe(boring)	LF	880	$75.00	$66,000.00
8" Dia. PVC Pipe	LF	13,800	$34.00	$469,200.00
8" x 6" wyes	EA	95	$40.00	$3,800.00
1/8" bends	EA	95	$10.00	$950.00
4" Dia. PVC pressure pipe	LF	7,000	$18.00	$126,000.00
Manholes	EA	48	$900.00	$43,200.00
Standard Fame and Cover	EA	48	$200.00	$9,600.00
Cleanouts	EA	95	$75.00	$7,125.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	3,820	$15.00	$57,300.00
Trench Paving (Driveway)	SY	400	$12.00	$4,800.00
		Subtotal		**$1,349,805.00**
		Contingency(+/-10%)		**$134,195.00**
		Estimated Construction Cost		**$1,484,000.00**
		Estimated Design Cost(+/-15%)		**$222,000.00**
		Estimated Total Project Cost		**$1,706,000.00**

Table 9 - Estimated Project Costs

Alternative # 2 - Collection Area 2

Flow to Berwick Township Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$24,000.00	$24,000.00
Maintenance and Protection of Traffic	LS	1	$10,000.00	$10,000.00
Clearing and Grubbing	LS	1	$3,000.00	$3,000.00
Boring and jacking 24" dia. casing pipe	LF	160	$400.00	$64,000.00
Select Material Stone Backfill	TON	5,410	$10.00	$54,100.00
Soil Erosion & Sedimentation Control	LS	1	$10,000.00	$10,000.00
Finish Grading and Seeding	LS	1	$13,000.00	$13,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	895	$26.00	$23,270.00
6" Dia. PVC Pipe(boring)	LF	800	$75.00	$60,000.00
8" Dia. PVC Pipe	LF	11,200	$34.00	$380,800.00
8" x 6" wyes	EA	71	$40.00	$2,840.00
1/8" bends	EA	71	$10.00	$710.00
4" Dia. PVC pressure pipe	LF	6,000	$18.00	$108,000.00
Manholes	EA	40	$900.00	$36,000.00
Standard Fame and Cover	EA	40	$200.00	$8,000.00
Cleanouts	EA	71	$75.00	$5,325.00
Pump Stations	EA	2	$100,000.00	$200,000.00
Trench Resoration Payment Items				
Trench Paving	SY	2,420	$15.00	$36,300.00
Trench Paving (Driveway)	SY	360	$12.00	$4,320.00
	Subtotal			**$1,043,665.00**
	Contingency(+/-10%)			**$104,335.00**
	Estimated Construction Cost			**$1,148,000.00**
	Estimated Design Cost(+/-15%)			**$172,000.00**
	Estimated Total Project Cost			**$1,320,000.00**

Table 10 - Estimated Project Costs

Alternative # 3 - Collection Areas 1, 2 & 3

Flow to Hamilton Township Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$40,000.00	$40,000.00
Maintenance and Protection of Traffic	LS	1	$20,000.00	$20,000.00
Clearing and Grubbing	LS	1	$5,000.00	$5,000.00
Boring and jacking 24" dia. casing pipe	LF	80	$400.00	$32,000.00
Select Material Stone Backfill	TON	7,700	$10.00	$77,000.00
Soil Erosion & Sedimentation Control	LS	1	$15,000.00	$15,000.00
Finish Grading and Seeding	LS	1	$20,000.00	$20,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	1,575	$26.00	$40,950.00
6" Dia. PVC Pipe(boring)	LF	1,040	$75.00	$78,000.00
8" Dia. PVC Pipe	LF	20,100	$34.00	$683,400.00
8" x 6" wyes	EA	107	$40.00	$4,280.00
1/8" bends	EA	107	$10.00	$1,070.00
4" Dia. PVC pressure pipe	LF	6,400	$18.00	$115,200.00
4" Dia. PVC pressure pipe(boring)	LF	40	$75.00	$3,000.00
Manholes	EA	71	$900.00	$63,900.00
Standard Fame and Cover	EA	71	$200.00	$14,200.00
Cleanouts	EA	107	$75.00	$8,025.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	3,420	$15.00	$51,300.00
Trench Paving (Driveway)	SY	750	$12.00	$9,000.00
	Subtotal			**$1,581,325.00**
	Contingency(+/-10%)			**$157,675.00**
	Estimated Construction Cost			**$1,739,000.00**
	Estimated Design Cost(+/-15%)			**$261,000.00**
	Estimated Total Project Cost			**$2,000,000.00**
Wastewater Treatment Plant Items				
100,000 gallons per day plant	GPD	100,000	$5.00	$500,000.00
Land for Treatment plant	AC	10	$8,000.00	$80,000.00
Glabview Acres treatment plant upgrade	LS	1	$20,000.00	$20,000.00
	Subtotal			**$600,000.00**
	Contingency(+/-10%)			**$60,000.00**
	Estimated Construction Cost			**$660,000.00**
	Estimated Design Cost(+/-20%)			**$135,000.00**
	Estimated Total Project Cost			**$795,000.00**
	Estimated Total Project Cost for Collection System and WWTP			**$2,795,000.00**

Table 11 - Estimated Project Costs

Alternative # 3 - Collection Areas 1 & 2

Flow to Hamilton Township Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$35,000.00	$35,000.00
Maintenance and Protection of Traffic	LS	1	$16,000.00	$16,000.00
Clearing and Grubbing	LS	1	$4,000.00	$4,000.00
Boring and jacking 24" dia. casing pipe	LF	80	$400.00	$32,000.00
Select Material Stone Backfill	TON	7,700	$10.00	$77,000.00
Soil Erosion & Sedimentation Control	LS	1	$13,000.00	$13,000.00
Finish Grading and Seeding	LS	1	$16,000.00	$16,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	1,455	$26.00	$37,830.00
6" Dia. PVC Pipe(boring)	LF	880	$75.00	$66,000.00
8" Dia. PVC Pipe	LF	15,800	$34.00	$537,200.00
8" x 6" wyes	EA	95	$40.00	$3,800.00
1/8" bends	EA	95	$10.00	$950.00
4" Dia. PVC pressure pipe	LF	6,400	$18.00	$115,200.00
4" Dia. PVC pressure pipe(boring)	LF	40	$75.00	$3,000.00
Manholes	EA	56	$900.00	$50,400.00
Standard Fame and Cover	EA	56	$200.00	$11,200.00
Cleanouts	EA	95	$75.00	$7,125.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	3,420	$15.00	$51,300.00
Trench Paving (Driveway)	SY	700	$12.00	$8,400.00
			Subtotal	**$1,385,405.00**
			Contingency(+/-10%)	**$138,595.00**
			Estimated Construction Cost	**$1,524,000.00**
			Estimated Design Cost(+/-15%)	**$229,000.00**
			Estimated Total Project Cost	**$1,753,000.00**
Wastewater Treatment Plant Items				
100,000 gallons per day plant	GPD	100,000	$5.00	$500,000.00
Land for Treatment plant	AC	10	$8,000.00	$80,000.00
Glabview Acres treatment plant upgrade	LS	1	$20,000.00	$20,000.00
			Subtotal	**$600,000.00**
			Contingency(+/-10%)	**$60,000.00**
			Estimated Construction Cost	**$660,000.00**
			Estimated Design Cost(+/-20%)	**$135,000.00**
			Estimated Total Project Cost	**$795,000.00**
			Estimated Total Project Cost for Collection System and WWTP	**$2,548,000.00**

Table 12 - Estimated Project Costs

Alternative # 3 - Collection Area 2

Flow to Hamilton Township Wastewater Treatment Plant

Description	Unit	Quantity	Unit Price	Total Price
Miscellaneous/Site Work Payment Items				
Mobilization	LS	1	$30,000.00	$30,000.00
Maintenance and Protection of Traffic	LS	1	$15,000.00	$15,000.00
Clearing and Grubbing	LS	1	$3,500.00	$3,500.00
Boring and jacking 24" dia. casing pipe	LF	80	$400.00	$32,000.00
Select Material Stone Backfill	TON	4,510	$10.00	$45,100.00
Soil Erosion & Sedimentation Control	LS	1	$11,000.00	$11,000.00
Finish Grading and Seeding	LS	1	$15,000.00	$15,000.00
Sanitary Sewer Payment Items				
6" Dia. PVC Pipe(open cut)	LF	955	$26.00	$24,830.00
6" Dia. PVC Pipe(boring)	LF	800	$75.00	$60,000.00
8" Dia. PVC Pipe	LF	13,700	$34.00	$465,800.00
8" x 6" wyes	EA	71	$40.00	$2,840.00
1/8" bends	EA	71	$10.00	$710.00
4" Dia. PVC pressure pipe	LF	6,400	$18.00	$115,200.00
4" Dia. PVC pressure pipe(boring)	LF	40	$75.00	$3,000.00
Manholes	EA	48	$900.00	$43,200.00
Standard Fame and Cover	EA	48	$200.00	$9,600.00
Cleanouts	EA	71	$75.00	$5,325.00
Pump Stations	EA	3	$100,000.00	$300,000.00
Trench Resoration Payment Items				
Trench Paving	SY	2,020	$15.00	$30,300.00
Trench Paving (Driveway)	SY	700	$12.00	$8,400.00
		Subtotal		**$1,220,805.00**
		Contingency(+/-10%)		**$122,195.00**
		Estimated Construction Cost		**$1,343,000.00**
		Estimated Design Cost(+/-15%)		**$202,000.00**
		Estimated Total Project Cost		**$1,545,000.00**
Wastewater Treatment Plant Items				
100,000 gallons per day plant	GPD	100,000	$5.00	$500,000.00
Land for Treatment plant	AC	10	$8,000.00	$80,000.00
Glabview Acres treatment plant upgrade	LS	1	$20,000.00	$20,000.00
		Subtotal		**$600,000.00**
		Contingency(+/-10%)		**$60,000.00**
		Estimated Construction Cost		**$660,000.00**
		Estimated Design Cost(+/-20%)		**$135,000.00**
		Estimated Total Project Cost		**$795,000.00**
		Estimated Total Project Cost for Collection System and WWTP		**$2,340,000.00**

VII. FINANCIAL ANALYSES

VII. Financial Analyses

The selection of a proposed alternative must not be based alone on construction cost, but on costs per users based on different funding scenarios which include design and operation and maintenance costs. The following three funding sources were considered:

A. PENNVEST: 2.638% interest rate, 20 year loan repayment.

B. Rural Utility Service: 5.5% interest rate, 40 year loan repayment.

C. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment.

The Alternatives were evaluated utilizing present worth methodology for each of the above sources assuming a tapping fee being assessed by the Township. Each alternative and combination of collection areas was evaluated based on tapping fee of $2,500.

Alternative No. 1 involves the purchasing capacity from the NOMA Wastewater Treatment Plant. The cost of 90,000 gpd would be $450,000. In addition NOMA would charge an operation and maintenance fee of $62 bi-monthly and Oxford Township would charge an operation and maintenance fee of $0.50 per 1,000 gallons per day.

Alternative No. 2 involves the purchasing capacity from the proposed Berwick Township Wastewater Treatment Plant. The cost of 100,000 gpd would be $536,000 which includes engineering and construction costs to increase the capacity of the plant and collection system. In addition, Berwick Township would charge $30 per month per EDU for operation and maintenance and we have estimated approximately $5 per month per EDU for debt service.

Alternative No. 3 involves the building of a wastewater treatment plant. The estimated project cost of the treatment plant is $795,000 which includes alterations to the Gladview Acres

Treatment Plant. Operation and maintenance for the treatment plant is estimated at $75,000 per year.

Estimated costs per EDU for each of the alternatives based on the above funding sources are shown on Tables 13 through 21 on the following pages.

Table 13 - Estimated Cost per EDU per Year

Alternative #1 - Collection Areas 1, 2 & 3 (124.5 EDU's)

Flow to Oxford Twp. Collection System and NOMA Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,028	$986	$1,212
Oxford O&M	$47	$47	$47
NOMA O&M	$372	$372	$372
System O&M	$25	$25	$25
Total	$1,472	$1,430	$1,656

Tapping Fee

A. Based on capacity from NOMA costing $450,000
B. Based on a tapping fee of $2,500
C. Remaining capacity costs not covered by tapping fees included in debt service

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. Oxford Township: Based on a charge of $0.50 per 1,000 gallons per day
B. NOMA: Based on a $62 bi-monthly charge per EDU

Table 14 - Estimated Cost per EDU per Year

Alternative #1 - Collection Areas 1 & 2 (103 EDU's)

Flow to Oxford Twp. Collection System and NOMA Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,121	$1,075	$1,321
Oxford O&M	$47	$47	$47
NOMA O&M	$372	$372	$372
System O&M	$30	$30	$30
Total	$1,570	$1,524	$1,770

Tapping Fee

A. Based on capacity from NOMA costing $450,000
B. Based on a tapping fee of $2,500
C. Remaining capacity costs not covered by tapping fees included in debt service

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. Oxford Township: Based on a charge of $0.50 per 1,000 gallons per day
B. NOMA: Based on a $62 bi-monthly charge per EDU

Table 15 - Estimated Cost per EDU per Year

Alternative #1 - Collection Area 2 (85 EDU's)

Flow to Oxford Twp. Collection System and NOMA Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,097	$1,051	$1,293
Oxford O&M	$47	$47	$47
NOMA O&M	$372	$372	$372
System O&M	$25	$25	$25
Total	$1,541	$1,495	$1,737

Tapping Fee

A. Based on capacity from NOMA costing $450,000
B. Based on a tapping fee of $2,500
C. Remaining capacity costs not covered by tapping fees included in debt service

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. Oxford Township: Based on a charge of $0.50 per 1,000 gallons per day
B. NOMA: Based on a $62 bi-monthly charge per EDU

Table 16 - Estimated Cost per EDU per Year

Alternative # 2 - Collection Areas 1, 2 & 3 (124.5 EDU's)

Flow to Berwick Township Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,138	$1,091	$1,341
Berwick O&M	$420	$420	$420
System O&M	$25	$25	$25
Total	$1,583	$1,536	$1,786

Tapping Fee

A. Based on capacity from Berwick Township costing $536,500
B. Based on a tapping fee of $2,500
C. Remaining capacity costs not covered by tapping fees included in debt service

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. Berwick Township: Based on $30 per month per EDU plus $5 per month per EDU debt service

Table 17 - Estimated Cost per EDU per Year

Alternative # 2 - Collection Areas 1 & 2 (103 EDU's)

Flow to Berwick Township Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,253	$1,201	$1,476
Berwick O&M	$420	$420	$420
System O&M	$30	$30	$30
Total	$1,703	$1,651	$1,926

Tapping Fee

A. Based on capacity from Berwick Township costing $536,500
B. Based on a tapping fee of $2,500
C. Remaining capacity costs not covered by tapping fees included in debt service

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. Berwick Township: Based on $30 per month per EDU plus $5 per month per EDU debt service

Table 18 - Estimated Cost per EDU per Year

Alternative # 2 - Collection Area 2 (85 EDU's)

Flow to Berwick Township Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,259	$1,205	$1,482
Berwick O&M	$420	$420	$420
System O&M	$25	$25	$25
Total	$1,704	$1,650	$1,927

Tapping Fee

A. Based on capacity from Berwick Township costing $536,500
B. Based on a tapping fee of $2,500
C. Remaining capacity costs not covered by tapping fees included in debt service

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. Berwick Township: Based on $30 per month per EDU plus $5 per month per EDU debt service

Table 19 - Estimated Cost per EDU per Year

Alternative # 3 - Collection Areas 1, 2 & 3 (124.5 EDU's)

Flow to Hamilton Township Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,297	$1,243	$1,528
System O&M	$25	$25	$25
WWTP O&M	$600	$600	$600
Total	$1,922	$1,868	$2,153

Tapping Fee

A. Based on a tapping fee of $2,500

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. WWTP O&M: based on $75,000 per year

Table 20 - Estimated Cost per EDU per Year

Alternative # 3 - Collection Areas 1 & 2 (103 EDU's)

Flow to Hamilton Township Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,445	$1,385	$1,703
System O&M	$30	$30	$30
WWTP O&M	$750	$750	$750
Total	$2,225	$2,165	$2,483

Tapping Fee

A. Based on a tapping fee of $2,500

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. WWTP O&M: based on $75,000 per year

Table 21 - Estimated Cost per EDU per Year

Alternative # 3 - Collection Area 2 (85 EDU's)

Flow to Hamilton Township Wastewater Treatment Plant

Estimated Cost per EDU per Year			
	PENNVEST	RUS	BOND ISSUE
Debt Service	$1,627	$1,559	$1,917
System O&M	$25	$25	$25
WWTP O&M	$985	$985	$985
Total	$2,637	$2,569	$2,927

Tapping Fee

A. Based on a tapping fee of $2,500

Finance Options

A. Debt Service: based on interest compounded annually
B. PENNVEST: 2.638% interest rate, 20 year loan repayment
C. Rural Utility Service (RUS): 5.5% interest rate, 40 year loan repayment
D. Conventional Bond Issue: 6.5% interest rate, 30 year loan repayment

Operation and Maintenance (O&M)

A. WWTP O&M: based on $75,000 per year

VIII. ALTERNATIVE EVALUATION

VIII. Alternative Evaluation

The financial analysis shows that, of the three funding sources, the rural utility service loan offers the most affordable rates per EDU for the three different combinations of Collection Areas evaluated. The three least expensive options, based on cost per EDU per year, are as follows:

1. Alternative No. 1 (Entire Collection Area) $1,430

2. Alternative No. 1 (Collection Area 2) $1,495

3. Alternative No. 1 (Collection Area 1 & 2) $1,524

4. Alternative No. 2 (Entire collection area) $1,536

Based on costs and the various alternatives for sewage treatment, it would appear that the most beneficial alternative for the Township to choose if it were to undertake a sewer project would be Alternative No. 2 (Entire Collection Area). Although it is more expensive per year than Alternative No. 1 (Entire Collection Area), Alternative No. 1 requires the purchasing of capacity from NOMA. It appears that future growth in the collection area will require greater capacity than is available from NOMA. Purchasing capacity from Berwick Township (Alternative No. 2) would allow for future expansions and increase in future capacity.

