

**Catlett, Calverton and
Midland**

**Survey of Septic
System Problems and
Low to Moderate
Income Households**

1996

Partners in
Environmental Progress

U.S. Army Corps of Engineers
and
Fauquier County

Prepared by the Rappahannock-Rapidan
Planning District Commission

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INTRODUCTION

The Route 28 communities of Catlett, Calverton and Midland have traditionally been at the center of Fauquier County's dairy farming community. Today, however, they are also three of the county's nine service districts, areas designed to accommodate the highest density of future residential, commercial and industrial development. The nine service districts are currently served either by public water and sewer, or they are targeted to receive services in the future. Of the Route 28 service districts, only Catlett is served with either of these utilities. The Fauquier Water and Sewer Authority services approximately 60 customers in Catlett with public water.

Catlett, Calverton and Midland lie within the Triassic geological basin, an area with severely limited septic sewage disposal potential. Most of the soils in the area are characterized by slow to very slow drainage. Soil conditions within these communities are a major constraint to even low density development. They do not lend themselves to supporting the existing low density commercial, industrial, residential and public/semi-public land uses let alone higher density development envisioned by the service district concept. This observation is born out by the fact that a large majority of current inspections by the Fauquier County Health Department in the Route 28 communities indicate failing septic systems. The Department estimates that only 5% of the homes it has inspected could receive Health Department certification.

Options to deal with septic system failure include salvaging the existing system by making repairs, building a new system, and providing alternative means of waste disposal. When the problem is one of unsuitable soils on site, alternative systems may be the only answer short of abandoning the premises. Community wide failures merely serve to make obvious the eventual need for a community wide solution.

The Communities

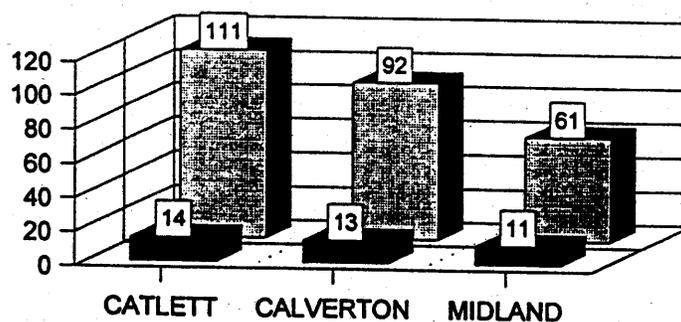
Catlett is the easternmost of the communities with approximately 111 residences and 14 non-residential establishments. The Norfolk-Southern Railroad bisects the communities and serves as a reminder of its past as a freight depot servicing nearby farmers.

Calverton, located midway between Catlett and Midland, has approximately 92 residences and 13 non-residential establishments. It is a community based on supplying and servicing the outlying dairy farms.

Midland is the most western and most industrial of the communities. It has approximately 61 residences and 11 non-residential establishments. Located in Midland is the Warrenton-Fauquier Airport which services general aviation aircraft, Ross Industries, Smith-Midland Corporation, Fiberglass Engineering and several small businesses.

Residential\Non-Residential

Mix



 RESIDENCES
 NON-RESIDENTIAL UNITS

Corps of Engineers Grant

The sewerage situation in the Catlett, Calverton and Midland areas has been studied to some degree over a period of years as Health Department requirements have become more stringent, as existing septic systems failed to handle the current land use and as the area was designated as a service district to accept future population growth. Schematic collection and treatment solutions have been proposed as part of overall plans for providing public sewer to the county service districts. No community wide solution which has been proposed to date has been financially feasible given the small existing user base in the communities. This is compounded by the Occoquan Policy, a policy adopted by the State Water Control Board in 1971 to protect the water quality of the Occoquan Reservoir, a major water supply for Northern Virginia. The Occoquan watershed covers all of the Catlett and Calverton service districts and part of Midland. The policy adds to the cost of treatment due to more stringent effluent requirements.

The lack of site specific information concerning demographic data and system failures in the three communities has hampered the process of defining how big of a problem currently exists, designing cost effective and affordable ways of dealing with them and planning for future development. It is the County's desire to protect the health and safety of citizens facing environmental problems in their homes. The information presented in this report will aid the County in developing solutions to current and future health threats in the Route 28 corridor.

In 1995, Fauquier County sought and was awarded a U. S. Army Corps of Engineers Partners in Environmental Progress grant in the amount of \$19,500 to document the location and extent of septic system failures in Catlett, Calverton and Midland and the degree of low and moderate income households that exist. (Grant funds under the Community Development Block Grant program which could be used for construction projects are targeted to low and moderate income persons.) To document this information, a survey was created to be conducted door-to-door. Officials at both the County and the Corps of Engineers felt that the best evidence for system failure would be a resident's report of problems that indicate physical failure of a system. Responses to a questionnaire

would provide the County with a count of the number of homes where residents believed they had experienced problems with their septic system and would give the County an idea of the nature of the problem and whether it was relatively minor or major.

Survey respondents were assured of confidentiality with regard to site-specific findings, and that they would not be compelled to implement costly repairs. This was done to create an atmosphere in which people felt comfortable speaking honestly about their septic system problems.

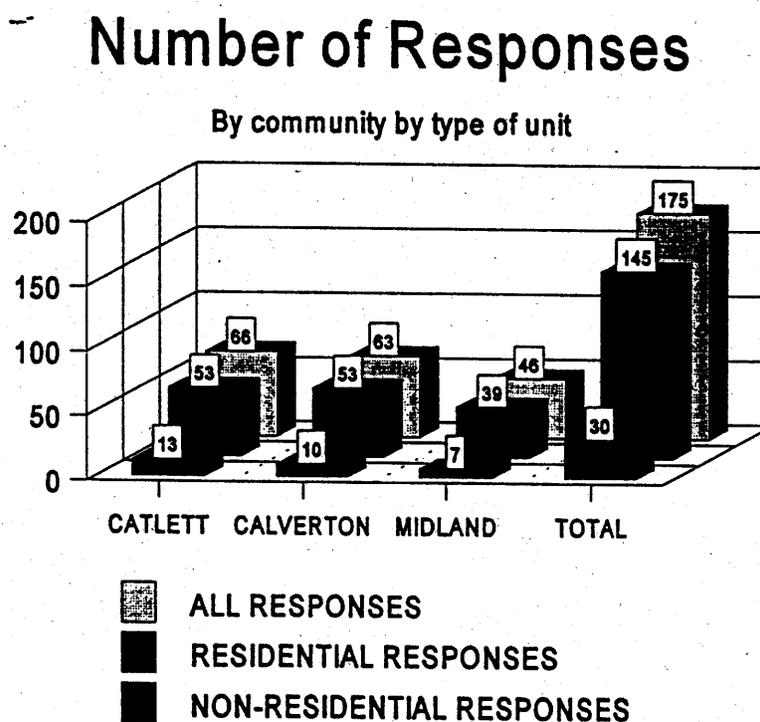
Nitrate tests would be conducted where a resident gave permission. Nitrate levels greater than 3 mg/L typically are associated with man-made sources such as fertilizer or animal waste from farms, as well as septic systems. The Safe Drinking Water Act maximum contaminant limits of 10 mg/L was set to prevent methemoglobinemia (blue baby syndrome), a condition where nitrate interferes with the blood's ability to transport and release oxygen to tissues throughout the body. It is especially dangerous in infants, whose rapid development makes adequate oxygen supply essential. Nitrate can travel great distances, vertically and horizontally, because it is water soluble and does not get trapped and removed by soil particles or microorganisms in the same way that bacteria or viruses do. Tests results are shown in increments from 1 to 10 mg/L and higher.