The issue of cost per year per user is of importance. Charging users $1,536 per year, or $384 per quarter, is high by any standard, but especially when the rates are compared to recently constructed systems in the area. Forest Drive/Cherry Lane customers currently pay $208 per quarter, while Homestead Acres (Paradise Township) customers pay $165 per quarter.

If the maximum grant available from PENNVEST is received ($250,000) and a PENNVEST loan is available at an interest rate of 1% over 30 years, the least expensive options, based on cost per EDU per year, become:

1. Alternative No. 1 (Entire Collection Area)	$ 979
2. Alternate No. 1 (Collection Area 2)	$ 983
3. Alternate No. 1 (Collection Area 1 & 2)	$ 1,023
4. Alternate No. 2 (Entire Collection Area)	$ 1,045

Under the best case scenario, the rates for Alternative No. 2 (entire collection area) would be in the $261 per quarter range; still higher than surrounding areas, but comparable to the rates charged to the Township's Gladview Acres WWTP users. Only through commitment of development by landowners within the service areas, and their funds, can the Township bring their rates to a comparable amount to that of the surrounding areas.

If there is insufficient commitment by landowners within the service areas, Hamilton Township should promote proper wastewater disposal through the following activities:

1. Create a sewage management program to assure long-term operation and maintenance of individual and community on-lot sewage facilities by adopting one Ordinance for governing municipal management of on-lot subsurface sewage disposal facilities (See Appendix C).

2. Adopt a Well Drillers Ordinance (See Appendix D).

3. The Township shall continue to permit the use of holding tanks in compliance with the existing Holding Tank Ordinance (See Appendix E) and applicable DEP regulations.

4. The following Planning Module requirements will apply through the Township:

   a. Component 1 Planning Modules (exceptions) and Module exemptions will be prohibited for subdivisions which propose on-lot sewage disposal within one quarter mile of any well which has a documented nitrate-nitrogen level in excess of 5 milligrams per liter.

   b. A preliminary hydrogeologic analysis or the use of denitrification systems will be required for all Planning Modules which propose on-lost sewage disposal within one quarter mile of any well which has a documented nitrate-nitrogen level in excess of 5 milligrams per liter.

   c. The Township will require all lot owners in a proposed subdivision using denitrification systems to sign an operation and maintenance agreement requiring a contractor to perform a maintenance on the denitrification.

   d. The Township will require the testing and reservation of a replacement absorption area for each lot for all future subdivisions.

5. The Township shall provide a public education program to educate the Township residents on proper maintenance of an on-lot system. This program shall also inform new and existing residents of their responsibilities under the newly created Sewage

Management Program. The education program should include information on water conservation measures and proper operation which would help prolong the life of on-lot systems.

This alternative will be financed using the Township's general fund. The implementation of this plan will not require any changed in the Township's institutional, administrative or legal activities.

IX. APPENDICES

APPENDIX A

NEEDS ANALYSIS SURVEY

HAMILTON TOWNSHIP - ROUTE 94 (CARLISLE PIKE) AREA NEEDS ANALYSIS SURVEY FORM

(CIRCLE OR FILL IN AS APPROPRIATE; ADD COMMENTS AS NEEDED)

NAME: _____ PHONE: (___) _____-_____

ADDRESS: _____

_____

1. How many people live in your house? _____ Seasonal / All Year?
2. How large is your lot? _____
3. Do you have more than one sewage system on your lot? Yes / No
   If yes, explain: _____
4. What kind of water system do you have? Well Spring Public Other
   If other, explain: _____
5. Do you treat your water? Yes / No If yes, how? _____
6. If you have a well: Is it Dug or Drilled? How Deep: _____ feet Cased: Yes / No
7. Approximately how far is the well or spring from the septic drain field? _____ feet.
   Is the well Up or Down Slope of the drain field? _____
8. Have you ever had your water tested? Yes / No If so, when: _____
   What were the results: _____
9. What kind of sewage system do you have? (CIRCLE ALL THAT APPLY)

Septic Tank	Cesspool	Holding Tank
Privy	Bore Hole	Seepage Pit
Public Sewer	Inground Bed	Inground Trench
Other _____		Elevated Sand Mound

10. Where does your laundry and / or sink water go? _____
11. How old is your system? _____ Was it permitted? Yes / No If yes,when: _____
12. Have you ever noticed any of the following near your septic system?

Wetness or Spongy Areas	Sluggish Drains
Water Ponding or Surfacing	System Overflow
Wastewater Backing Into the Home	Odors
Green Lush Grass	
Other _____	

13. Was system ever pumped out? Yes / No How Often: _____ Most Recently: _____
14. Was system ever repaired? Yes / No When: _____ By Permit? Yes / No
    What part was repaired / replaced? Tank: Repaired / Replaced
    Line: Repaired / Replaced Drain Field: Repaired / Replaced Other:_____
15. Are there any other sewage related problems you are aware of? _____
    _____

COMMENTS: _____

_____

jam/382.jpo

APPENDIX B

WELL ANALYSIS

ENVIRO-LAB, Inc.
Environmental Testing & Field Services
1221 HANOVER RD. • YORK, PA 17404-6299 PHONE (717) 225-2400 FAX (717) 225-6882

C.S. DAVIDSON, INC.
ATTN: JASON ORDANOFF
50 W. MIDDLE ST.
GETTYSBURG, PA 17325

December 18,1996

HAMILTON TOWNSHIP

Well and Groundwater Results
Samples collected 11/25/96 to 12/5/96

SAMPLE NUMBER	NAME	LOCATION	WELL DEPTH	NO3-N	TOTAL COLIFORM	FECAL COLIFORM
HA-01	J.WITHEROW	3420 CARLISLE PK	?	1.5	0/100	0/100
HA-02	S.BATTS	3345 CARLISLE PK	30'	10.9	>80/100	0/100
HA-03	M.BURCHETTE	3316 CARLISLE PK	240'	2.5	0/100	0/100
HA-04	C.BOLLINGER	3306 CARLISLE PK	?	3.0	0/100	0/100
HA-05	T.MURREN	1036 700 RD	?	4.3	0/100	0/100
HA-06	R.SLOTHOUR	908 700 RD	?	2.5	0/100	0/100
HA-07	J.GRAHAM	1125 700 RD	280'	3.9	2/100	0/100
HA-08	CB.MOTORS	RT 94	160'	12.8	6/100	0/100
HA-09	E.BAUGHER	1094 700 RD	132'	3.1	0/100	0/100
HA-10	T.KERCHNER	1035 700 RD	?	6.5	10/100	0/100
HA-11	KUHN	40 PINE RUN RD	?	5.7	0/100	0/100
HA-12	W.C.HALE	55 PINE RUN RD	?	3.6	>80/100	0/100
HA-13	SMALL	70 PINE RUN RD	?	7.4	50/100	0/100
HA-14	HAVERSTICK	110 PINE RUN RD	?	7.5	16/100	0/100
HA-15	J.FRETZ	136 PINE RUN RD	?	3.4	10/100	0/100
HA-16	U.FROST	175 PINE RUN RD	206'	6.4	8/100	0/100
HA-17	SHEARER	240 PINE RUN RD	?	6.5	26/100	0/100
HA-18	R.SCHWARTZ	352 PINE RUN RD	?	5.8	22/100	0/100
HA-19	B.ZOELLER	35 PINE RUN RD	90'	6.4	>80/100	6/100
HA-20	ZOELLER'S FRUIT	RT.94	?	3.8	34/100	24/100
HA-21	R.BRODBECK	3635 CARLISLE PK	?	4.3	2/100	0/100
HA-22	D.M.MILLER	890 BERLIN RD	?	7.0	>80/100	0/100
HA-23	H.L.FOSTER	3725 CARLISLE PK	?	4.8	17/100	0/100
HA-24	F.USLIN	10 PINE RUN RD	?	4.5	0/100	0/100
HA-25	T.FAHS	3710 CARLISLE PK	140'	3.2	11/100	0/100
HA-26	S.MYERS	3720 CARLISLE PK	160'	5.4	>80/100	0/100
HA-27	R.LAUGHMAN	3780 CARLISLE PK	?	3.2	0/100	0/100
HA-28	M.TOPPER	495 GUN CLUB RD	180'	5.8	0/100	0/100
HA-29	B.STOCK	150 DOGWOOD CT	?	3.7	11/100	0/100
HA-30	L.ZARTMAN	145 DOGWOOD CT	140'	2.5	0/100	0/100
HA-31	BAPTIST CH	125 DOGWOOD CT	?	2.5	10/100	0/100
HA-32	HOIBOUGH	45 DOGWOOD CT	?	2.4	7/100	0/100
HA-33	WILLOW ENT	390 GUN CLUB RD	?	2.9	0/100	0/100

ENVIRO-LAB, Inc.
Environmental Testing & Field Services
1221 HANOVER RD. • YORK, PA 17404-6299 PHONE (717) 225-2400 FAX (717) 225-6882

HA-34	S.ADDALLI	10 DOGWOOD CT	180'	3.3	>80/100	2/100
HA-35	L.BOSSERMAN	3820 CARLISLE PK	160'	6.5	18/100	0/100
HA-36	R.BECKER	3860 CARLISLE PK	210'	14.8	0/100	0/100
HA-37	R.STEVENS	35 CEDAR RD	175'	1.5	0/100	0/100
HA-38	T.DUNLAP	3970 CARLISLE PK	179'	2.4	0/100	0/100
HA-39	DINGLE	3885 CARLISLE PK	?	5.0	5/100	0/100
HA-40	M.SCHRIVER	3785 CARLISLE PK	145'	2.2	0/100	0/100

No representation as to the fitness or quality of the water sample taken is made, except for the parameters tested.

Respectfully submitted,
ENVIRO-LAB, INC.
Reviewed and approved by:

Mary Ann Weaver

Mary Ann Weaver, Director

APPENDIX C

ON-LOT SEWAGE DISPOSAL ORDINANCE

ON-LOT SEWAGE DISPOSAL ORDINANCE

Section 1. Purpose. The purpose of the On-Lot Sewage Disposal Ordinance is to provide for the proper maintenance and care of all on-lot sewage disposal systems within Hamilton Township; to provide for the routine pumping out of said systems; to provide the Township inspections of said systems; to authorize intervention by the Township in situations involving health hazards; and to insure Township compliance with the Pennsylvania Sewage Facilities Act, the Clean Streams law and other appropriate health and safety laws.

Section 2. Definitions.

ADMINISTRATIVE WARRANT - a duly obtained warrant to authorize the entry of Township or its agents or employees for the purpose of inspecting the on-site waste disposal system of any property.

DENITRIFICATION UNIT - any reliable system that removes nitrate-nitrogen prior to treatment and disposal using an on-lot system.

MALFUNCTION - a condition which occurs in which an on-lot sewage disposal system discharges sewage onto the surface of the ground, into groundwaters of this Commonwealth, into surface waters of this 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. Systems shall be considered to be malfunctioning if any condition noted above occurs for any length of time during any period of the year.

MALFUNCTION RISK-ZONE - a geographic area of the Township which has been shown to have a high rate of failure for on-site sewage disposal systems.

ON-LOT SEWAGE DISPOSAL SYSTEM - includes all individual sewage systems, community sewage systems, holding tanks and other authorized systems for the disposal of domestic sewage which are permitted by stature or rule and regulation. Said systems shall include, but not be limited to, septic tanks, sand mounds and holding tanks.

OWNER - any natural person, corporation or partnership owning the property or properties served by an on-lot system, even if said entity does not reside on said property.

PERSON - any individual, association, public or private corporation for profit or not for profit, partnership, firm, trust, estate, department, board, bureau or agency of the Commonwealth, political subdivision, municipality, district, authority, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. Whenever used in any clause prescribing and imposing a penalty or imposing a fine or imprisonment, the term person shall include the members of an association, partnership or firm and the officers of any local agency or municipal, public or private corporation for profit or not for profit.

SEWAGE - any substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or animals and any noxious or deleterious substance being harmful or inimical to the public health, or to animal or aquatic life, or to the use of water for domestic water supply or for recreation or which constitutes pollution under the Act of June 22, 1937 (P.L. 1987, No. 394), known as "Clean Streams Law," as amended.

SEWAGE ENFORCEMENT OFFICER (SEO) - a person certified by DEP who is employed by the Township. Such person is authorized to conduct investigations and inspections, review permit applications, issue or deny permits and do all other activities as may be provided for such person in the Sewage Facilities Act, the rules and regulations promulgated thereunder and this or any other ordinance adopted by the Township.

SEWAGE PERMIT - authorization from Township to build, create, modify or alter an on-site waste disposal system. Such permit shall only be issued if the owner is in compliance with all statues, ordinances, rules and regulations governing said systems including, but not limited to, the provisions of this Part.

TOWNSHIP - Hamilton Township, Adams County, the Hamilton Township Board of Supervisors, or any person or entity acting under the due authority of said Township.

All other definitions or words and terms used in this part shall have the same meanings as set forth in "Chapter 73, Standards for Sewage Disposal Facilities" of Title 25, Rules and Regulations, Department of Environmental Protection.

Section 3. Installation of System. The Sewage Enforcement Officer of the Township shall not authorize the issuance of a permit for any on-site sewage disposal system without reviewing the design for compliance with the "Chapter 73, Standards for Sewage Disposal Facilities and compliance with the inspection schedule set forth below.

a. No system or structure designed to provide individual or community sewage disposal shall be covered from view until approval to cover has been given by the Sewage Enforcement Officer. If 72 hours have elapsed, excluding Saturdays, Sundays and official holidays, since the Sewage Enforcement Officer has received proper notification of the completion of construction, the applicant may cover the system or structure unless permission has been specifically refused by the Sewage Enforcement Officer;

b. The Township may by resolution set a schedule of interim inspections in addition to the final inspection. If such a schedule is set, applicants must notify the Sewage Enforcement Officer of the schedule for construction so that all interim inspections may be performed;

c. If any alteration, conversion or improvement to an existing structure will result in an increase or potential increase in sewage flows, no work shall begin on said alteration, conversion or improvement until the owner receives a permit for the alteration or improvement of the existing sewage disposal system or until the owner shall receive written notification from the Sewage Enforcement Officer that no alteration or improvement of the sewage disposal system is required.

Once a permit is issued, the Sewage Enforcement Officer is authorized to make yearly inspections of the system. Such an inspection may include taking a physical tour of the property, the taking of samples from surface water, wells, other ground water sources and the sampling of the contents of the sewage disposal system. If the system is located in a Malfunction Risk Zone or if the above inspection raises questions as to the functioning of the system, the Sewage Enforcement Officer may introduce a traceable substance into the plumbing of the structure in order to ascertain the path and ultimate destination of wastewater generated within the structure.

Section 4. Inspections.

1. The annual inspections provided for in Section 3 shall be conducted, whenever reasonable, in the presence of the property owner or resident.

2. In addition to the annual inspections provided above, where complaints are received by the Township concerning any on-site sewage disposal systems, where problems or malfunctions are discovered pursuant to Subsection (1), where property owners fail to comply with the pumping and maintenance provisions of Section 5 or where the Township is in receipt of other competent information concerning problems, malfunctions or improper care and maintenance of on-site sewage systems the Township Sewage Enforcement Officer shall obtain an administrative search warrant to conduct any and all necessary examinations of said systems. Said warrant shall authorize the least restrictive and intrusive means possible for the necessary examination of said system.

Section 5. Maintenance.

1. The septic tanks of all subsurface sewage disposal systems shall be pumped out every three (3) years or at other reasonable intervals as established by the Township which are commensurate with the type and location of said system. Said pumping shall be performed by an authorized septic hauler.

2. The required interval for mandatory pumping out shall be a condition for the issuance of a sewage disposal system permit and said interval shall appear on each permit hereinafter issued.

3. Each property owner shall be responsible for the continuing care and maintenance of the on-site sewage system and issuance of a sewage disposal system permit shall be conditioned upon the continued care and maintenance of said system.

4. Any person owning a structure served by an on-lot sewage disposal system which contains an aerobic treatment tank shall follow the operation and maintenance recommendations of the equipment manufacturer. A copy of said recommendations shall be submitted to the Township upon application for a sewage permit. Thereafter, service receipts shall be submitted to Township at intervals set forth in said recommendations.

5. Any person owning a structure served by an on-lot sewage disposal system which contains an denitrification unit shall follow the operation and maintenance recommendations of the equipment manufacturer. A copy of said recommendations shall be submitted to the Township upon application for a sewage permit. Thereafter, service receipts shall be submitted to Township at intervals set forth in said recommendations.

6. Additional maintenance activity may be required as needed including, but not limited to, cleaning and unclogging of piping, servicing and the repair of electrical equipment, leveling of distribution boxes, tanks and lines, removal of obstructing roots or trees, the diversion of surface water away from the disposal area, and other items.

7. Failure to comply with said maintenance shall result in the revocation of the owner's permit to use and operate said system.

Section 6. Proof of Compliance. Each time a septic tank is pumped out, the property owner shall provide the Township with proof of said pumping on a form provided by Township. Said form shall contain the following:

A. Date of pumping.
B. Name and address of owner.
C. Waste hauler's name and license number.
D. Ultimate septage disposal site.
E. List of other maintenance performed.
F. A statement that the system has been found to be in satisfactory working order.

Section 7. Failure to Provide Proof. Failure of any owner to provide proof of pumping as required in Section 6 at least as often as the interval established in Section 5 shall serve as competent and sufficient evidence of failure to perform necessary maintenance and care and shall serve as the basis for Township to obtain an administrative search warrant in order to inspect said system.

Section 8. Malfunction Risk Zone. Once a malfunction risk zone has been delineated by the Township, all on-lot sewage disposal systems located within said zone shall be subject to the yearly inspections set forth in Sections 3 and 4 and the maintenance requirements set forth in Sections 5 and 6. Township shall further be authorized to revise inspection and maintenance requirements by resolution where immediate corrective action is necessitated.

Section 9. Rehabilitation of Malfunctioning Systems.

1. Any on-lot sewage disposal system or component thereof which is found to be malfunctioning and causing pollution of ground or surface waters, or contamination of private or public drinking water supply, a nuisance, or a hazard to the public health, shall be repaired, modified, or replaced, pursuant to the order of the Township or its authorized agent to correct the condition which caused the malfunction. Rehabilitation shall be performed in accordance with Chapter 73, "Standards for Sewage Disposal Facilities" of Title 25, Rules and Regulations, Department of Environmental Protection. The Sewage Enforcement Officer shall inspect rehabilitation and certify compliance with State and local standards. The Township shall retain final authority for the conditions and issuances of sewage permits.

2. The Township shall have the authority to order the repair of any existing on-lot sewage disposal system including, but not limited to, the installation of a new conventional drainage field, the construction of elevated sand mounds to replace an existing disposal field, holding tanks, spray irrigation system, and the replacement of an existing septic system with a completely different system such as an aerobic system or waterless toilet. The Township shall also have the authority to require two (2) or more buildings serviced by malfunctioning septic tanks and subsurface drainage fields to hook up to a small community system.

3. Rehabilitation of on-lot sewage disposal system ordered by the Township shall commence construction within thirty (30) days of issuance of said order and shall be completed within ninety (90) days unless seasonal conditions mandate a longer period, in which case the Township shall set the extended completion date.

4. The owner of an on-lot sewage disposal system shall not undertake any independent repair, modification, or replacement of the system without a sewage permit. Upon completion, the Sewage Enforcement Officer shall inspect the rehabilitated system and certify its compliance with State and local standards prior to its use.

Section 10. Prohibited Materials. Only normal domestic sewage shall be discharged into the on-site sewage disposal system. The following wastes shall not be discharged into said systems:

A. Industrial waste.
B. Fats, grease and garbage grindings.
C. Automobile oil and other non-domestic oils in excessive amounts.
D. Toxic or hazardous substances, materials or chemicals, including but not limited to, pesticides, acids, paint thinners, herbicides or solvents.

Section 11. Disposal of Septage. All septage originating within the Township shall be disposed of at sites and facilities approved by the Pennsylvania Department of Environmental Protection and operated in accordance with statute and regulation.

Section 12. Personnel. Township shall have the authority to contract with, employ or appoint any persons, partnership, corporations or agencies in order to fulfill the requirements of this part. Reasonable fees for said actions may be passed on to the owners involved.

Section 13. Appeals.

1. Appeals from decisions of Township employees or authorized agents under this Part shall be made to the Township in writing within thirty (30) days from the date of the decision.

2. The appellant shall be entitled to a hearing before the Township Board of Supervisors at its next regularly schedule meeting if made at least fourteen (14) days prior to the next meeting. The Township shall thereafter reverse, modify, or affirm the aforesaid decision. The hearing may be postponed for good cause shown by the appellant or the Township. Additional evidence may be introduced at the hearing provided it is submitted with the written notice of appeal.

3. A decision shall be rendered within thirty-five (35) days of the date of hearing. Said decision shall be in writing and shall set forth the underlying reasons for that decision.

§514. Penalties.

1. Any malfunctioning sewage disposal system which is not repaired within thirty (30) days of notice from township shall subject owner to a fine of three hundred dollars ($300.00) per violations. Each day constitutes a separate violation.

2. Any owner who fails to comply with the pumping and proof requirements of Sections 5 through 7 of this Part shall be subject to a fine of fifty dollars ($50.00) per violation. Each thirty (30) day period where said requirements are not complied with shall constitute a separate violation.

APPENDIX D

WELL DRILLERS ORDINANCE

TOWNSHIP OF HAMILTON
ADAMS COUNTY, PENNSYLVANIA

ORDINANCE #

AN ORDINANCE PROVIDING FOR THE REGISTRATION, REGULATION AND CONTROL OF ALL WELLS, WHICH MAY BE CONSTRUCTED FOR OBTAINING WATER FOR DOMESTIC PURPOSES IN HAMILTON TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA.

Section 1. Purpose

The intention of this Ordinance is to ensure and protect the quality and suitability of domestic water supply, and to secure and maintain the minimum required isolation distances between water supplies and sewage disposal systems or other sources of contamination.

Section 2. Application

(a) This Ordinance shall apply to all wells which have not been completed, or which are not in operation or in an inoperable condition at the time of passage of this Ordinance.

(b) This Ordinance shall further apply to the reconstruction, major repair and other changes to existing wells, when, in the opinion of the Inspection Officer, such reconstruction, major repair and other changes may affect the quality and suitability of the water supply on the property upon which the well is constructed or on surrounding properties.

Section 3. Design Standards

The following standards shall apply for water supplies:

1. Drilled and Driven Wells

Location. Drilled and driven wells shall be located at a point free from flooding and at the following minimum distances to existing or possible future sources of pollution:

Source of Pollution	Minimum Distance
Storm Drains	25 feet
Drains carrying domestic sewage or industrial wastes	50 feet
Septic or Holding Tanks	50 feet
Surface/subsurface sewage disposal fields	100 feet
Sewage seepage pits, cesspools	100 feet
Privies	50 feet
Fuel Tanks	as approved
Other (ditches, streams, barnyards, rainwater pits, etc.)	as approved
Additional Location Restrictions	
Driveways	10 feet
Principal structure/dwelling	20 feet
Property Lines	10 feet

2. Construction

A. Source.

The source of supply shall be from a water bearing formation drawn not less than one hundred (100) feet from the ground surface, with at least twenty (20) feet of properly grouted well casing, and from no formation which is subject to pollution.

B. Casing.

The well shall have a water-tight and durable wrought iron, steel, or other type of approved casing with a nominal thickness of 3/16 (0.1875) inches and six and five-eighths (6 5/8) inches outside diameter. The sections shall be joined together by threaded couplings, joints, by welding or any other watertight approved joint or coupling.

The casing shall be carried to a minimum depth of twenty (20) feet from the finished grade and in any case shall be extended ten (10) feet into bedrock or other impervious strata. Driven wells shall be provided with a drive shoe or other effective casing seal.

An annular space shall be provided between the well casing and the earth formation of a radius at least one and one half (1 1/2) inches greater than the casing radius, excluding coupling for internal pressure grouting, or one and one half (1 1/2) inches greater than the casing radius, excluding coupling for external grouting. The annular space shall be completely filled with impervious cement grout or equivalent sealing material from bottom of the casing to within five (5) feet of the ground surface. External grouting shall be accomplished utilizing a tremie pipe and grout pump to force out any standing water on the outside of the well casing.

The casing shall be sealed effectively against entrance of water from water bearing formations, which are subject to pollution, through which the casing may pass. If casings of smaller diameter are used in the lower portions of the well, effective watertight seals shall be provided between the casings where they telescope. In such instances, sections of casing shall telescope for a minimum distance of four (4) feet.

The top of the well casing shall extend a minimum of eight to twelve (8-12) inches above the finished grade of the lot so that contaminated water or other substances cannot enter the well through the annular opening at the top of the well casing, wall or pipe sleeve.

C. Well Covers.

Every potable water well shall be equipped with an overlapping cover at the top of the well casing or pipe sleeve. Covers shall extend downward at least two (2) inches over the outside of the well casing or wall. All well caps shall indicate well driller's name, depth of well and depth of casing.

Where pump sections or discharge pipes enter or leave a well through the side of the casing, the circle of contact shall be watertight. The use of plastic/nylon adapters for this purpose is not acceptable. A brass pitless adapter with brass connectors or equivalent are required.

Any restoration/repair of wells with casing terminating below grade shall be raised above grade to eight to twelve (8-12) inches minimum.

Electrical wiring for well pumps shall be encased in conduit from the bottom of the water supply line trench to the well cap.

D. Drainage.

All potable water wells and springs shall be constructed so that surface drainage will be diverted away from the well or spring.

E. Pumping Equipment.

All pumps installed in wells drilled to a depth greater than three hundred (300) feet, but not to exceed four hundred and fifty (450) feet shall be installed with 200 pound per square inch plastic pipe. Well depths exceeding four hundred and fifty (450) feet shall have pumps installed with SCHEDULE 80 PVC threaded pipe or galvanized steel pipe to support the increased pumping pressure required for deeper wells. The minimum acceptable pressure rating on plastic pipe is 160 pounds per square inch, regardless of water supply depth.

F. Pump Enclosure.

Any pump room or any enclosure around a well pump shall be drained and protected from freezing by heating or other approved means. Where pumps are installed in basements, they shall be mounted on a block or shelf not less than eighteen (18) inches above the basement floor. Well pits shall be prohibited.

3. Flow Requirements

This Ordinance places no restrictions on "quantity" of water. The acceptability of water quantity is the sole responsibility of the property owner.

4. Well Certification:

(1) Drillers Report

A report for each well shall be prepared by the driller and shall be submitted to the Township for evaluation and approval. The well report shall contain the following pertinent information:

Owner of Property	Address & Lot Number
Date of Completion	Depth of Casing
Depth of Well	Static Water Level
Well Driller	Yield in Gals/Min.
Type & Size of Casing	Grouting Certificate
Type of Test Pump Used	Pump Output-Gals/min.

(2) Water Quality

Subsequent to house construction, but prior to or concurrent with the "Request for Occupancy" the owner/contractor shall initiate appropriate action to have the on-site water

supply tested by a certified laboratory, then provide to the Township a laboratory report containing the following information:

Total Coliform	Fecal Coliform
Iron	Nitrates
Hardness: equivalent calcium carbonates	

5. Dug Wells

No new dug wells will be permitted in the Township of Hamilton due to the great danger of pollution and unreliability of water supply.

6. Springs

This section of the Ordinance is to be used for the reconstruction of existing springs only. Before rehabilitation shall begin on an existing spring, a report shall be made to determine the advisability of said reconstruction, which shall include as a minimum, quality and quantity of water. Springs for new construction are not considered an adequate water supply and will not be considered as valid for the issuance of a building permit. Reconstructed springs shall be completely enclosed by walls and a cover of reinforced concrete or equally durable watertight material. The cover shall have a firm foundation so as to effectively prevent settling. The uphill wall shall be so constructed as to prevent entrance of surface water. Where manhole covers are used, the manhole shall be a least twenty-four (24) inches in diameter. It shall extend at least three (3) inches above the surrounding ground surface and be covered by an impervious durable cover of concrete, steel or equivalent material which overlaps the manhole vertically by at least two (2) inches. The manhole cover shall be effectively secured to the manhole by bolting, locking or equivalent means, and shall be kept so secured.

7. Abandoned Water Supplies

Wells, springs, cisterns and water storage tanks, which are no longer in use shall be removed, filled or otherwise maintained in a condition such as to prevent access by unauthorized persons or animals to prevent accidental injury, and to effectively prevent pollution of groundwater. Abandoned wells shall be completely filled with cement or equal impervious material.

Wells and springs shall not be used for the disposal of liquid, gaseous and/or solid wastes.

8. Water Service

A. Size of Water Service Pipe

The minimum diameter of water service pipe shall be 3/4 inch.

B. Separation of Water Service and Building Sewer/Drain

Water service pipe shall be installed twelve (12) inches above sewer drains. See Section P-1502.2 in BOCA Plumbing Code for specific requirements.

Section 4. Registration

(a) No construction, drilling, digging, reconstruction, major repair or other change of or for any well/water supply for the production of water for domestic purposes shall commence unless the property owner, or his/her duly authorized agent, shall apply for and receive a permit for such construction activity from the Township of Hamilton.

(b) Application for a well permit shall be made upon a form supplied by the Township of Hamilton and shall be submitted to the Township Secretary or designated Inspection Officer for review and approval.

(c) The application shall set forth the following:
   a. Name(s) of property owners
   b. Address or location of property
   c. Scale/sketch of premises showing proposed location of well, buildings, septic tanks, drain fields and boundary lines.
   d. Name and license number of well driller.

Section 5. Inspection

Upon receipt of an application for a well permit, the Township, through its duly authorized Inspection Officer, shall within seven (7) days perform an inspection of the premises on which the well is to be constructed. The inspection shall be conducted in accordance with the provisions of this Ordinance and the provisions of the Township Code of Ordinances.

Upon completion of the inspection, the Inspection Officer shall either (a) issue a permit to the applicant indicating the approved location for the well and special instructions for construction, if any, or (b) refuse to issue the permit, and, in such event, shall provide the applicant with written reasons for such refusal.

Section 6. Permits

All permits shall be issued on a form provided by the Township of Hamilton, which shall be executed by the duly authorized Inspection Officer. All permits shall be issued to the property owners or their duly authorized representative/well driller.

Section 7. Water Supply Inspection

Upon completion of construction, or at such other time as the Township Inspection Officer may deem appropriate, the Inspection Officer shall perform a final inspection of the well/water supply to determine whether there has been compliance with the permit issued. Upon completion of the inspection, the Inspection Officer shall (a) issue an "APPROVAL OF OPERATION" upon the original permit, or (b) deny such approval due to non-compliance with the permit issued, in which event, written reasons for such denial shall be noted on the original permit.