The County also wanted to be able to assist residents by providing information on septic system maintenance and resources for help in addition to merely obtaining information from the residents. Conservation of water, pumping septic tanks regularly and providing adequate site drainage and landscaping were important maintenance practices the County wanted residents to know about to help septic systems function properly.

To implement the grant planning project, the Rappahannock-Rapidan Planning District Commission was chosen to manage the project while the Environmental System Services in Culpeper, Virginia was chosen to conduct the survey. Door to door surveying began in January, 1996 and concluded in May, 1996. A follow up mailing was sent in July, 1996 to those who did not respond to the door to door survey and responses were received until October, 1996.

Responses to the Survey

There were 175 completed responses to the survey or 57.9% of the total 302 units in the three communities. This represented 145 residences and 30 businesses. In Catlett, 66 of 111 residents responded (59%), in Calverton 63 of 92 residents responded (68%), and in Midland 46 of 61 residents responded (75%) to the survey. The following chart presents the number of responses by community and type of unit.



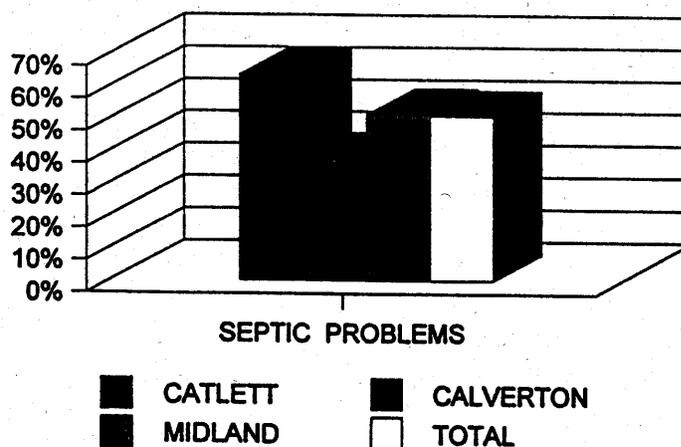
Residential Sewer Problems

One hundred and forty-five (145) residential responses were received from the survey of which 93.1% indicated their households had indoor plumbing compared with 6.9% without plumbing. Of the 135 who had indoor plumbing, 130 had septic systems and 5 had alternative systems or didn't know what type of system they had. Of the 130 with septic systems, 66 or 50.8%

had septic problems at least some portion of the year and 64 or 49.2% had no problems evident. Problems which the survey asked about included slow moving or sluggish toilets or drains; toilets that won't flush; sewage or plumbing back-ups; obnoxious odors inside or outside the house; lush, green grass growing over the drain field; low spots beginning to appear in the yard; ground mushy or soggy underfoot; and sewage surfacing over the drain field. Residents were also asked if problems could be related to specific sources including seasonal changes; times of heavy rainfall; intensive water use; possible leaks in a toilet or dripping faucet; chemicals disposed of in sinks; or objects causing blockage. Lush, green grass growing over the drain field and mushy and soggy ground underfoot were the issues most often listed, while times of heavy rainfall and intensive water usage were some common sources of the problems. As a whole, 29 or 22.3% of the respondents indicated they had separate greywater disposal, usually to an open air ditch near the house. In Calverton, 25% utilized separate greywater disposal, in Midland, 31.4% and in Catlett, 12.8%. The following graph illustrates the residential responses to the issue of problem septic systems by community,

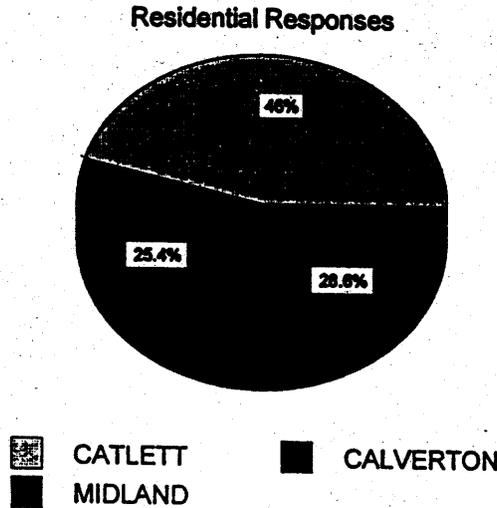
Septic Problems

% of Residential Responses with Problems



As the following pie chart illustrates, 45.5% of the residential septic problems were in Catlett, 27.3% were in Calverton and 27.2% were in Midland.

Percent of Problems by Community



Hardships Faced By Residents

The most common economic hardship faced by residents in the three communities was having to drive to other towns to patronize businesses that couldn't locate in their community because of the difficulty of maintaining a properly functioning septic system or the difficulty of obtaining a site which could be permitted for a septic system. Of the 57 responding residents who indicated having economic hardships, 20, or 35%, were in Catlett, 25, or 44%, were in Calverton and 12, or 21%, were in Midland.

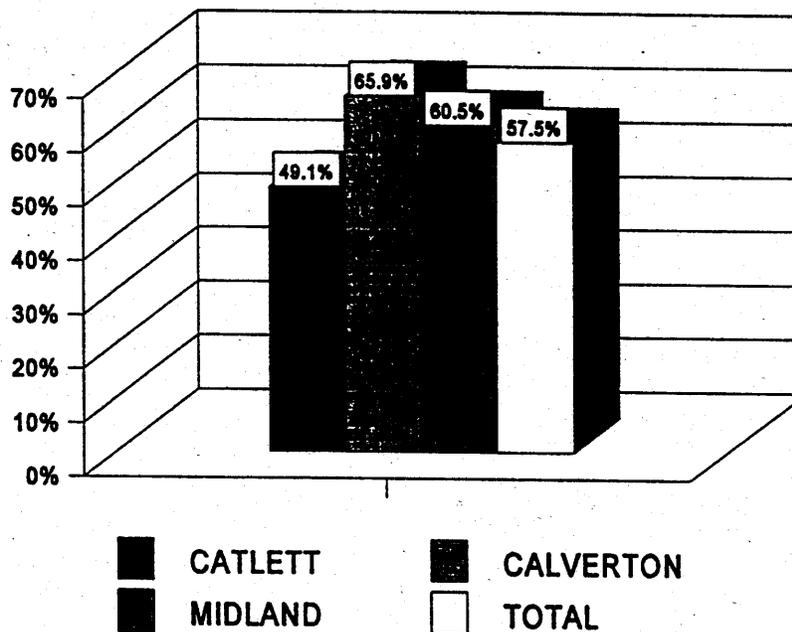
Catlett had the greatest number of respondents indicating that they had been bothered by odors or ponding of water from septic systems other than their own. There, 43% of the respondents indicated they had been bothered compared with 26% in Calverton and 18% in Midland.

Residential Demographics

Using U.S. Housing and Urban Development income limits for determining low and moderate income, 76 or 58% of the 132 responses indicated their households were below the index while 56 or 42% were above. Of residents who responded, 65.9% in Calverton, 60.5% in Midland and 49.1% in Catlett reported low to moderate incomes. The following graph breaks the income data down by community.