AN APPLICATION FOR A BUILDING PERMIT "WILL NOT" BE ACCEPTED AND/OR APPROVED IN THE ABSENCE OF AN "APPROVAL OF OPERATION" ISSUED UNDER THE TERMS AND CONDITIONS OF THIS ORDINANCE.

Section 8. Fees

All applications for a well permit shall be accompanied by a fee payable to the Township of Hamilton in accordance with a schedule of fees established/revised from time to time by the Township Board of Supervisors.

Section 9. Effective Date of Permit

(a) All permits shall be in effect as of the date of issuance, and shall remain in effect for a period of six (6) months. In the event that water supply construction under the permit has not been completed at the expiration of six (6) months from the date of issuance, the permit shall expire and the validity of the permit shall cease and terminate.

(b) A request for an extension to a permit must be submitted to the Township in writing, ten (10) days before the expiration date of the permit. Extensions are limited to thirty (30) days. Subsequent requests must be accompanied by an application for a new permit with appropriate fee.

(c) In the event a permit expires and construction has not begun, an application for a new permit must be submitted with appropriate fee.

(d) Expiration of a permit during construction will result in the landowner being prosecuted in accordance with the violations provision of this Ordinance.

Section 10. Violations

(a) Any person who violates any of the provisions of this Ordinance shall be subject to prosecution by the Township of Hamilton, and upon conviction before the District Magistrate shall be subject to a fine of not more than One Thousand ($1,000.00) Dollars.

(b) Upon discovery of any violation of this Ordinance, the Township of Hamilton may, at its option, forgo any prosecution here-under, and may grant to the owner a period of thirty (30) calendar days to comply with the provisions of this Ordinance. Upon failure of the owner to effect such compliance, the Township may initiate prosecution as hereinabove set forth.

(c) For the purpose of this Ordinance, each day of a continuing violation shall be considered a new and additional violation of this Ordinance.

Section 11. Severability Clause

The provisions of this Ordinance shall be severable, and if any of its provisions shall be held to be unconstitutional, illegal, or invalid, such unconstitutionality, illegality or invalidity shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 12. Liability

No responsibility, or liability for the construction of any well/water supply shall be deemed to be placed upon the Township of Hamilton, or its officers, agents, or employees by virtue of the terms

of this Ordinance or otherwise.

Section 13. Repealer

All other Ordinances or parts of Ordinances inconsistent herewith be and the same are hereby repealed.

ORDAINED AND ENACTED into law this day of

CERTIFICATION OF ADOPTION

I hereby certify that the foregoing Ordinance was advertised in _____, a newspaper of general circulation in the municipality, on _____, and was duly enacted and approved as set forth at a regular meeting of the Board of Supervisors of the Township of Hamilton on _____.

_____

Township Secretary

PERMIT
FOR
WELL CONSTRUCTION
IN
HAMILTON TOWNSHIP

Date of Permit ____/____/____
Lot Number _____

Lot Owner: _____
Address: _____
_____
(city) (state) (zip)

WELL DATA

Driller Name: _____

Depth of Well _____ Depth of Casing _____

Yield in Gals/Min. _____ Static Water Level _____

Type & Size of Casing _____ Type of Grouting _____
(example: Steel 3/16x6)

Test Pump Type _____ Date of Completion ____/____/____

I certify that the information annotated above is accurate and complete to the best of my knowledge.

_____
Well Driller Signature

NOTE: Attach a copy of Well Application and Well Driller's Report

WELL INSPECTION _____
(date)
"APPROVAL FOR OPERATION" _____

DISAPPROVED _____ Reason: _____

_____
Code Enforcement Officer

APPLICATION

FOR
WELL CONSTRUCTION
IN
HAMILTON TOWNSHIP

Date of Application ____/____/____
Lot Number _____

Lot Owner: _____
Address: _____
_____
(city) (state) (zip)

WELL DRILLER

Name: _____
Address: _____
_____
(city) (state) (zip)

PA. Certification No. _____

Attach a sketch of the lot indicating the location of the proposed well. If applicable, annotate the location of existing buildings, on-site septic system/holding tank, drain fields, and property lines, also any streams, swales or utilities traversing the property.

_____
Owner/Contractor Signature

Inspection Date ____/____/____

Approved: _____
Code Enforcement Officer

APPENDIX E

EXISTING HOLDING TANK ORDINANCE

HAMILTON TOWNSHIP
ADAMS COUNTY, PENNSYLVANIA

ORDINANCE NO. 69

AN ORDINANCE OF HAMILTON TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA, REGULATING USE OF HOLDING TANKS

IT IS HEREBY ENACTED AND ORDAINED by Hamilton Township, Adams County, Pennsylvania, as follows:

Section 1: The purpose of this Ordinance is to establish procedures for the use and maintenance of holding tanks designed to receive and retain sewage whether from residential or commercial uses and it is hereby declared that the enactment of this Ordinance is necessary for the protection, benefit, and preservation of the health, safety and welfare of the inhabitants of Hamilton Township.

Section 2: Definitions. Unless the context specifically and clearly indicates otherwise, the meaning of the terms used in this Ordinance shall be as follows:

HOLDING TANK - a watertight receptacle which receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site. Holding tanks include but are not limited to the following:

(1) Chemical Toilet - a toilet using chemicals that discharge to a holding tank.

(2) Retention Tank - a holding tank where sewage is conveyed to it by a water carrying system.

(3) Vault Pit Privy - a holding tank designed to receive sewage where water under pressure is not available.

IMPROVED PROPERTY - any property within the Township upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals and from which structure sewage shall or may be discharged.

OWNER - any person vested with ownership, legal or equitable, sole or partial, of any property located in the Township.

PERSON - any individual, partnership, company association, corporation or other group or entity.

SEWAGE - any substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or animals and any noxious or deleterious substance being harmful or inimical to the public health, or to animal or aquatic life or to the use of water for domestic water supply or for recreation.

TOWNSHIP - Hamilton Township, Adams County, Pennsylvania.

Section 3: The Township hereby reserves the right to adopt from time to time such additional rules and regulations concerning sewage which may deem necessary from time to time to effect the purposes herein.

Section 4: All such rules and regulations adopted by the Township shall be in conformity with the provisions herein, all other ordinances of the Township, and all applicable laws, and applicable rules and regulations of administrative agencies of the Commonwealth of Pennsylvania.

Section 5: The Township shall have the right and power to fix, alter, charge and collect rates, assessments, and other charges in the area served by its facilities at reasonable and uniform rates as authorized by applicable law.

Section 6: The collection and transportation of all sewage from property utilizing a holding tank shall be done solely by or under the direction and control of the Township and the disposal thereof shall be made only at such site or sites as may be approved by the Department of Environmental Resources of the Commonwealth of Pennsylvania.

Section 7: The owner of the improved property that utilizes the holding tank shall:

A. Maintain the holding tank in conformance with this or any other regulation of the Township, the provisions of any applicable law and the rules and regulations of this Township and any administrative agency of the Commonwealth of Pennsylvania.

B. Permit only the Township or anyone acting under the direction of the Township to collect, transport, and dispose of the contents therein.

Section 8: The owner of the improved property that utilizes the holding tank shall have an annual inspection of the holding tank completed and deliver a copy of a written inspection and report to the Township.

Section 9: Any person who violates any provisions of the Ordinance shall, upon conviction thereof, be sentenced to pay a fine of not more than one thousand dollars ($1,000.00) and costs, or in default of payment thereof, shall be subject to imprisonment for a term not to exceed thirty (30) days. Each day that a violation of the Ordinance continues shall constitute a separate offense.

Section 10: In addition to any other remedies provided above, any violation of this section shall constitute a nuisance and may be abated by the Township by either seeking appropriate equitable or legal relief from a court of competent jurisdiction.

Section 11: The owner of the said improved property utilizing a holding tank shall be required to connect to the public sewer facility as soon as such connection is available.

Section 12: The provisions of this Ordinance are severable and if any provision or any part thereof shall be held invalid or unconstitutional or inapplicable to any person or circumstances, such invalidity, unconstitutionality or inapplicability shall not effect or impair the remaining provisions of the Ordinance.

Section 13: This Ordinance shall become effective upon enactment.

ENACTED AND ORDAINED this 1st day of MARCH, 1994, by Hamilton Township Board of Supervisors.

Attest:

BOARD OF SUPERVISORS OF HAMILTON TOWNSHIP

Laura L. Lehr
Secretary

By: Maynard E. Stahl
Chairman

X. ATTACHMENTS

A. MUNICIPAL PLANNING COMMISSION COMMENTS AND PROOF OF PUBLICATION

B. COUNTY PLANNING COMMISSION COMMENTS

C. PUBLIC COMMENTS

D. PA DEP COMMENTS

E. CONSISTENCY LETTERS AND RESPONSES

YORK OFFICE
30 North Duke Street York, PA 17401
(717) 846-4805 • FAX (717) 846-5811

C.S.Davidson, Inc.
CONSULTING CIVIL ENGINEERS
AND SURVEYORS

GETTYSBURG OFFICE
50 W. Middle Street Gettysburg, PA 17325
(717) 337-3021 • FAX (717) 337-0782

September 19, 1997

Pennsylvania Historical and Museum Commission
Division For Historic Preservation
P.O. Box 1026
Harrisburg, PA 17108

Re: Hamilton Township, Adams County
Act 537 Consistency Requirements for
Archaeological and/or Historical Sites
Engineer's Project No. 2997.6.01.00

Gentlemen:

Our firm is in the process of preparing Hamilton Township's Act 537 Plan. One of the requirements for approval are letters from various agencies assessing the potential impact our proposed facilities could have.

Enclosed are maps showing the locations of the proposed facilities. Please review this plan with regards to your agency and offer your comments or approval.

If you have any questions or require further information, please call.

Sincerely,

C. S. DAVIDSON, INC.

Jason P. Ordanoff

Jason P. Ordanoff, E.I.T.

lhd\0749.was(b)
Enclosures

Appendix M

Commonwealth of Pennsylvania
Department of Environment Resources
Bureau of Water Quality Management

FORM A
NOTIFICATION OF POTENTIAL EFFECT OF PROPOSED ACTION ON ARCHAEOLOGICAL AND HISTORICAL RESOURCES

This is to notify the Pennsylvania Historical and Museum Commission in writing of the potential effect of a proposed action on an archaeological or historical resource in accordance with the Pennsylvania Historic Preservation Act, 37 PA. CSA, Sections 501-512.

This action involves: DER 537 Program

Development Name Hamilton Township

Development Location, including County and Municipality: Route 94 Study Area

Hamilton Township, Adams County, Pennsylvania

Enclosed is a copy of the U.S.G.S. 7.5 minute topographic map which clearly outlines the specific project boundaries. The name of the map is Hampton, PA and McSherrystown, PA

This sewage facility plan encompasses 500± acres (total project area).

There are no known buildings over 40 years old within the project area. Pictures and a description of the plans for these buildings are included.

A brief description of this development project is included that indicates the nature of the development, number and size of lots to be subdivided, previous land use.

It is understood that your agency will advise the applicant within 60 days of the receipt of this notice if the project will not affect a known archaeological or historical resource or, if a significant known archaeological or historic resource, as determined by the PHMC using Secretary of Interior criteria for determining resource significance, requires protection or if a "high probability archaeological area" could be affected by the proposed sewage facilities.

Questions concerning this proposal and the results of the search should be directed to:

Applicant's Name: Hamilton Township

Address: c/o C.S. Davidson, Inc., Attn: William A. Sauserman, P.E.
38 North Duke Street, York, PA 17401

Telephone: (717) 846-4805

This form must be forwarded to the:

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
P.O. Box 1026
Harrisburg, PA 17108
Telephone: 717-783-8946

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
THIRD AND NORTH STREETS, BOX 1026
HARRISBURG, PENNSYLVANIA 17108-1026

October 1, 1997

Jason P. Ordanoff, E.I.T.
C.S. Davidson, Inc.
38 North Duke Street
York, PA 17401

TO EXPEDITE REVIEW USE BHP REFERENCE NUMBER

Re: File No. ER 97-2754-001-A
DEP 537 PROGRAM:
Act 537 Consistency Requirements for Archaeological and/or Historical Sites, Route 94 Study Area, Hamilton Twp. Adams Co.

Dear Mr. Ordanoff:

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.

There may be resources 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.

In our opinion no archaeological investigations are necessary in this project area.

If you need further information in this matter please consult Mark Shaffer at (717) 772-0924.

Sincerely,

Kurt W. Carr, Chief
Division of Archaeology & Protection

KC/tmw

RECEIVED
OCT 2 1997
By

YORK OFFICE
38 North Duke Street York, PA 17401
(717) 846-4805 • FAX (717) 846-5811

C.S.Davidson, Inc.
CONSULTING CIVIL ENGINEERS
AND SURVEYORS

GETTYSBURG OFFICE
50 W. Middle Street Gettysburg, PA 17325
(717) 337-3021 • FAX (717) 337-0782

September 19, 1997

PA Department of Environmental Protection
Bureau of Forestry
Division of Forest Advisory Services
PNDI Coordinator
Harrisburg, PA 17105-8552

Re: Hamilton Township, Adams County
Act 537 Consistency Requirements for
Archaeological and/or Historical Sites
Engineer's Project No. 2997.6.01.00

Gentlemen:

Our firm is in the process of preparing Hamilton Township's Act 537 Plan. One of the requirements for approval are letters from various agencies assessing the potential impact our proposed facilities could have.

Enclosed are maps showing the locations of the proposed facilities. Please review this plan with regards to your agency and offer your comments or approval.

If you have any questions or require further information, please call.

Sincerely,

C. S. DAVIDSON, INC.

Jason P. Ordanoff

Jason P. Ordanoff, E.I.T.

lhd\0749.was(a)
Enclosures

Appendix L

REQUEST FOR PNDI SEARCH

9/19/97
(DATE)

TO: PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF FORESTRY
ATTN. BOTANIST
P.O. 1467
HARRISBURG, PA 17120

FROM: Hamilton Township, c/o C.S. Davidson, Inc.
38 North Duke Street
York, PA 17401
(MUNICIPAL ADDRESS)

Adams COUNTY

This is to request that you conduct a search of the Pennsylvania Natural Diversity Inventory to identify any species of concern which may be impacted by an alternative being proposed as part of a plan developed under the Pennsylvania Sewage Facilities Act. This plan proposes:

Two (2) public sewer alternatives in the Route 94 study area as shown in Exhibits F & G.

The location of the proposed project components are shown on the attached 7.5 minute U.S.G.S. topographical map or copy of affected portion (~~xxxxxx xxxxxxxxxxxxxxxxxxxx~~) U.S.G.S. Maps: Hampton, PA and McSherrystown, PA

It is understood that you will notify this municipality of any identified protected species within the proposed project area. It is further understood that your agency will assist this municipality in identifying the appropriate contact agency to provide assistance in the evaluation and mitigation of potential impacts on the protected species under their jurisdiction.

If you have questions concerning this project please contact:
C.S. Davidson, Inc.
William A. Sauserman, P.E.
(Municipal Planning Consultant)

(717) 846 - 4805
Telephone #

Doug Miller, Chairman
Municipal Official

Pennsylvania Department of Conservation and Natural Resources

Rachel Carson State Office Building
P.O. Box 8552
Harrisburg, PA 17105-8552
October 15, 1997

Bureau of Forestry

717-787-3444
Fax 717-783-5109

Jason P. Ordanoff
C.S. Davidson, Inc.
38 North Duke Street
York, PA 17401

Re: Pennsylvania Natural Diversity Inventory Review of Act 537 Plan for Hamilton Township, Adams County, PA.
PER Number: 005817

Dear Mr. Ordanoff:

In response to your request of September 19, 1997, to review the above mentioned project, we have reviewed the area using the Pennsylvania Natural Diversity Inventory (PNDI) information system. PNDI records indicate no occurrences of species of special concern within the vicinity or in the project area, therefore we do not anticipate any impact on endangered, threatened, or rare species at this location.

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 the 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 good for one year. An absence of recorded information does not necessarily imply actual conditions on-site. A field survey of any site may reveal previously unreported populations.

PNDI is partially funded through contributions to the Wild Resource Conservation Fund. If you feel that this information is of use to your company please use the enclosed flyer to make a donation to the Wild Resource Conservation Fund.

Legal authority for Pennsylvania's biological resources resides with three administrative agencies. The enclosure titled Pennsylvania Biological Resource Management Agencies, outlines which species groups are managed by these agencies. If data provided by the PNDI system are to be published in any form, the Inventory should be informed and credited as the source.