Low and Moderate Income Households

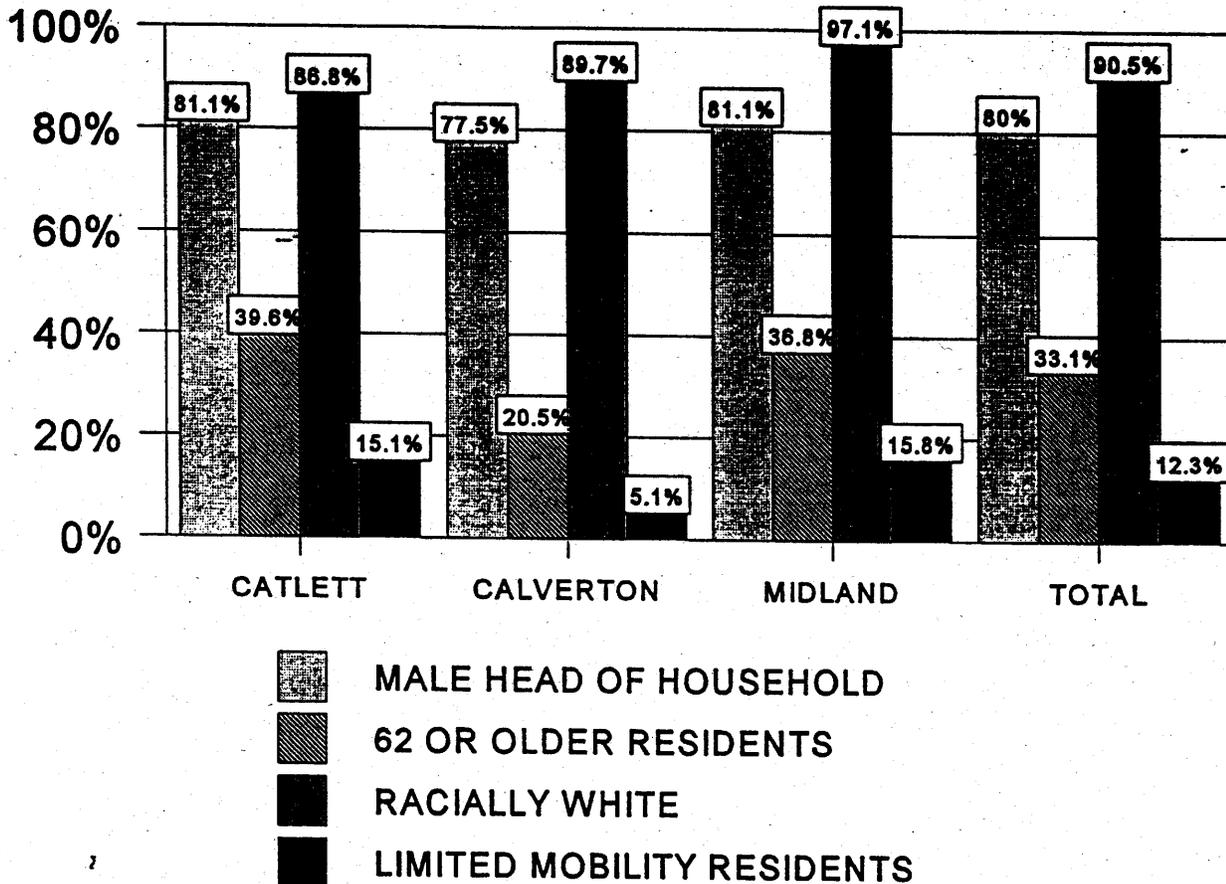
Percentage of Respondents



Of the residential responses, 104 (72%) indicated that they had a male head of household, 43 (33%) had residents in the household who were 62 or older, 114 (90.5%) were racially white households and 16 (12.3%) had residents in the household with limited mobility. The chart below breaks the responses down by community.

Demographic Responses (in percent)

By Community and Total

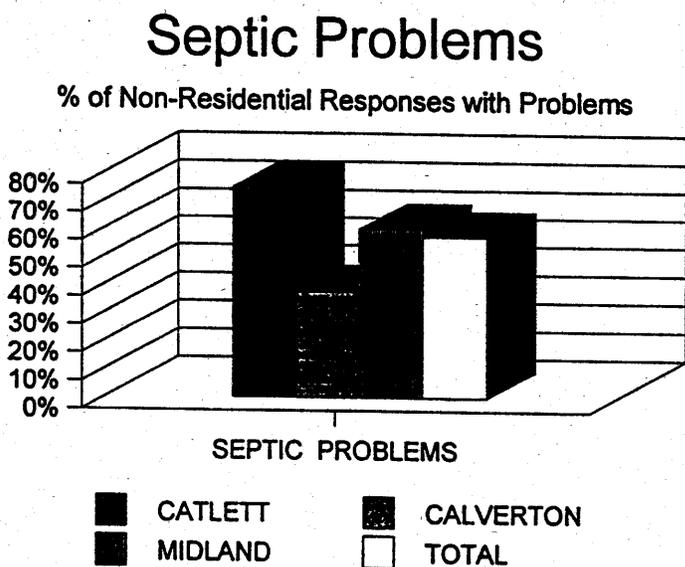


Residential Nitrate Tests

A total of 54 residents agreed to have the surveyors take nitrate tests. Of this number, 31 or 57.4% of the residences had levels at or greater than 3 milligrams per liter. Calverton had the highest percentage of houses having 3 milligrams per liter (mg/L) or higher nitrate levels. In Calverton, 22 of 31 of the tests (71%) reported nitrate levels above 3 mg/L; Midland had 7 of 17 (41.2%); and Catlett had 2 of 6 (33.3%). Fifty residences in Catlett are on public water and were not included in the water test offer. The highest level recorded was 15 mg/L in Catlett.

Non-Residential Sewer Problems

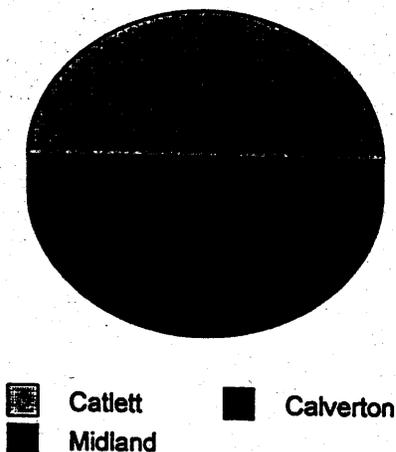
Of the 30 non-residential responses, 21, or 70%, had septic systems, 6.7% had alternative treatment systems, 20% had no sewage treatment, and 3.3% did not indicate the type of system. Of the 21 who had septic systems 12, or 57.1%, had septic problems at least some portion of the year while 9, or 42.9%, had no problems evident. Slow drainage or sluggish toilets or drains and foul sewage odors inside or outside their building were the most common septic problems listed by business respondents.



As the following pie chart illustrates, 50% of the non-residential septic problems were in Catlett, 25% were in Calverton and 25% were in Midland.

% of Problems by Community

Non-Residential Responses



Twenty non-residential respondents, or 69%, in the three communities indicated they were limited in their ability to expand their operation (i.e., add square footage to their building, hire more employees, change processes or acquire new equipment) due to sewage treatment limitations. Fourteen respondents or 48.3% said that increased wastewater could not be accommodated by their existing system, thirteen respondents (44.8%) indicated their site did not contain an area of enough suitable soils for adding a new drain field and fourteen (48.3%) thought upgrading their system on the existing site to Health Department standards would be prohibitively expensive.

Non-Residential Nitrate Tests

A total of 6 non-residential units agreed to have the surveyors take nitrate tests. Among these, 4 had levels at or greater than 3 milligrams per liter. Each of the three units in Calverton had nitrate levels of 3 milligrams per liter (mg/L) or higher. Catlett had 1 of 3, or 33.3%. None of the establishments in Midland requested tests.