Feel free to phone our office if you have questions concerning this response or the PNDI system, and please refer to the P.E.R. Reference Number at the top of the letter in future correspondence concerning this project.

Sincerely,

Jeanne Brennan

Jeanne Brennan
Environmental Review Specialist
Pennsylvania Natural Diversity Inventory

Enclosures

cc: Jenni Farber, PNDI-E
File

F. OXFORD TOWNSHIP LETTER

OXFORD TOWNSHIP MUNICIPALITY

P. O. BOX 86

NEW OXFORD, PA. 17350-0086

TELEPHONE #
(717) 624-4544

FAX #
(717) 624-3511

September 17, 1998

Douglas Miller, Chairman
Hamilton Township Board of Supervisors
272 Mummerts Church Road
Abbottstown, PA 17301

Re: Public Sanitary Sewer Service
Act 537 Sewage Facilities Planning Update

Dear Mr. Miller:

In response to the August 6, 1998 letter that we received from your engineer in the above referenced regard, you may recall that in the preparation of your previous submission to DEP we had informally indicated that our existing Route 30 gravity sewers would not be a feasible means of conveying your projected sewage flows from Route 94 to the New Oxford Municipal Authority (NOMA) Wastewater Treatment Plant (WWTP). More specifically, the Route 30 sewers are currently carrying substantial flows, and The Brethren Home Community has a master plan for some relatively significant land development on their property in the southwest quadrant of the Cross Keys area. Therefore, your previously proposed conveyance directly to a point closely adjacent to our East Golden Lane Pump Station would be necessary.

With respect to reserve sewer capacity in the NOMA WWTP, you should contact Earl Mummert, NOMA Chairman, directly. It may be advisable to do this promptly, as the WWTP expansion is currently under construction, and it may be a key time to lock in reserve capacity.

If you have any further questions in this regard, you may contact the Township office at 624-4544, or our engineer, Jon Holmes, at 337-3021.

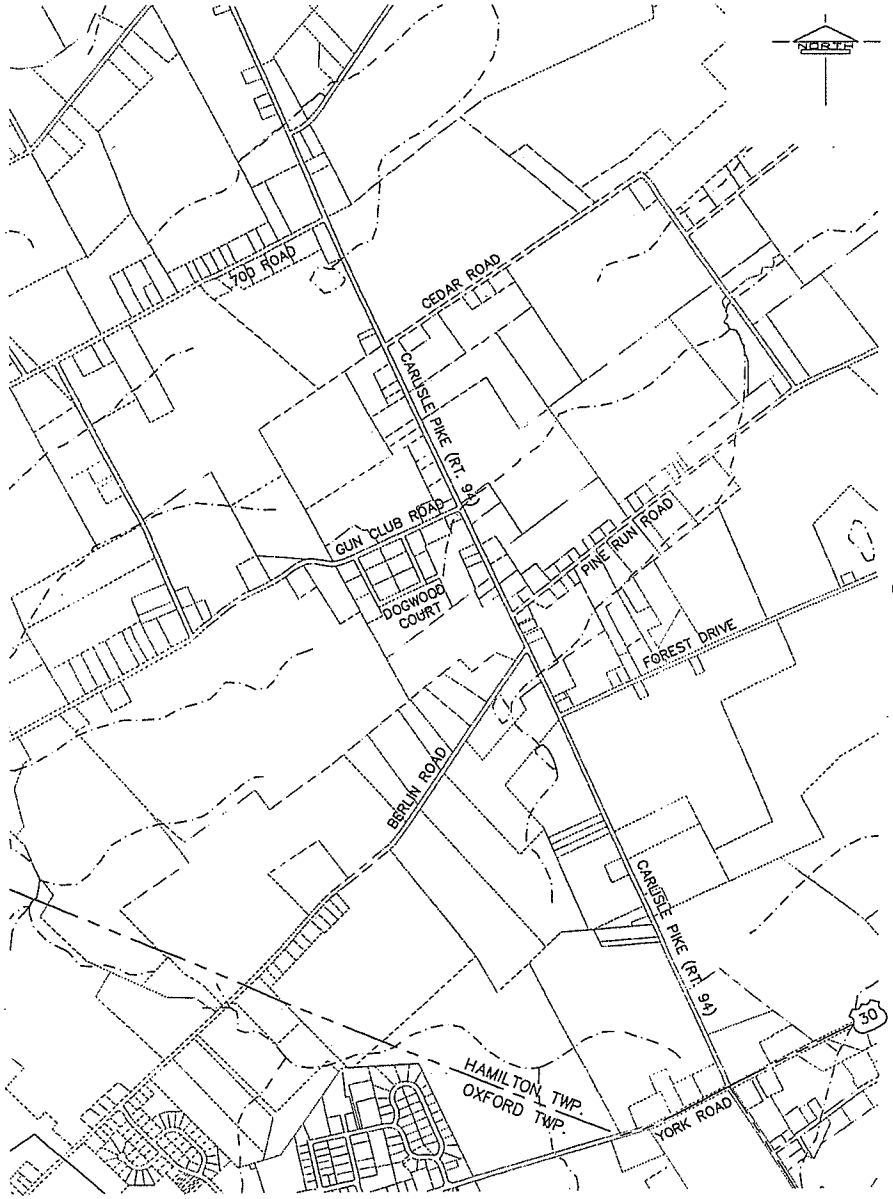
Sincerely,

Donald F. Poist, Chairman
Oxford Township Board of Supervisors

JDH/caw/1223

cc: Jonathan D. Holmes, P.E. - Oxford Township Engineer
Paul J. Sauers, III - Hamilton Township Engineer

XI. EXHIBITS



HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

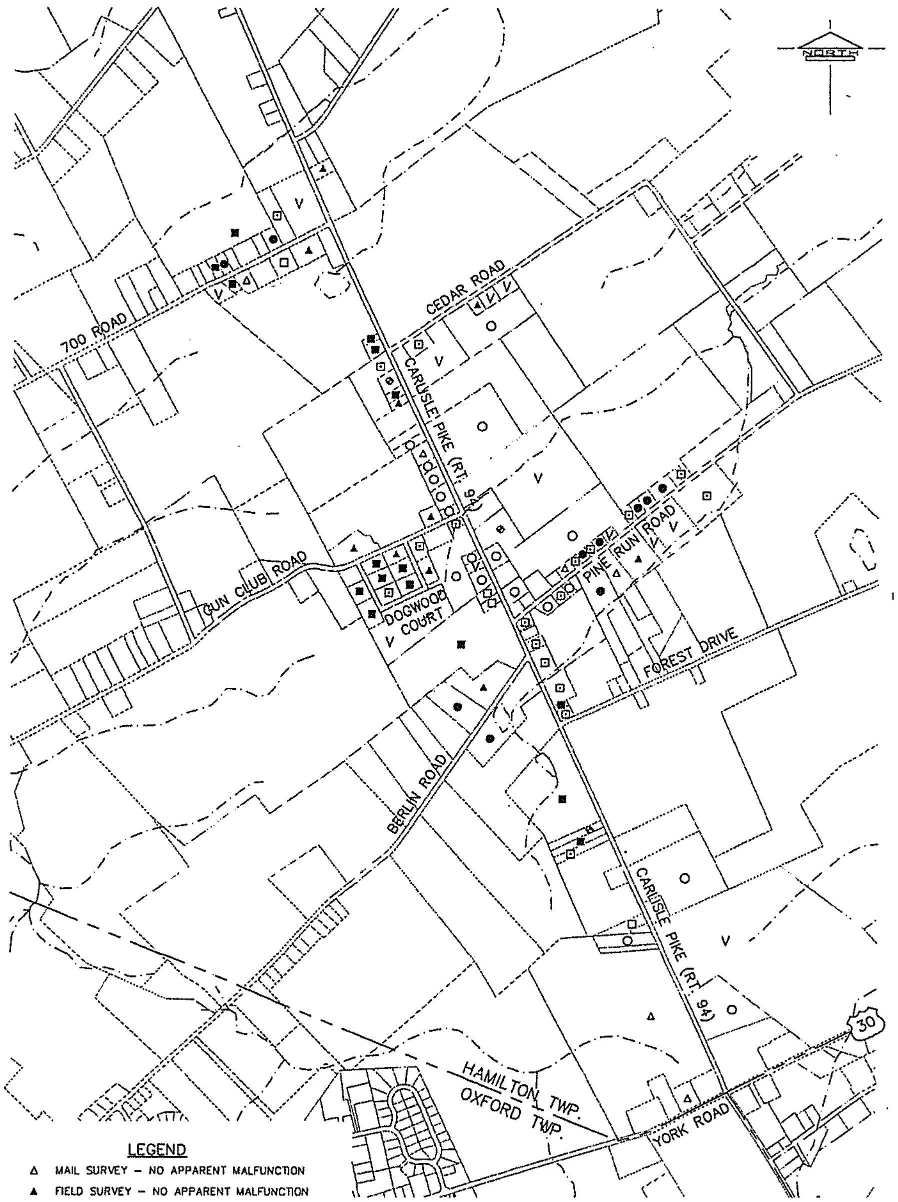
EXHIBIT A

SITE PLAN

Hamilton Township — Adams County, Pennsylvania

DRAWN BY	B.A.M.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997601C
FILE NO.	2997.6.01.00
SHEET	1 OF 1

C.S. Davidson, Inc.
CONSULTING CIVIL ENGINEERS
SURVEYORS
38 N. DUKE STREET YORK, PA
PHONE NO. (717) 848-1825
FAX NO. (717) 848-5811
30 N. MIDDLE ST. GETTYSBURG, PA
PHONE NO. (717) 337-3021
FAX NO. (717) 337-0782



LEGEND

- △ MAIL SURVEY – NO APPARENT MALFUNCTION
- ▲ FIELD SURVEY – NO APPARENT MALFUNCTION
- ○ MAIL SURVEY – POTENTIAL MALFUNCTION
- ● FIELD SURVEY – POTENTIAL MALFUNCTION
- □ MAIL SURVEY – SUSPECTED MALFUNCTION
- ⊡ FIELD SURVEY – SUSPECTED MALFUNCTION
- ■ FIELD SURVEY – CONFIRMED MALFUNCTION
- ⊘ HOLDING TANK
- V UNDEVELOPED LAND

NOTES:
1. THE MAIL-IN SURVEY WAS PERFORMED IN SEPTEMBER 1996.
2. THE FIELD SURVEY WAS PERFORMED BY THE TOWNSHIP SEWAGE ENFORCEMENT OFFICER IN DECEMBER 1996.

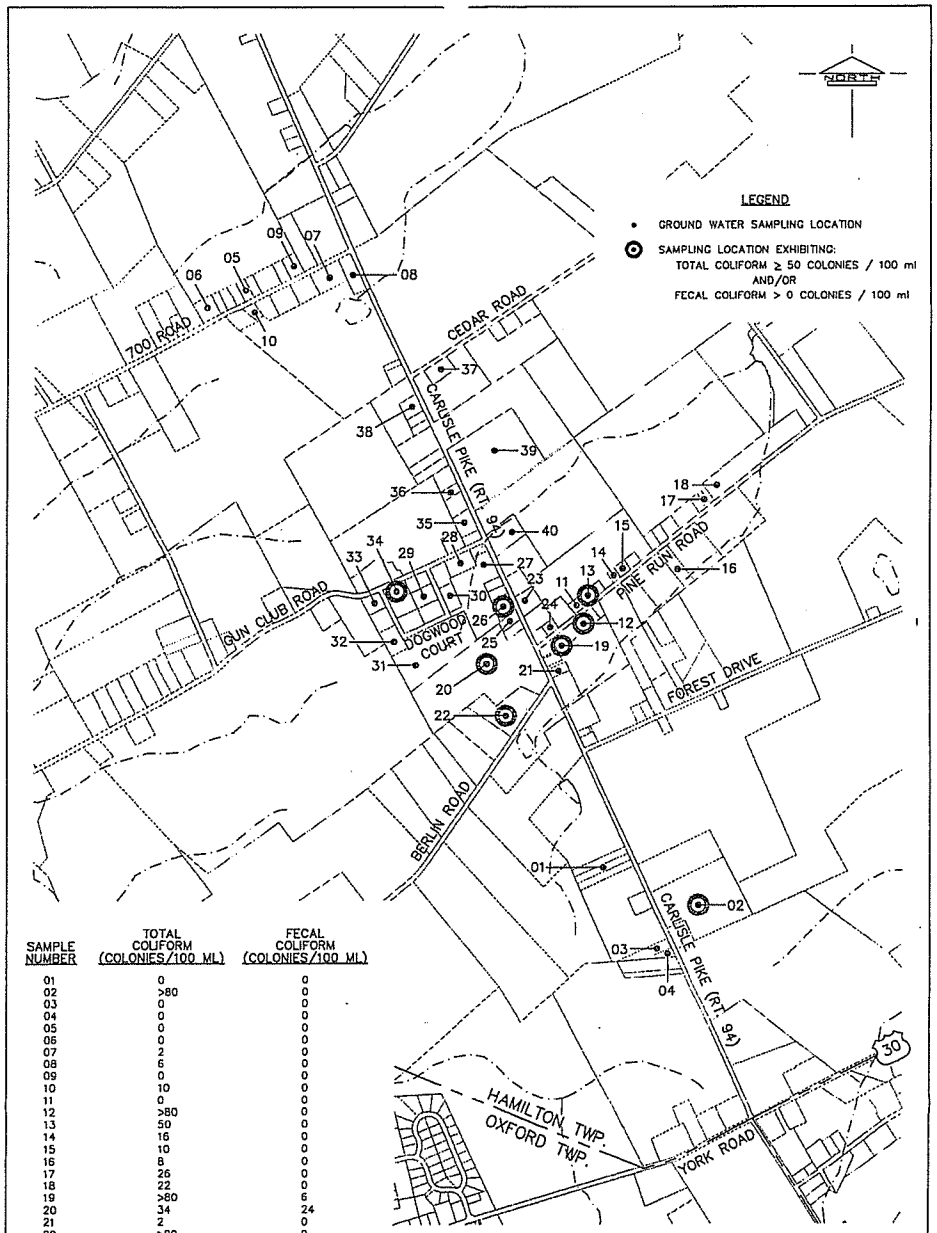
HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE
EXHIBIT B
ON-LOT DISPOSAL SYSTEM ASSESSMENT

Hamilton Township — Adams County, Pennsylvania

C.S. Davidson, Inc.
CONSULTING CIVIL ENGINEERS
SURVEYORS

DRAWN BY	B.A.H.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997601H
FILE NO.	2997.6.01.00
SHEET	1 OF 1



SAMPLE NUMBER	TOTAL COLIFORM (COLONIES/100 ML)	FECAL COLIFORM (COLONIES/100 ML)
01	0	0
02	>80	0
03	0	0
04	0	0
05	0	0
06	0	0
07	2	0
08	6	0
09	0	0
10	10	0
11	0	0
12	>80	0
13	50	0
14	16	0
15	10	0
16	8	0
17	26	0
18	22	0
19	>80	6
20	34	24
21	2	0
22	>80	0
23	17	0
24	0	0
25	11	0
26	>80	0
27	0	0
28	0	0
29	11	0
30	0	0
31	10	0
32	7	0
33	0	0
34	>80	2
35	18	0
36	0	0
37	0	0
38	0	0
39	5	0
40	0	0

HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

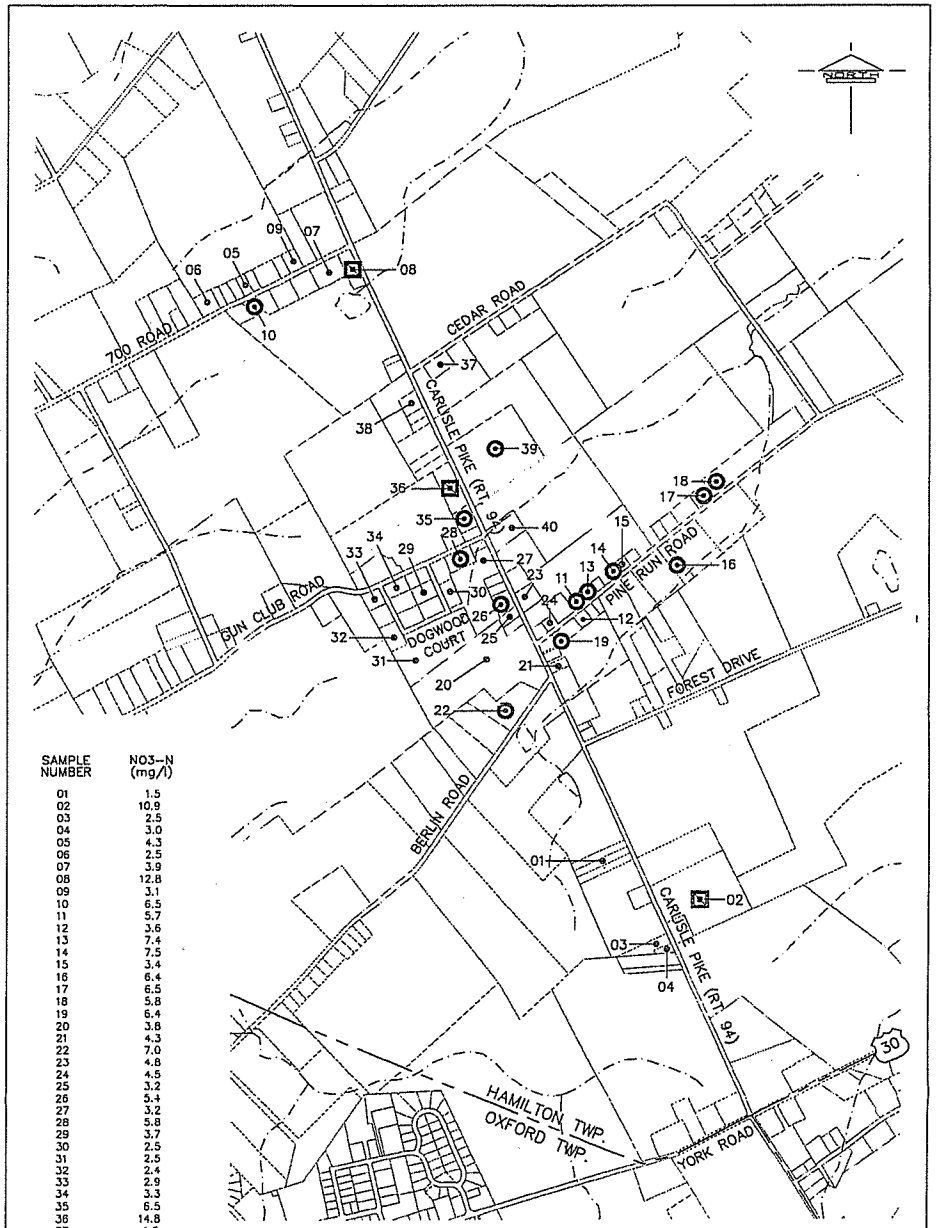
EXHIBIT C

FECAL COLIFORM AND TOTAL COLIFORM CONCENTRATIONS OF WELL SAMPLES

Hamilton Township — Adams County, Pennsylvania

DRAWN BY B.A.M.
CHECKED BY
SCALE 1"=1000'
DATE 11/2/99
DWG. NO. 2997601J
FILE NO. 2997.6.01.00
SHEET 1 OF 1

C.S. Davidson, Inc.
38 N. DUKE STREET, YORK, PA
PHONE NO. (717) 848-4855
FAX. NO. (717) 848-3811
CONSULTING CIVIL ENGINEERS
SURVEYORS
30 W. MIDDLE ST., GETTYSBURG, PA
PHONE NO. (717) 337-3021
FAX. NO. (717) 337-0782



SAMPLE NUMBER	NO3-N (mg/l)
01	1.5
02	10.9
03	2.5
04	3.0
05	4.3
06	2.5
07	3.9
08	12.8
09	3.1
10	6.5
11	5.7
12	3.6
13	7.4
14	7.5
15	3.4
16	6.4
17	6.5
18	5.8
19	6.4
20	3.8
21	4.3
22	7.0
23	4.8
24	4.5
25	3.2
26	5.4
27	3.2
28	5.8
29	3.7
30	2.5
31	2.5
32	2.4
33	2.9
34	3.3
35	6.5
36	14.8
37	1.5
38	2.4
39	5.0
40	2.2

LEGEND

- GROUND WATER SAMPLING LOCATION
- SAMPLING LOCATION WITH NO3-N ≥ 10 mg/l
- SAMPLING LOCATION WITH 5 mg/l ≤ NO3-N < 10 mg/l

HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

EXHIBIT D

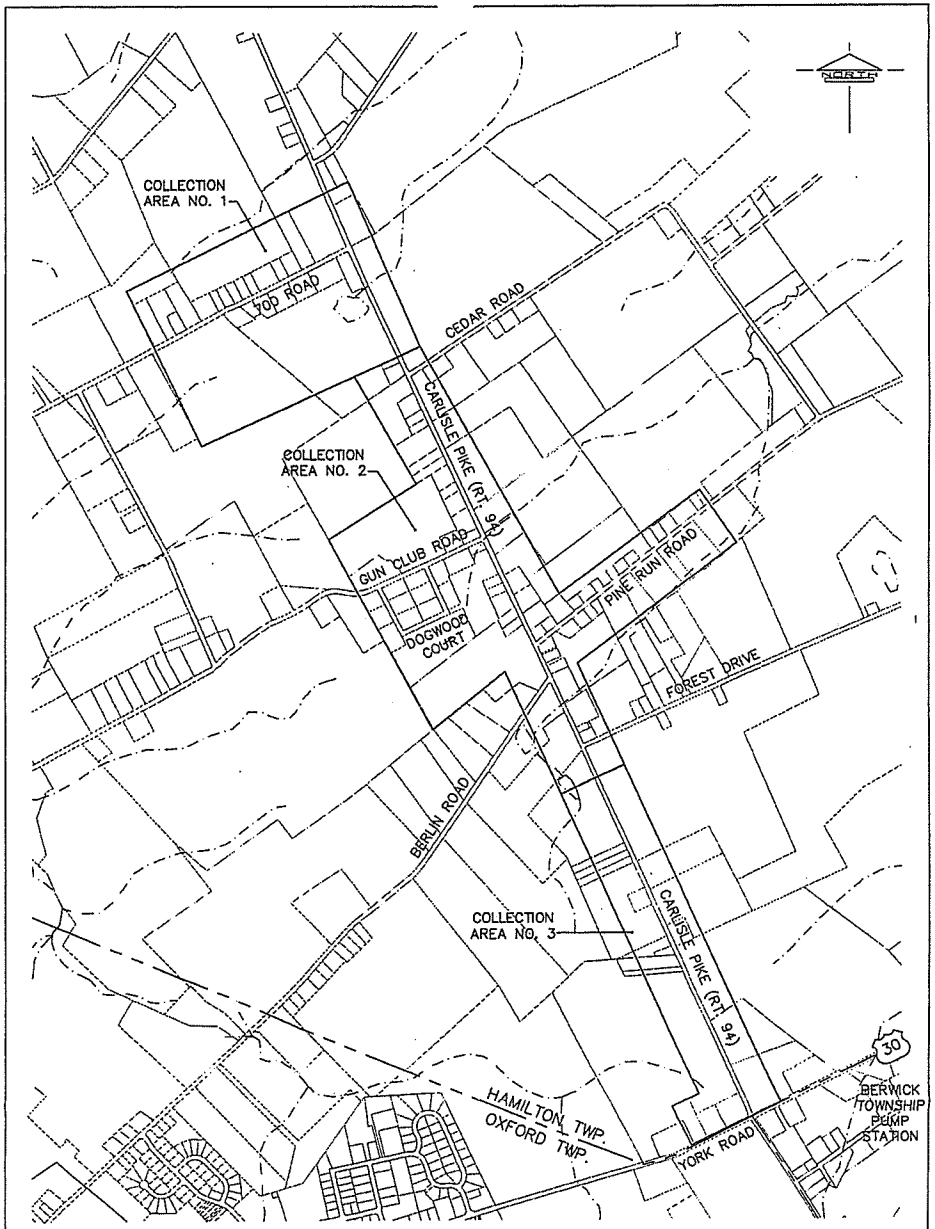
NITRATE-NITROGEN (NO3-N) CONCENTRATIONS OF WELL SAMPLES

Hamilton Township — Adams County, Pennsylvania

C.S. Davidson, Inc.

38 N. DUKE STREET, YORK, PA — CONSULTING CIVIL ENGINEERS SURVEYORS — 30 N. MIDDLE ST., GETTYSBURG, PA

DRAWN BY	B.A.M.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997601K
FILE NO.	2997.6.01.00
SHEET	1 OF 1



HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

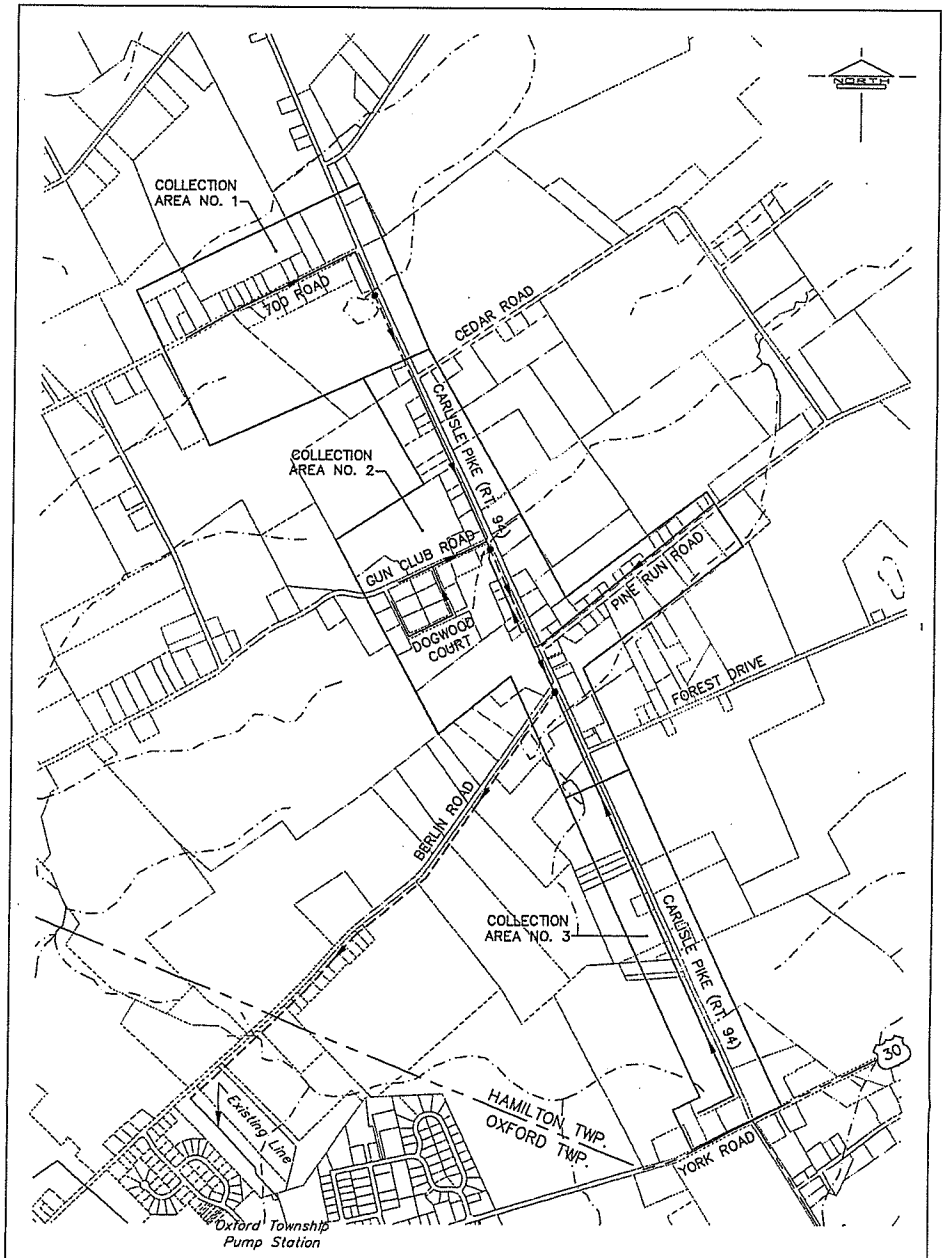
EXHIBIT E

COLLECTION AREAS

Hamilton Township — Adams County, Pennsylvania

DRAWN BY	B.A.M.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997601E
FILE NO.	2997.6.01.00
SHEET	1 OF 1

C.S. Davidson, Inc.
CONSULTING CIVIL ENGINEERS
SURVEYORS
38 N. DUKE STREET YORK, PA
PHONE NO. (717) 846-1800
FAX. NO. (717) 848-5811
30 W. MIDDLE ST. GETTYSBURG, PA
PHONE NO. (717) 337-3021
FAX. NO. (717) 337-0782



LEGEND

- PUMP STATION
- GRAVITY MAIN
- FORCE MAIN

HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

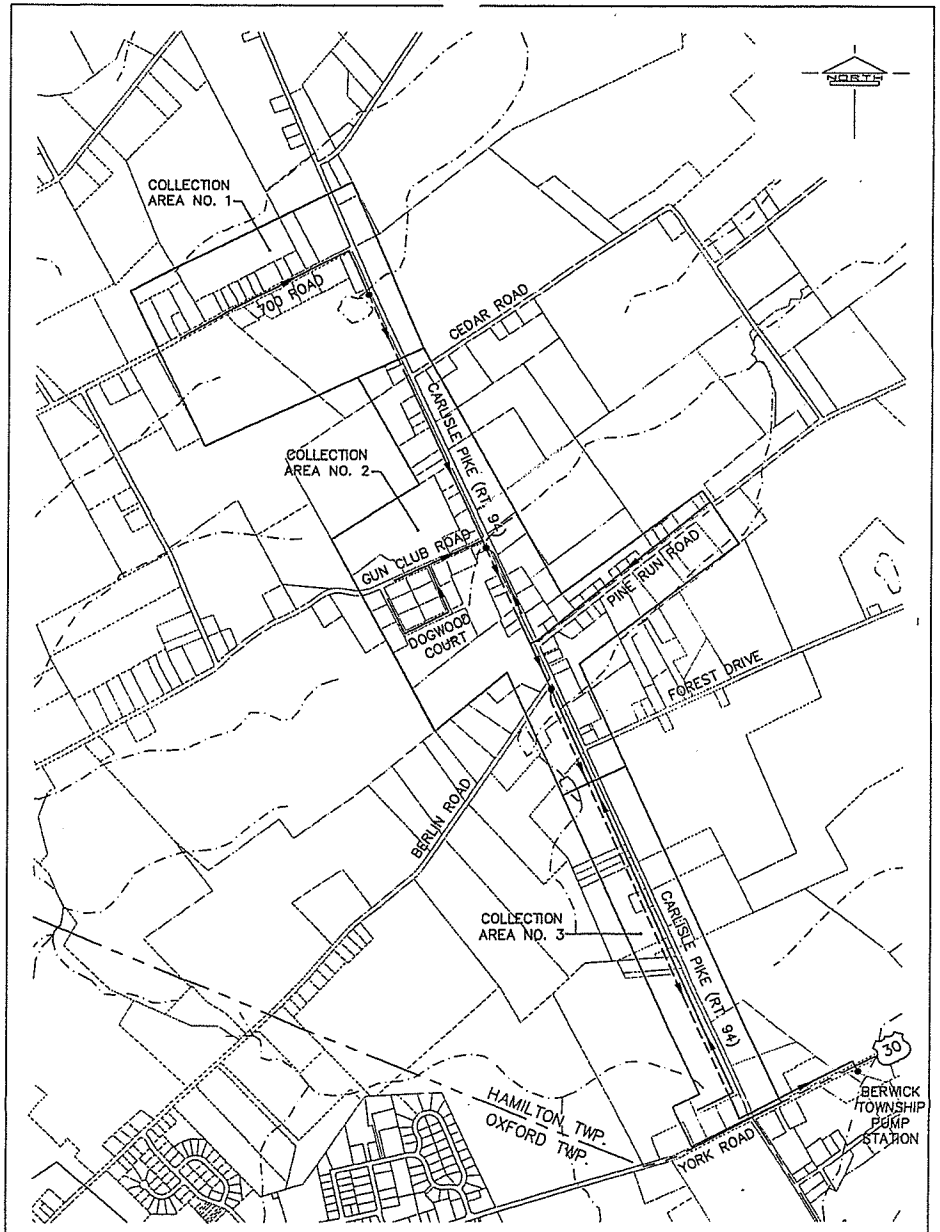
EXHIBIT F

ALTERNATIVE NO. 1

Hamilton Township — Adams County, Pennsylvania

DRAWN BY	B.A.M.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997601A
FILE NO.	2997.6.01.00
SHEET	1 OF 1