Conclusion

The Corps of Engineers "Partners in Environmental Progress" survey has identified focal points of problem septic systems and low to moderate income residents along the Route 28 corridor. This information is especially useful in considering potential applications for Community Development Block Grant funding from the Virginia Department of Housing and Community Development (VDHCD) or other funding sources.

In Midland 60.5% of the respondents were identified as low to moderate income. Fifty-one percent of the respondents reported problems with septic systems and thirty-six percent were senior citizens. The information provided through the survey identified pockets of both LMI and problem septic systems in the older section of Midland and along Route 28 east of Germantown Road.

In Calverton, almost 66% of the respondents were identified to be low to moderate income but only 37.5% reported problems with septic systems. A concentration of low to moderate income residents and residents with failing septic systems appear to be concentrated along Route 603 and Route 616 north of the Norfolk-Southern Railroad.

In Catlett, 49.1% of the respondents were identified to be low to moderate income. More study would be required in Catlett to define a project area which would identify a smaller area where LMI households are concentrated, because a CDBG grant is designed to serve populations over 51% LMI. Catlett residents reported the greatest percentage of problem septic systems (63.8%).

The useful life of the data collected by this survey is limited. VDHCD usually will accept survey information which is no older than three years. Therefore, to maximize the benefits of the present project the County should consider developing a CDBG application to be submitted in 1998 or possibly in 1999. In later funding rounds the data collected here may be of little value to most agencies.

The CDBG application would be especially helpful in installing collector lines within specific neighborhoods and bringing houses up to Section 8 standards. In each community we identified houses without septic systems: four in Calverton, three in Catlett, and three in Midland. Indoor Plumbing Program funds and CDBG grants might help to bring indoor plumbing to these homes.

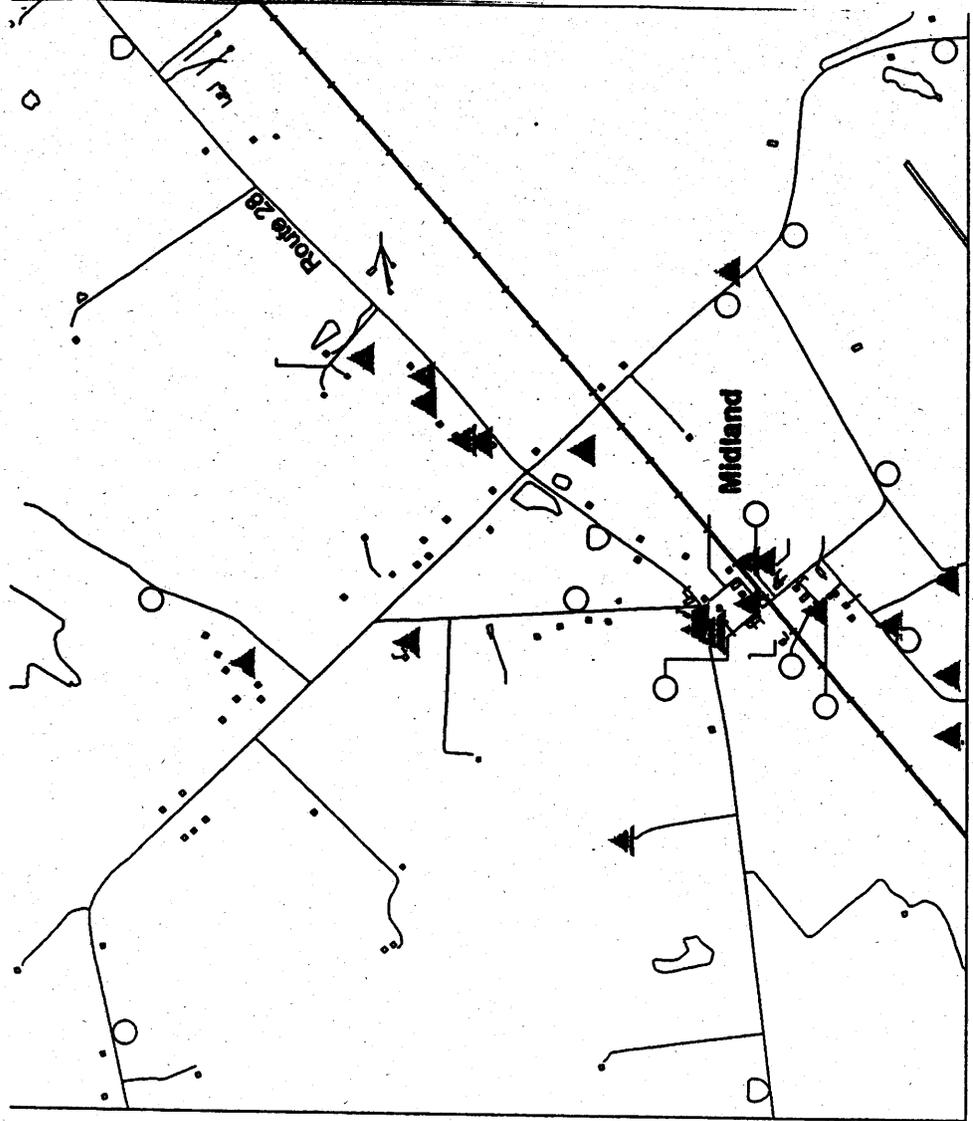
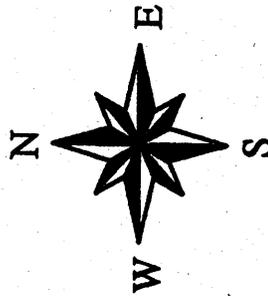
The next opportunity for CDBG funding will be in the March, 1998 application period. Some additional survey work would be required to identify a target neighborhood, and a moderate amount of preliminary engineering would be needed to develop reasonable cost projections. Much of the survey work from this Corps of Engineers project could be utilized for a CDBG application in the 1998 round, and possibly in 1999, but no later.

Maps

Corps of Engineers Route 28 Sewer Project

A Partners in Environmental Progress Grant

Failing sewer systems
in the Midland area.



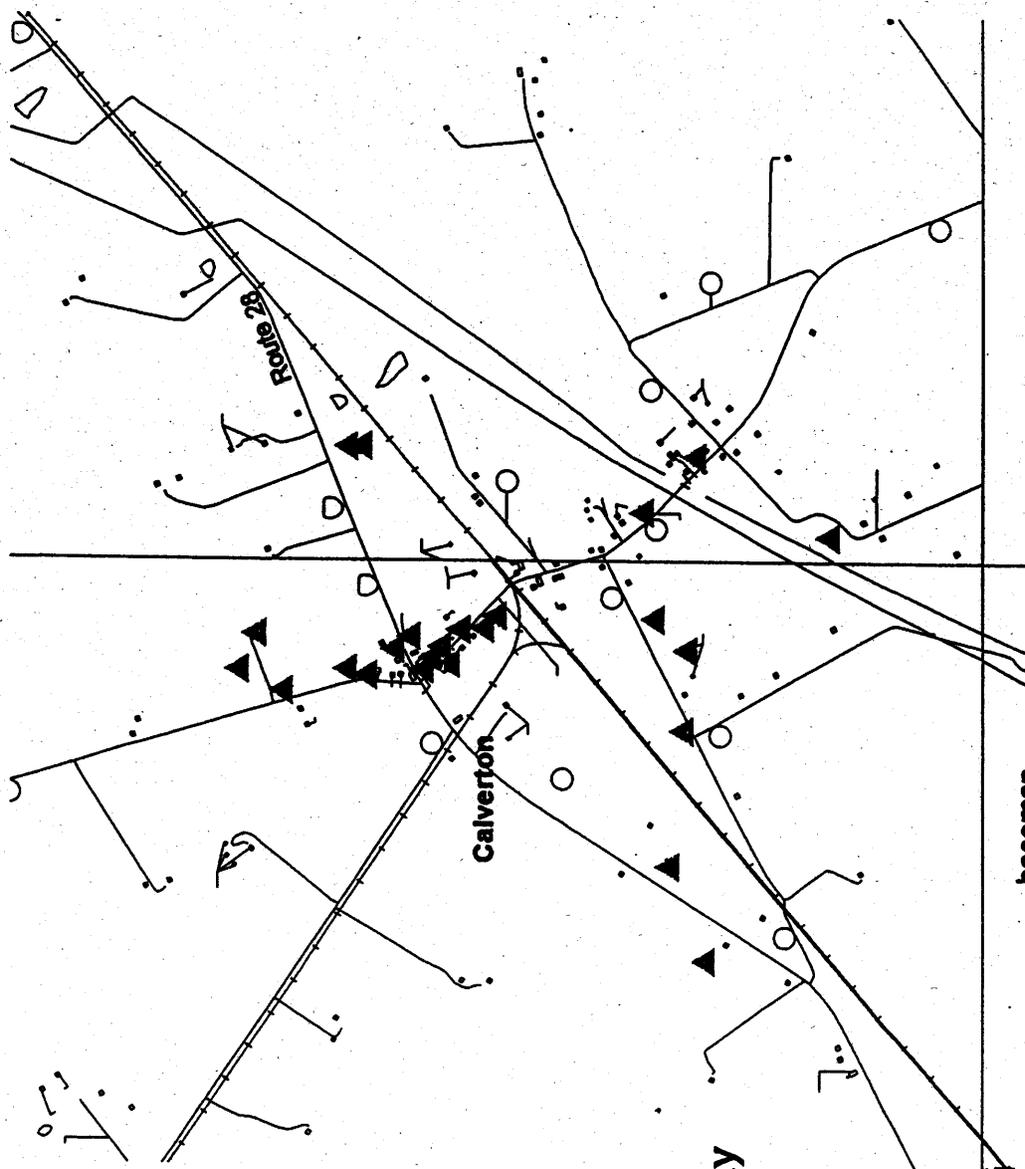
- ▲ Sewer Problems - commercial property
- ▲ Sewer Problems - residential property

Compiled by:
RAPPAHANNOCK-RAPIDAN PLANNING DISTRICT COMMISSION
June, 1997

Corps of Engineers Route 28 Sewer Project

A Partners in Environmental Progress Grant

Failing sewer systems
in the Calverton area.



- ▲ Sewer Problems - commercial property
- Sewer Problems - residential property

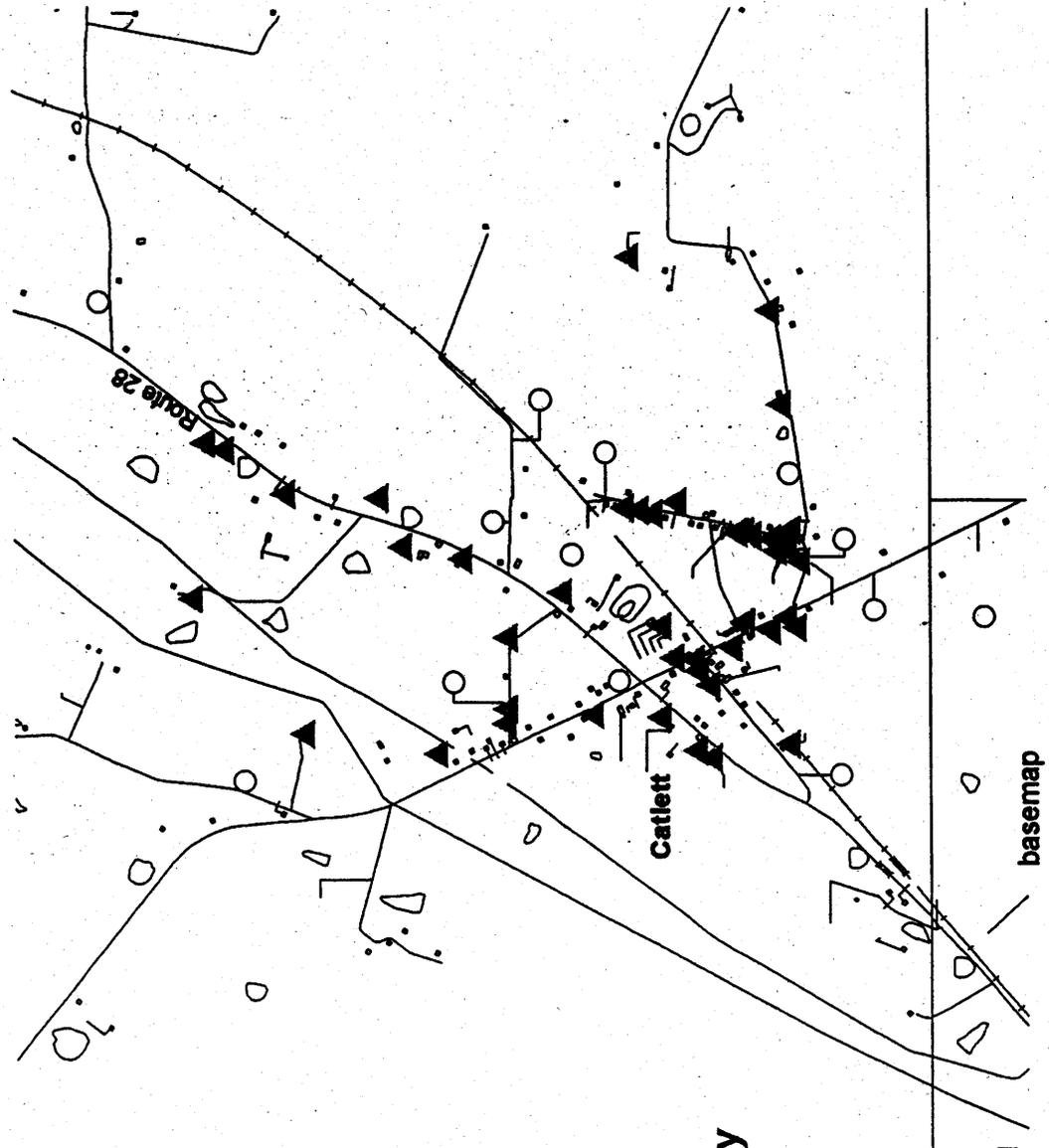
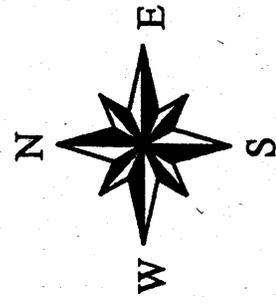
Compiled by:
RAPPAHANNOCK-RAPIDAN PLANNING DISTRICT COMMISSION
June, 1997

basemap

Corps of Engineers Route 28 Sewer Project

A Partners in Environmental Progress Grant

Failing sewer systems
in the Catlett area.