C.S. Davidson, Inc.
CONSULTING CIVIL ENGINEERS
SURVEYORS
30 W. MIDDLE ST. GETTYSBURG, PA
PHONE NO. (717) 337-3021
FAX NO. (717) 337-0783



LEGEND

- PUMP STATION
- GRAVITY MAIN
- FORCE MAIN

HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

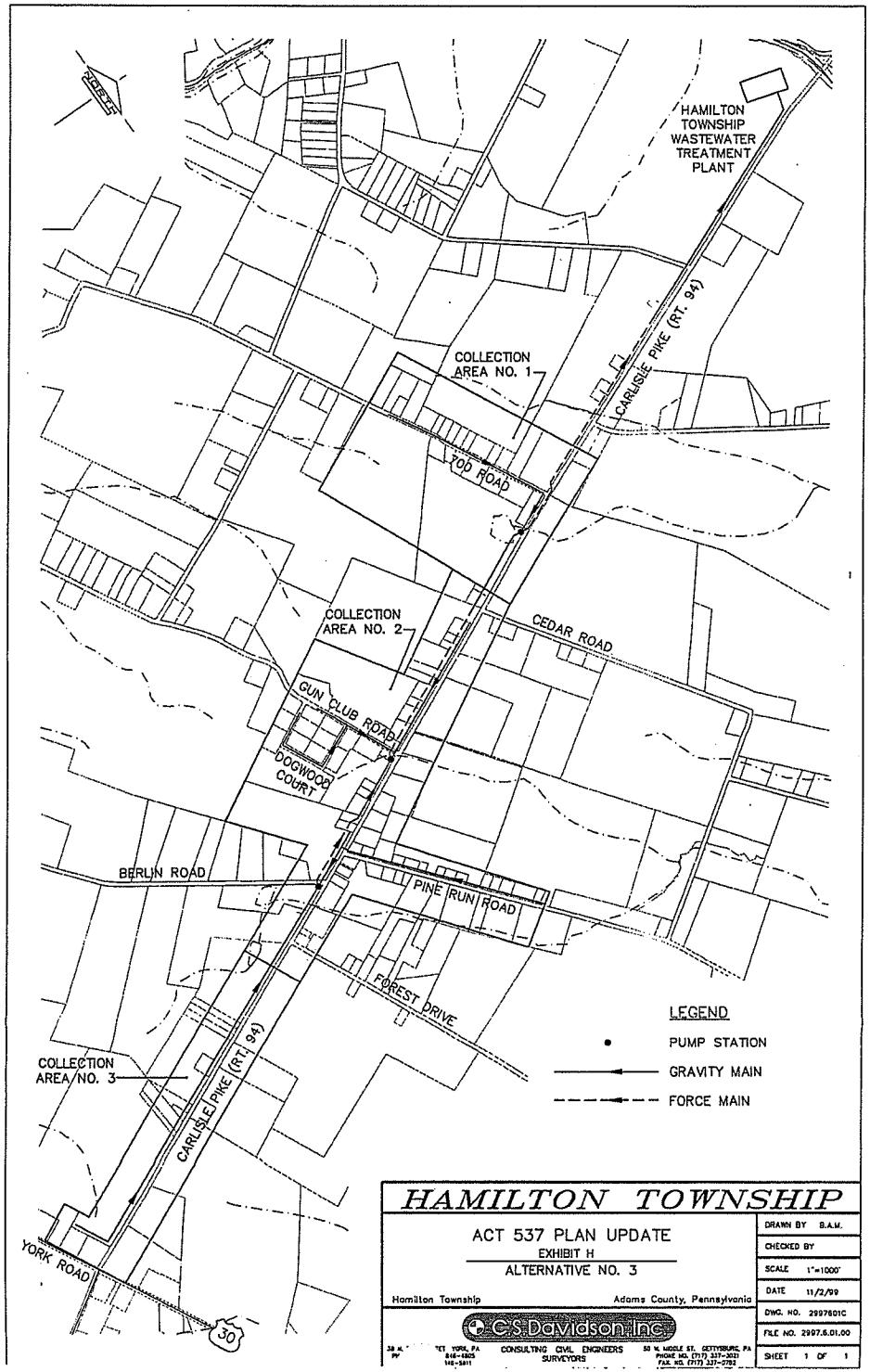
EXHIBIT G

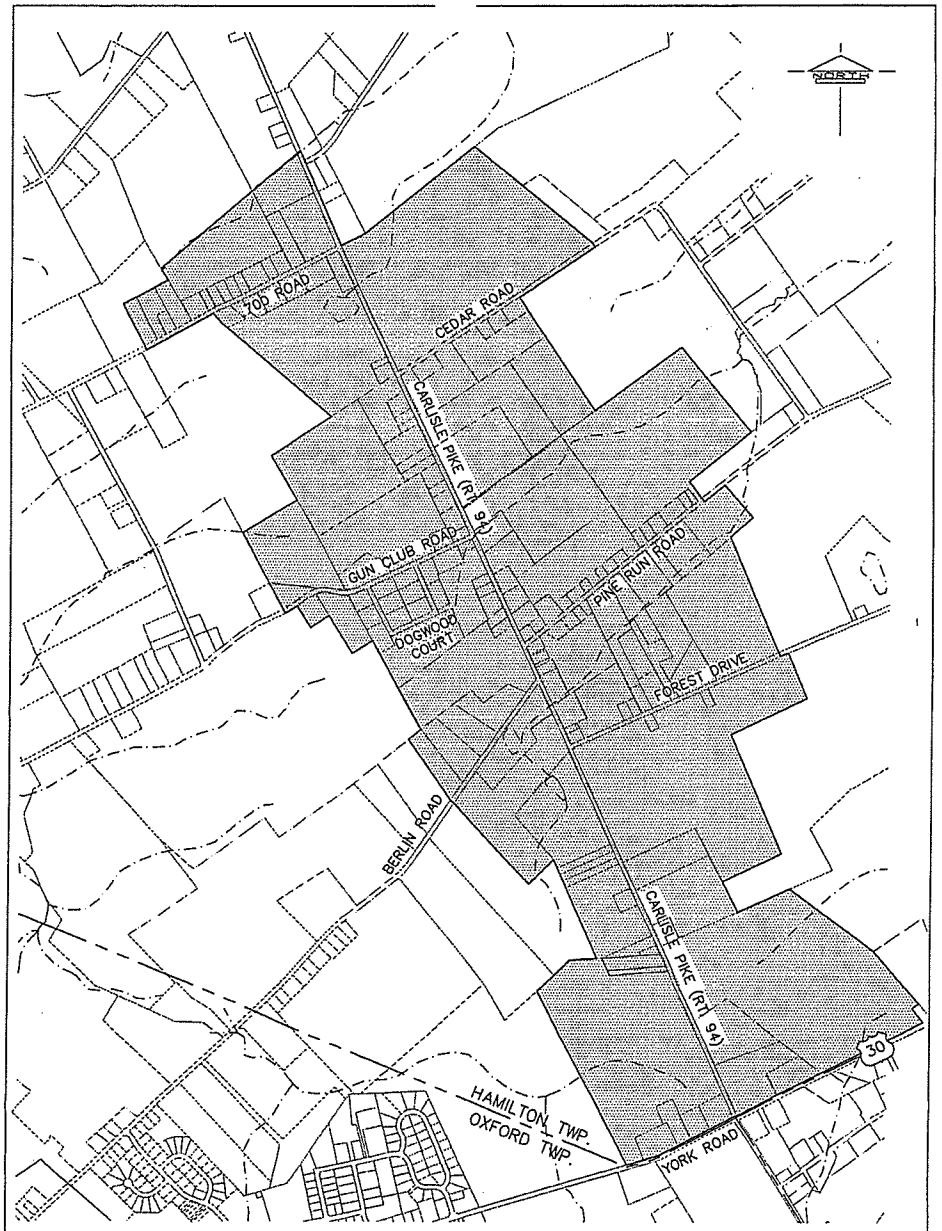
ALTERNATIVE NO. 2

Hamilton Township — Adams County, Pennsylvania

DRAWN BY	B.A.M.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997E01B
FILE NO.	2997.E.01.00
SHEET	1 OF 1

C.S. DaVidson, Inc.
38 N. DUKE STREET YORK, PA PHONE NO. (717) 848-4805 FAX. NO. (717) 848-5811
CONSULTING CIVIL ENGINEERS SURVEYORS
30 N. MIDDLE ST. GETTYSBURG, PA PHONE NO. (717) 337-3031 FAX. NO. (717) 337-0782


HAMILTON TOWNSHIP WASTEWATER TREATMENT PLANT
COLLECTION AREA NO. 1
CARLISLE PIKE (RT. 94)
TOD ROAD
COLLECTION AREA NO. 2
CEDAR ROAD
GUN CLUB ROAD
DOGWOOD COURT
BERLIN ROAD
PINE RUN ROAD
FOREST DRIVE
COLLECTION AREA NO. 3
CARLISLE PIKE (RT. 94)
YORK ROAD
30
LEGEND
PUMP STATION
GRAVITY MAIN
FORCE MAIN
HAMILTON TOWNSHIP
ACT 537 PLAN UPDATE
EXHIBIT H
ALTERNATIVE NO. 3
Hamilton Township
Adams County, Pennsylvania
C.S. Davidson, Inc.
CONSULTING CIVIL ENGINEERS
SURVEYORS
DRAWN BY B.A.M.
CHECKED BY
SCALE 1"=1000'
DATE 11/2/99
DWG. NO. 2997601C
FILE NO. 2997.6.01.00
SHEET 1 OF 1



HAMILTON TOWNSHIP

ACT 537 PLAN UPDATE

EXHIBIT I

MALFUNCTION RISK ZONE

Hamilton Township — Adams County, Pennsylvania

C.S. Davidson, Inc.

CONSULTING CIVIL ENGINEERS
SURVEYORS

38 N. DUKE STREET YORK, PA
PHONE NO. (717) 846-4805
FAX. NO. (717) 846-2801

50 N. MIDDLE ST. GETTYSBURG, PA
PHONE NO. (717) 337-3021
FAX. NO. (717) 337-0762

DRAWN BY	B.A.M.
CHECKED BY	
SCALE	1"=1000'
DATE	11/2/99
DWG. NO.	2997501D
FILE NO.	2997.6.01.00
SHEET	1 OF 1

IMPLEMENTATION SCHEDULE

FOR

HAMILTON TOWNSHIP ACT 537 PLAN AMENDMENT

Event	Date
• Township Adoption of Act 537 Plan Revision	December 13, 1999
• Township Adoption of Agreement with Berwick Township to engineer WWTP	December 13, 1999
• Submission of Act 537 Plan Revision to PA DEP for review and approval	December 15, 1999
• Submission of Berwick Township's NPDES Part I Permit Application	December 15, 1999
• PA DEP Approval of Act 537 Plan Revision	January 19, 2000
• PA DEP Approval of Berwick Township's NPDES Part 1 Permit Application	January 19, 2000
• Township enters into Intermunicipal Agreement with Berwick Township	February 1, 2000
• Township authorizes Design of Sanitary Sewer Collection System	February 1, 2000
• Berwick Township submits Part II Permit Application	February 23, 2000
• Township reviews Final Design and Authorizes Bidding	February 6, 2001
• Advertise for Bids	March, 2001
• Open Bids	April, 2001
• Submit completed Application to Pennvest and DEP for funding	May 24, 2001
• Finalize financing of Sanitary Sewer Collection System and Award Contracts for construction	August, 2001
• Start Sanitary Sewer Collection System construction	September, 2001
• Township Adoption of On-Lot Sewage Disposal Ordinance, Well Drillers Ordinance, Planning Module Requirements and Public Education Program	September, 2001
• Complete Sanitary Sewer Collection System construction and issue Hook Up Notices	September, 2002
• 90-day Hook-Up period	September, 2002 - November, 2002

Wm. F. Hill & Assoc., Inc.

207 Baltimore Street • Gettysburg, Pennsylvania 17325 • Office (717) 334-9137

August 3,1999

Hamilton Township Board of Supervisors
272 Mummert's Church Road
Abbottstown, PA 17301

Subject: Hamilton Township Request for Capacity at Berwick Township Wastewater Treatment Facility

Dear Supervisors:

On behalf of Berwick Township we are providing a response to your June 30, 1999 request for capacity at the proposed Berwick Township Wastewater Treatment Facility.

It is our understanding that Hamilton Township's immediate needs are 32,000 GPD with a projected total future demand of 100,000 GPD. This would serve the Route 94 area of Hamilton Township north of Cross Keys.

The NPDES Permit for Berwick Township's WWTF is approved for 200,000 GPD which is planned to meet Berwick's present and future needs. Therefore to accommodate the request of Hamilton it would be necessary to upgrade the Berwick Facility to 300,000 GPD.

In response to the need to upgrade the Berwick Facility, we contacted the PA DEP Regional Office to determine the effect that the increase in capacity would have on existing, stream discharge effluent criteria. The DEP informed us that the effluent criteria for CBOD, Suspended Solids, and Ammonia Nitrogen would not be modified but that the requirement for phosphorus would be reduced to 2.0 mg/l. Phosphorus removal is generally accomplished with a chemical feed system and the addition of aluminum sulfate or sodium aluminate. DEP also stated that for flows of 500,000 GPD and greater the ammonia nitrogen limit would be modified from 2.0 mg/l to 1.5 mg/l. According to current PA DEP standards a flow equalized effluent discharge would not be required for flows up to 500,000 MGD.

It will be necessary for Berwick to file a Part I NPDES Permit Amendment. The DEP is allowed 180 days to process an application, however the typical response time is 100 days. The application fee would be $ 500.

Berwick Township is required to submit a Part II Permit Application package to the DEP on or before February 23, 2000. In order to be able to meet this deadline the Part I NPDES Amendment application would need to be submitted by October 1, 1999. It would also be desirable to have an inter-municipal agreement executed prior to submission of this application.

It is our understanding that Hamilton Township will be responsible for all aspects of their sanitary sewer collection and conveyance system to the point where it is connected to the Berwick Township system including all associated costs. From discussions with the Hamilton Township Engineer it is our understanding that connection the Berwick Township system would likely occur at the pumping station proposed for Route 30. A meter manhole would be recommended at or near the point of connection.

We estimate that the additional construction cost associated with upgrade of the Berwick WWTF would be in the range of $ 350,000, including a slightly larger control building. The building size will increase to accommodate larger blowers, generator, and related piping and equipment. We estimate that the additional engineering design cost to upgrade the Berwick WWTF would be in the range of $ 40,000 to $ 50,000 since we have already completed the Drawings (28 design sheets), Design Engineer's Report, Water Pollution Control Modules, Part II Permit Application, and a draft version of the written specifications.

When considering the dollar cost per gallon of treatment capacity it is more cost effective to construct a 300,000 GPD facility than a 200,000 facility.

Estimated construction costs are as follows:

Capacity	Total Est. Cost	Est. Cost per Gal.
200,000 GPD	$ 1,000,000	$ 5.00 / Gal
300,000 GPD	$ 1,350,000	$ 4.50 / Gal

Additional construction costs would also be incurred to increase Berwick's sanitary sewer system to accommodate the flow from Hamilton. The proposed gravity line would be increased from 8 inch to 12 inch and the force main would likely be increased from 4 inch to 6 inch. The Berwick Pumping Station equipment would also require upgrade. Additional engineering design costs for these modifications would be in the range of $ 10,000.

Estimated additional construction cost for the increased capacity in the Berwick sanitary collection system is as follows:

Gravity Sewer 8 inch to 12 inch 1000 lineal feet @ $ 7.50 / Ft.	$ 7,500
Force Main 4 inch to 6 inch 1800 lineal feet @ $5.00 / Ft.	$ 9,000
Increased Pumping Station Capacity	$ 15,000
Est. Additional Construction Cost	$ 31,500

In addition if the Berwick WWTF will be operational for a period of time prior to the installation of Hamilton's system, a token reserve capacity charge may be appropriate.