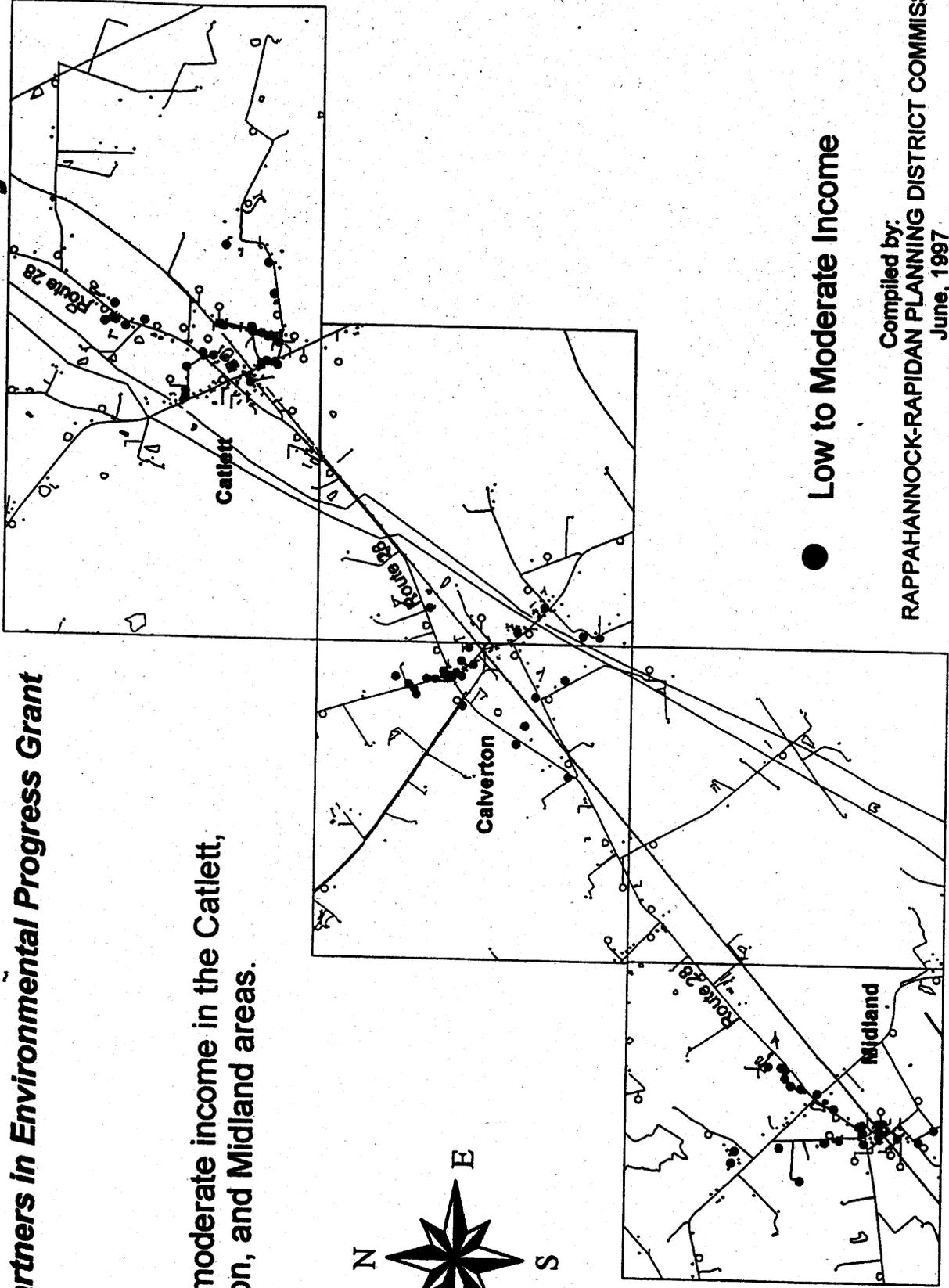
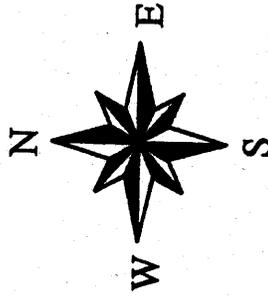
- ▲ Sewer Problems - commercial property
- ▲ Sewer Problems - residential property

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June, 1997

Corps of Engineers Route 28 Sewer Project

A Partners in Environmental Progress Grant

Low to moderate income in the Catlett, Calverton, and Midland areas.



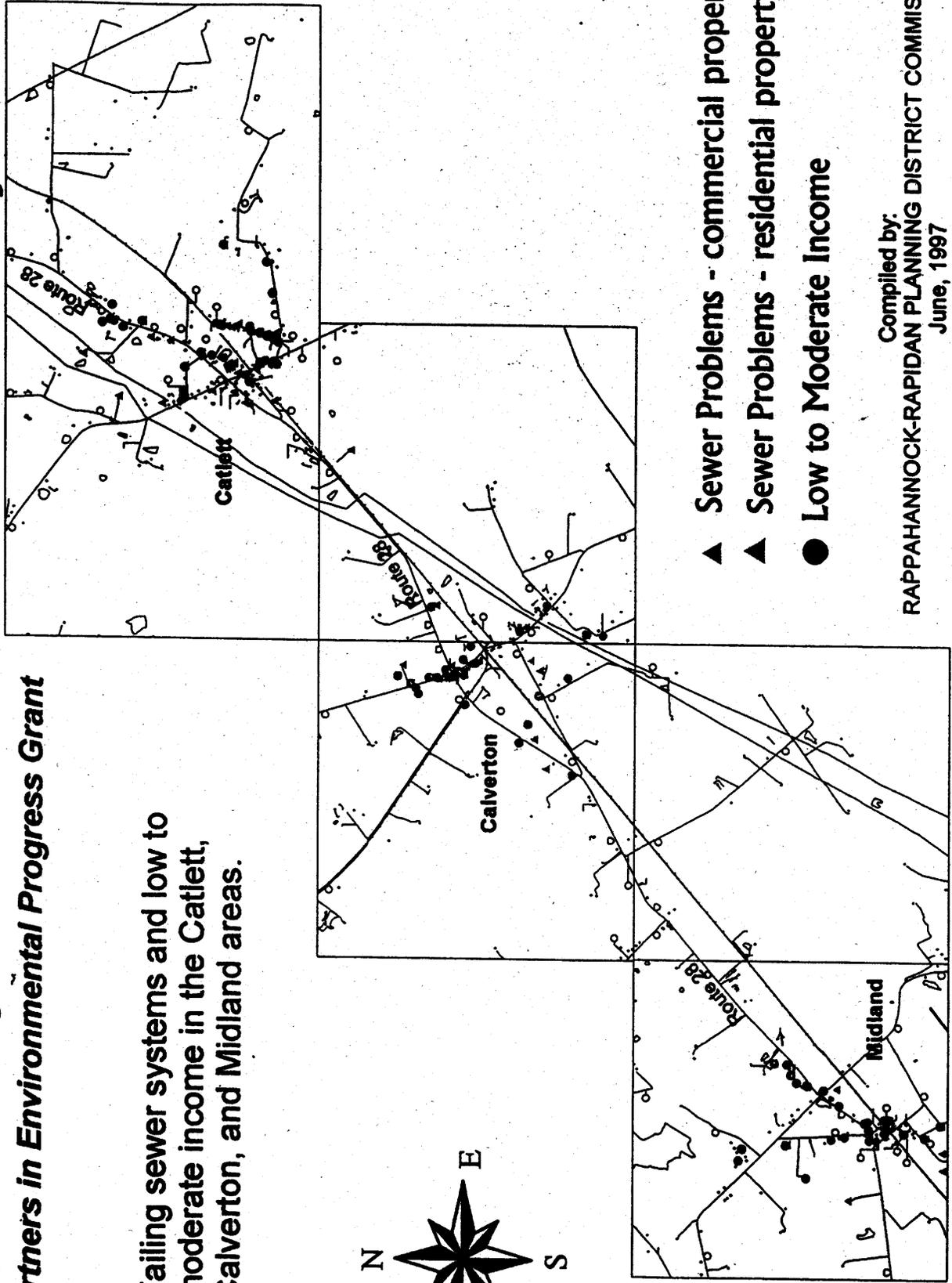
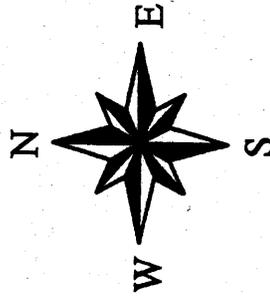
● Low to Moderate Income

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June, 1997

Corps of Engineers Route 28 Sewer Project

A Partners in Environmental Progress Grant

Failing sewer systems and low to moderate income in the Catlett, Calverton, and Midland areas.



- ▲ Sewer Problems - commercial property
- ▲ Sewer Problems - residential property
- Low to Moderate Income

Compiled by:
RAPPAHANNOCK-RAPIDAN PLANNING DISTRICT COMMISSION
June, 1997

Survey Forms

RESIDENTIAL SURVEY

Community - (Circle) **Catlett** Calverton Midland

Surveyor's name _____ Date: _____

A. HOUSEHOLD INFORMATION

1. Address of the house/apartment: _____

2. 911# _____

3. Name of person answering this questionnaire: _____

4. How long have you (or the head of the household) owned rented your home?

If house is rented, what is the owner's name? _____

5. Usual number of occupants _____ Is this the number of people here:
 Year round
 Summer only
 Other portion of a year _____ (months)

6. Number of bedrooms: _____

7. Plumbing Fixtures:

a. Number of flush toilets: _____

- Standard (3.5 gallons/flush)
- Low-volume (less than 1.5 gallons)

b. Other toilet facilities (check all that apply)

- Pit toilet or privy
- Incineration toilet
- Portable/Chemical toilet
- Composting toilet

c. Number of other fixtures (check box if only one, or enter number in parenthesis)

- Kitchen sink
- Bathroom sinks
- Garage sink
- Laundry or utility tubs
- Bath tubs or showers
- Washing machine
- Dishwasher
- Garbage disposal
- Other _____

B. SEWAGE DISPOSAL SYSTEM INFORMATION

1. Check type of system:

- Conventional septic tank and drainfield (uses gravity flow instead of pumps)
- Septic tank, pump, and drainfield
- Low pressure distribution system
- Holding tank (_____ gallons)
- Other _____

2. Is there a separate greywater treatment system for laundry or wash water? Yes No
(Greywater is any non-toilet wastewater)

a. If yes, check all fixtures connected to this separate system:

- kitchen sink
- bathtub, shower or sink
- washing machine
- utility tub
- other _____

b. Where outside is the greywater discharged (location of pipe)? _____

IF THERE IS A SEPTIC TANK, please answer the following:

3. What is the size of the septic tank? _____ (gallons)

Tank depth (inches below ground) _____

Tank material: Concrete Unknown Metal Plastic

a. Age of existing tank & drainfield: _____ & _____ years unknown

b. System Maintenance:

Date last pumped: _____ Before that, how many years ago? _____

Name of company: _____

Comments of pumper _____

Date last inspected, but not pumped: _____

Who did the inspection? (Company or Health Dept.) _____

Were there any problems discovered at that time? Yes No

Describe problems: _____

Did that inspection reveal any evidence of damage to:

- tank
- distribution box
- drainfield pipe

4. System Repairs:

a. Has drainfield been repaired or replaced since you've lived in the house:

Yes No How long ago? _____

b. What was the nature of the repair? _____

c. Do you know the apparent cause of failure? _____

(for example: tree roots, excessive water use, damaged drain tiles)

d. Has the system functioned well since the repair was made? Yes No

Comments: _____

C. PROBLEMS WITH EXISTING SEPTIC SYSTEM

1. Check any problems you have had in the past 12 months

- Slow draining or sluggish toilets or drains
- Toilet won't flush
- Sewage or plumbing back-ups in the house (drains or toilets)
- Foul sewage odors inside or outside home
- Lush, green growth over the drainfield
- Low spots beginning to appear in yard
- Ground mushy or soggy underfoot
- Sewage surfacing over the drainfield

2. If the problems are more noticeable in a particular season (or seasons), please check which ones:

spring summer fall winter

3. Do you believe that these problems are related to any of the following conditions:

- Extended period(s) of heavy rainfall
- Higher than normal water use (from guests, extra laundry)
- Possible leak from toilet valve or dripping faucet
- Drain cleaning chemicals (or other chemicals disposed of in the sink or toilet)
- Objects causing blockage (diapers, rags, toys, sanitary products)
- Tree roots growing through the drainfield or tank
- Other: _____

3. Do you have any problems with separate greywater disposal?

- Ponding
- Odors
- Other _____

4. Have you used any of the following water conservation measures to reduce or avoid problems?
(CHECK ALL THAT APPLY)

• Installed

- low flow shower heads
 toilet water savers

- flow reduction faucets
 other _____

Spread laundry days throughout the week

Stopped using a kitchen garbage disposal

Other _____

5. Have you been denied a permit for any of the following modifications to your home or other property, or decided not to apply for a permit for one or more of these modifications because you were advised that your sewage disposal system was inadequate, or that your site was unsuitable for expanding or repairing your septic system. (CHECK ALL THAT APPLY)

Adding an appliance or fixture such as a washing machine, dishwasher, Jacuzzi, toilet or sink.

Adding-on or expanding a bathroom, bedroom, workshop or other space

Replacing an existing drainfield

6. Have you been unable to sell, rent or transfer property (land and/or residential or commercial buildings) in Catlett, Calverton or Midland because an existing septic system did not operate properly, or because soils were unsuitable for installation of any type of septic system and you could not get a valid disposal system certification from the Health Department?

Yes No

7. Have you experienced any other type of economic hardship or inconvenience that you feel is a result of conditions limiting the effectiveness and availability of septic systems for sewage treatment in your community? (For example, have you been unable to pursue a hobby or operate a home business because the drainfield on your lot could not be expanded to handle the increased water use?)

Yes No

If yes, please describe the situation _____

8. Do you drive to other towns (Culpeper, Fredericksburg, Warrenton, etc.) to patronize businesses that couldn't locate here because they would have difficulty maintaining a properly functioning septic system or obtaining a site which could be permitted for a septic system?

Yes No

If yes, what types of businesses do you feel are missing from your community due to lack of adequate wastewater treatment options:

(Example: doctor's office, pharmacy, gas station, car wash, or restaurant)

9. Have you been bothered by odors or ponding water from septic systems other than your own?

Yes No

10. Have you or any members of your household experienced any gastrointestinal or other illnesses in the past year or so that you believe were related to drinking water from your well?

Yes No

a. What time of year did this occur? _____

INTERVIEWER: Note any circumstances of the illness if the information is volunteered

D. SOURCE OF DRINKING WATER FOR HOUSEHOLD USE

1. Source of Drinking water:

- Private well
- Community well
- City or town water
- Bottled

IF SOURCE IS A PRIVATE WELL, PLEASE ANSWER THE FOLLOWING:

2. Depth of well _____ (feet) Year constructed _____

3. Name of company which drilled the well: _____

4. Have you had your well water tested for bacteria recently? Yes No

Was there any bacterial contamination? Yes No

Any other findings? _____

5. Is the water filtered? Yes No Is the filter located at the tap? Yes No

INTERVIEWER: Explain blue baby syndrome and the option of a quick nitrite test

6. Are there an infants under 6 months in the house? Yes No

For infants or unborn babies, a level of 2 or 3 mg/l is a concern.

Interviewer tests water for nitrate if the homeowner desires

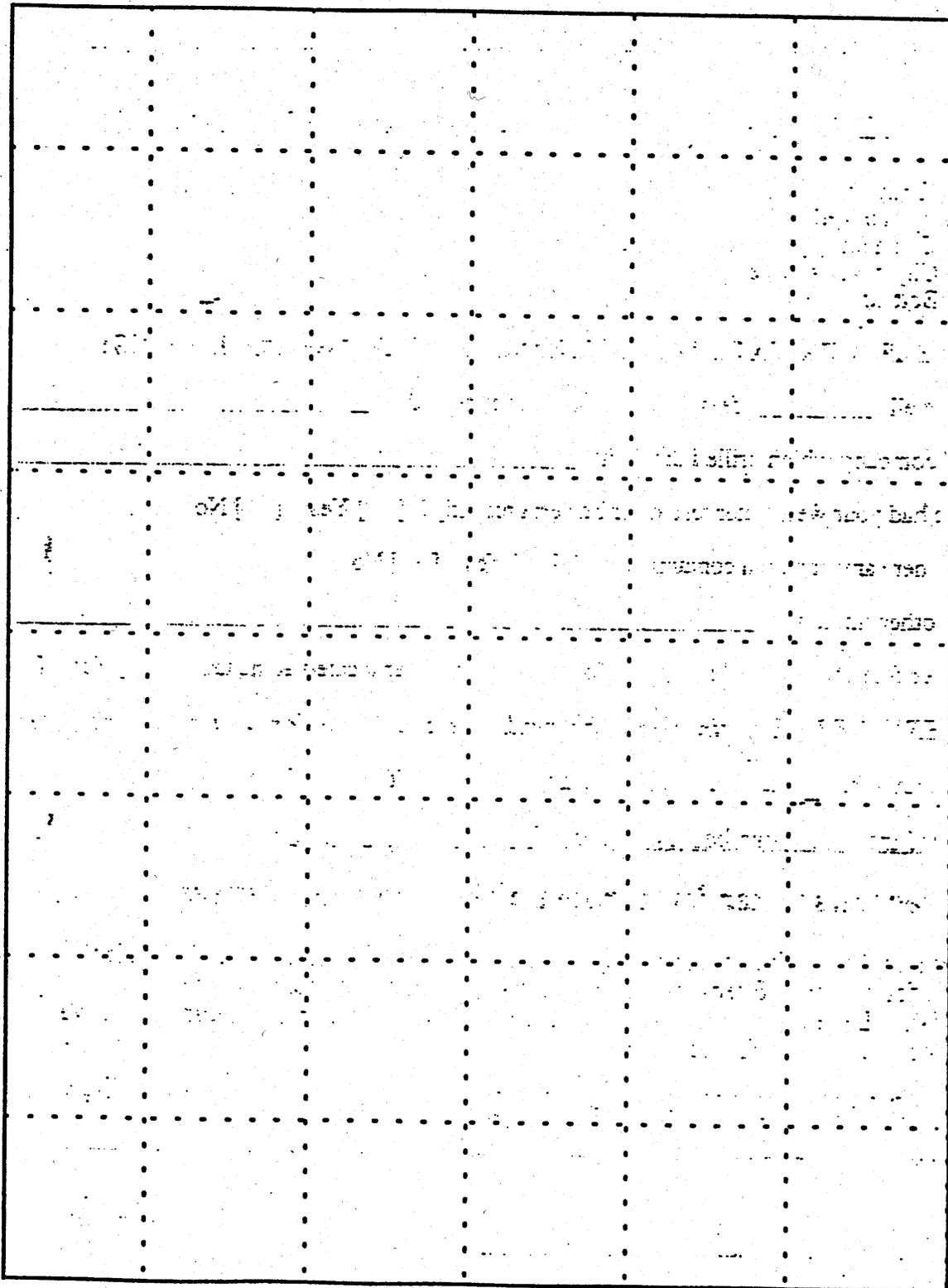
High levels should also be confirmed by another test. Homeowner can call the Health Department for advice. Even with levels below that, advise homeowner to retest if they have an infant. Levels may fluctuate and highest ones will generally occur during wet periods. For adults the MCL set by EPA is 10 mg/L.

RECORD RESULTS OF NITRATE TEST: _____ mg/Liter

ASK homeowner if they would like a soil scientist to examine soils in their yard. This is the first step in a diagnostic process that can determine if septic system problems are correctable through modifications, repairs, or reduced water useage.

Homeowner initials here if interested in soil examination _____

E. ON GRID SHEET SHOW THE LOCATION OF THE SEPTIC TANK AND DRAINFIELD in relation to the house. Mark where pipe exits the house. Note the location of well (if known), and any trees or visible tree roots close to the system .



THE FOLLOWING QUESTIONS ABOUT INCOME ARE BEING ASKED BECAUSE THEY ARE THE BASIS FOR THE COUNTY, COMMUNITY OR INDIVIDUAL HOMEOWNER TO QUALIFY FOR LOANS OR GRANTS FOR ALL TYPES OF WASTEWATER TREATMENT OPTIONS.

DIRECTIONS:

(1) Circle total number of persons living in this household. Count both non-wage earners and those employed.

(2) Locate the income across from the number of persons you circled. Ask the resident if the total income for the household is above or below that number and check the appropriate box.

Is the total income for the number of persons in your household below or above the amount adjacent to the number of people you circled? *Check one box.*

Circle # of People	BELOW	Total Household Income	ABOVE
1	[]	\$15,900	[]
2	[]	\$31,900	[]
3	[]	\$35,900	[]
4	[]	\$39,900	[]
6	[]	\$46,300	[]
8 +	[]	\$52,650	[]

IS THE HEAD OF THE HOUSEHOLD MALE _____ FEMALE _____ RACE _____

Are any residents: 62 or older [] Limited in mobility []

BUSINESS SURVEY

Community - (Circle)

Catlett

Calverton

Midland

Surveyor's name _____ Date: _____

A. GENERAL INFORMATION

1. Address of the business: _____

2. 911# _____

3. Name of person answering this questionnaire: _____

4. How long has your business been located in Catlett, Calverton or Midland? _____ years

5. Do you own your building (space) or lease it? [] own [] lease/rent

6. What is your total water usage? _____ gallons per (circle one) day month year

7. What is the percentage of wastewater generated from processes (make-up, rinse or other) _____ versus the percentage from human usage (employees and customers) _____ during a typical year?

8. Are you limited in your ability to expand your operation, (i.e. add square footage to your building, hire more employees, change processes, or acquire new equipment) because of any of the following:

_____ the increased wastewater could not be accommodated by your existing system.

_____ site does not contain an area of suitable soils large enough for adding new drainfield

_____ cost of system upgrade