It is our understanding that this information will be used by Hamilton in the evaluation of three alternatives for wastewater treatment capacity:

1. To purchase 90,000 Gal / Day capacity from the New Oxford Municipal Authority through Oxford Township for a cost of $ 450,000. It is also our understanding that this alternative requires substantial upgrade to the existing sanitary sewer conveyance lines.

2. Construct a 100,000 GPD wastewater treatment facility in Hamilton Township near the intersection of Rt. 94 and the Conewago Creek.

3. To purchase 100,000 GPD from Berwick Township. This alternative requires the Berwick WWTF to be designed to accommodate the additional 100,000 GPD (300,000 GPD Total) and that a small portion of the Berwick Conveyance System be designed to accommodate the increased flow.

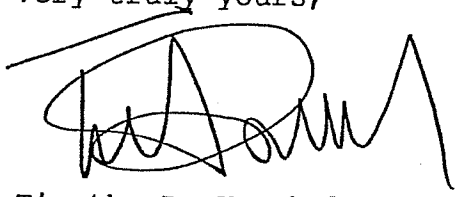
We estimate that the capital contribution required from Hamilton Township for 100,000 GPD of capacity would be $ 450,000. The estimated capital contribution for the increased capacity in the conveyance system would be $ 31,500. The estimated additional cost for engineering would be in the range of $ 55,000.

Assuming that Hamilton makes a capital contribution up front to pay for their capacity in the Berwick WWTF and Conveyance System we estimate that the fee for operation and maintenance per EDU for treatment and conveyance through Berwick would be in the range of $ 22.00 to $ 30.00 per month. This monthly fee does not include any debt service associated with the Berwick WWTF or Collection System.

In closing, due to Berwick's Time Schedule as approved by DEP, it is important that these negotiations proceed in a timely manner. In the event that Hamilton is agreeable in concept to the alternative of purchasing capacity from Berwick we would recommend that a meeting between DEP, Hamilton, and Berwick be scheduled.

On behalf of Berwick Township we appreciate your interest.

Very truly yours,



Timothy R. Knoebel, P.E.

cc: Berwick Township

Pennsylvania Department of Environmental Protection
909 Elmerton Avenue
Harrisburg, PA 17110-8200

February 2, 1999

Southcentral Regional Office

717-705-4707
FAX - 717-705-4760

Berwick Township Board of Supervisors
c/o Barbara Webb, Secretary
85 Municipal Road
Hanover, PA 17331

Re: Stipulation and Settlement Agreement
Berwick Township, Adams County

Ladies and Gentlemen:

On January 20, 1999, NPDES Permit No. PA 0087921 was issued 124 days from September 18, 1998, the date the application was submitted. Pursuant to paragraph 12 of our Stipulation and Settlement Agreement, the subsequent performance dates are extended by 64 days as follows:

Complete negotiations with developers	February 23, 1999 (Paragraph 2)
Adopt appropriate ordinances	May 25, 1999 (Paragraph 3)
Acquire rights-of-way	July 24, 1999 (Paragraph 4)
Submit Part II Permit application	February 23, 2000 (Paragraph 5)
Submit application for PENNVEST financing	May 24, 2000 (Paragraph 6)
Obtain financing	February 23, 2001 (Paragraph 7)
Award contracts	August 24, 2001 (Paragraph 8)
Begin construction	September 23, 2001 (Paragraph 9)
Complete construction	September 23, 2002 (Paragraph 10)
Achieve compliance	November 24, 2002 (Paragraph 11)

Please call me at 717-705-4779 if you have any questions.

Sincerely,

Lee A. Yohn
Compliance Specialist
Water Management Program

OXFORD TOWNSHIP MUNICIPALITY
P.O. BOX 86
780 HANOVER STREET
NEW OXFORD, PA 17350

November 2, 1999

Hamilton Township Board of Supervisors
227 Mummerts Church Road
Abbottstown, PA 17301

RE: Sewerage Transportation Fees
Route 94 Area

Dear Supervisors:

In response to your engineer's letter, dated March 25, 1999, regarding transportation fees (this does not include any treatment cost or EDU capacity fees) attributed to Hamilton Township's wastewater flow from the PA Route 94 area, we have determined the following:

1. The flow would be pumped from a centrally located pump station in Hamilton Township at the intersection of PA Route 94 with Berlin Road to Oxford Township's gravity system off the south side of Berlin Road.

2. The flow from Hamilton Township would be pumped from the East Golden Lane Pump Station to the New Oxford Municipal Authority's Wastewater treatment plant.

3. Initial flows from Hamilton Township are estimated to be 32,000 gallons per day (average).

4. A flow meter would be required on the system to measure the amount of sewage received by Oxford Township.

5. Based upon the metered amount of flow, Oxford Township would charge Hamilton Township $0.50/1000 gallons of flow transportation.

6. The cost of operation and future maintenance of the gravity system and East Golden Lane Pump Station have been included with the $0.50/1000 gallons transportation fee.

The Oxford Township Supervisors are continuing their discussion regarding the purchase of the remaining 180,000 gallons per day capacity at the NOMA treatment plant. The purchase of that capacity would be in the full amount of $900,000.00 with the resale of 50% of the flow capacity to Hamilton Township in the amount of $450,000.00

Obviously, some legal work would be necessary to complete these transactions through inter-municipal agreements, of which costs could be shared by the parties involved.

Sincerely,
Oxford Township Supervisors

Donald Poist

Donald Poist, Chairman

Pennsylvania Department of Environmental Protection
SOUTHCENTRAL REGIONAL OFFICE
WATER MANAGEMENT PROGRAM
909 ELMERTON AVENUE
HARRISBURG, PA. 17110-8200

PH# (717) 705-4707 FAX (717) 705-4760

FAX COVER SHEET

DATE 8/9/99

TO: Paul Sauers
C.S. Davidson

FAX # (717)846-5811 PHONE # (717) 846-4805

FROM: Lisa Swiegert

PHONE # (717) 705-4814

MESSAGE Attached are the preliminary effluent limits you requested for Hamilton Twp Bd. of Supervisors. As we discussed earlier, this proposed discharge will change the effluent limits on the Globeview Acres STP and Reading Twp.'s #5 STP. Since Hamilton Township owns the Globeview Acres STP, I also included preliminary effluent limits for them. If you have any questions, please call.

Lisa

TOTAL NUMBER OF PAGES (INCLUDING THIS COVER PAGE) 2

PRELIMINARY EFFLUENT LIMITS FOR THE **PROPOSED** HAMILTON TWP. WWTP

Parameter	Concentration (mg/l)		
	Monthly Average	Weekly Average	Instantaneous Maximum
5-Day CBOD	25	40	50
Suspended Solids	30	45	60
Ammonia Nitrogen (as N) (5-1 to 10-31) (11-1 to 4-30)	13.0 Monitor & Report	XXX XXX	26 Monitor & Report
Total Residual Chlorine	0.5	XXX	1.6
Dissolved Oxygen	Minimum of 5.0 at all times		
pH (S.U.)	Within range of 6 to 9 at all times		
Fecal Coliform	Not greater than 200/100 ml as a geometric average value, not greater than 1,000/100 ml in more than 10% of the samples tested from May 1 to September 30; not greater than 98,000/100 ml as a geometric average value during the remainder of the year.		

PRELIMINARY EFFLUENT LIMITS FOR THE **EXISTING** HAMILTON TWP. WWTP

Parameter	Concentration (mg/l)		
	Monthly Average	Weekly Average	Instantaneous Maximum
5-Day CBOD	25	40	50
Suspended Solids	30	45	60
Ammonia Nitrogen (as N) (5-1 to 10-31) (11-1 to 4-30)	13.0 Monitor & Report	XXX XXX	26 Monitor & Report
Dissolved Oxygen	Minimum of 5.0 at all times		
pH (S.U.)	Within range of 6 to 9 at all times		
Fecal Coliform	Not greater than 200/100 ml as a geometric average value, not greater than 1,000/100 ml in more than 10% of the samples tested from May 1 to September 30; not greater than 100,000/100 ml as a geometric average value during the remainder of the year.		

DRAFT

AGREEMENT

THIS AGREEMENT (the "Agreement"), is made and entered into this _____ day of November, 1999, by and between, BERWICK TOWNSHIP ("Berwick"), a municipal subdivision of the Commonwealth of Pennsylvania, organized and existing under the Second Class Township Code, *as amended*, 53 P.S. Section 65101, *et seq.*, with a business address of 85 Municipal Road, Hanover, Pennsylvania 17331 -AND- HAMILTON TOWNSHIP ("Hamilton"), a municipal subdivision of the Commonwealth of Pennsylvania organized and existing under the Second Class Township Code, *as amended*, 53 P.S. Section 65101, *et seq.*, with a business address of 272 Mummerts Church Road, Abbottstown, Pennsylvania 17301.

WITNESSETH:

WHEREAS, Pursuant to a Stipulation and Settlement Agreement dated September 21, 1998 between Berwick and the Commonwealth of Pennsylvania, Department of Environmental Protection (Pa. DEP) (Attached as Exhibit A), Berwick is obligated to sewer certain portions of the Township within time frames set by Pa. DEP; and

WHEREAS, pursuant to the Stipulation and Settlement Agreement, Berwick is currently in the process of designing the said sewer system and a wastewater treatment facility with a hydraulic capacity of two hundred thousand (200,000) gallons per day; and

Avg. Daily Flow

WHEREAS, Hamilton is in the process of amending its Act 537 Plan which will involve, *inter alia*, the sewering of certain portions of the Township north of Cross Keys, Route 94; and

WHEREAS, Hamilton's proposed Act 537 Plan provides for Berwick to treat Hamilton's wastewater in the proposed Berwick Township Wastewater Treatment Facility; and

WHEREAS, under Hamilton's proposed Act 537 Plan Amendment, Berwick will be required to redesign the Wastewater Treatment Facility and related sanitary sewer system appurtenances to allow for an additional hydraulic capacity of one hundred thousand (100,000) AVG DAILY FLOW. gallons per day for a total of three hundred thousand (300,000) gallons per day; and

WHEREAS, as a result of the request by Hamilton, AVG Daily Flow contemporaneously with this Agreement, Berwick will enter into an agreement with William F. Hill & Associates, Inc. for the redesign of the wastewater treatment facility and related sanitary sewer system appurtenances; and

WHEREAS, the parties hereto wish to set forth their agreement as to the responsibilities for the costs of the redesign of the Wastewater Treatment Facility and related sanitary sewer system appurtenances.

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

1. Berwick shall direct its engineer to provide the following services:

   a. Provide detailed plans and specifications for the proposed increased Wastewater Treatment Facility capacity as described in the Hamilton Township Act 537 Plan. The blue print sheet size shall be 24 inch X 36 inch, and the scale shall be designated on each sheet.

   b. Provide detailed project specifications, bidding documents, and related printed material in an acceptable format as required for a project of this type.

   c. Provide necessary field work to properly design the required increased

wastewater treatment facility capacity.

d. Modify the Design Engineer's Report as required by the Pennsylvania Department of Environmental Protection.

e. Modify the Water Pollution Control Modules and related Part II Permit Application(s). Submit Act 14 Notifications as required by the Pa. DEP.

f. Provide two (2) sets of the plans and specifications for the Pa. DEP, and provide one (1) set each for the Berwick Township Supervisors and the Hamilton Township Supervisors, or a total of (4) sets of plans and specifications. Additional copies are available at the cost of reproductions.

g. Modify the Sedimentation and Erosion Control Plan/Specifications and obtain necessary approvals.

h. Prepare progress reports for submittal at the monthly meetings of the Berwick Township Supervisors during the design phase.

i. Modify the electrical and structural design for 0.300 MGD Wastewater Treatment Facilities, including the redesign of the SBR tanks, decanter system, lift station, operations and control building, UV disinfection system, and alter modifications to the biosolids handling facilities.

j. Provide the design for the phosphorus removal equipment as required by the Pa. DEP for the additional hydraulic loading.

k. Provide a cost estimate of project construction based on the final design.

l. Prepare an amendment to the existing NPDES Permit.

m. Provide the design for additional hydraulic capacity at Pumping Station No. 3, located to the west of the intersection of U.S. Rt. 30 and Stanley Drive.

n. Assist in preparation of sewer service agreement between Berwick and Hamilton, until PA. DEP submission date of February 23, 2000.

o. Provide any redesign of force main.

p. Provide the design of any modifications of the existing gravity sanitary sewer design that conveys wastewater generated in Hamilton Township to the Berwick Township Wastewater Treatment Facility.

2. Hamilton shall be responsible to reimburse Berwick for the additional work as detailed in Paragraph 1, above, for the redesign of the Wastewater Treatment Facility and related sanitary sewer appurtenances.

3. The estimated fee for the same will be as follows:

a. Redesign of the Berwick Township Wastewater Treatment Facility -- $50,000.00.

b. Redesign of the Pumping Station, force main and related sanitary sewers -- $10,000.00.

c. Preparation of amendment of existing NPDES Permit -- $500.00 - $1,000.00.

T&M not to exceed w/o Approval

4. William F. Hill & Associates, Inc. will submit itemized billing statements to Berwick and Hamilton which will be due in thirty (30) days of the date of the statement.

Invoiced separately.

5. Berwick will pay the said invoice and will forward proof of payment to Hamilton

which shall reimburse Berwick within five (5) days of receipt of same.

6. The parties hereto acknowledge that Berwick, pursuant to the aforesaid Stipulation and Settlement Agreement (Exhibit A), is mandated to meet the deadlines outlined in the said Agreement or be subject to severe penalties. Accordingly, Berwick must submit the NPDES Amendment to coincide with Hamilton Act 537 Plan on or before December 16, 1999 and must submit a full and complete application for a Water Quality Part II Permit by February 23, 2000. Time is of the essence in this Agreement.

7. In the event Hamilton defaults in its responsibility to reimburse Berwick or interferes with Berwick's ability to comply with the time limits set forth in the said Stipulation and Settlement Agreement (Exhibit A) and in this Agreement, Berwick has the right to direct its engineer to cease work on the redesign as outlined in Paragraph 1, above. In such case, Hamilton shall be responsible for actual costs incurred by Berwick for the said redesign, ~~as well as any incidental and/or consequential damages which result therefrom.~~

8. Neither Berwick or it Engineer warrarant or guarantee Pa. DEP's approval of Hamilton's Act 537 Plan Amendment, the NPDES Amendment or the Water Quality Part II Permit.

9. Each party hereby agrees to pay all attorney's fees and costs of litigation that the other party may sustain or incur in any way whatsoever as a consequence of any default or breach by the other party of any terms or provisions of this Agreement; provided that the party who seeks to recover such attorney's fee, and costs of litigation must first be successful in whole or in part, before such liability may be imposed.

10. This Agreement embodies the entire agreement between the parties hereto and there are no agreements, understandings, conditions, warranties or representations, oral or written, expressed or implied, by reference to the subject matter hereof, that are not in this Agreement.

11. The failure of any party hereto to insist upon strict performance of this Agreement or any other terms or conditions hereof shall not be construed as a waiver of any of its rights hereunder.

12. This Agreement shall be binding upon any and all successors in interests to the parties.

13. This Agreement shall be construed, interpreted and implied in accordance with the laws of the Commonwealth of Pennsylvania.

14. This Agreement may not be altered, modified, amended, renewed, extended or terminated unless by an instrument in writing duly executed by the parties.

IN WITNESS WHEREOF, the parties hereto by and through their authorized representatives and counsel have caused this Agreement to be duly executed and entered as of the date and year first above written.

ATTEST:

DRAFT

Secretary

BERWICK TOWNSHIP

By: DRAFT

Chairman

ATTEST:

DRAFT

Secretary

HAMILTON TOWNSHIP

By: DRAFT

Chairman

COMMONWEALTH OF PENNSYLVANIA :
: ss
COUNTY OF _____ :

On this _____ day of _____, 1999, before me, the subscriber, a notary public in and for said Commonwealth and County, personally appeared Alan S. Carey who acknowledged to be the Chairman of the Berwick Township Board of Supervisors, and that as such Chairman being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing his name as Chairman.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

_____
Notary Public

MY COMMISSION EXPIRES:

COMMONWEALTH OF PENNSYLVANIA :
: ss
COUNTY OF _____ :

On this _____ day of _____, 1999, before me, the subscriber, a notary public in and for said Commonwealth and County, personally appeared _____ who acknowledged to be the Chairman of the Hamilton Township Board of Supervisors, and that as such Chairman being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing his name as Chairman.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

_____
Notary Public

MY COMMISSION EXPIRES: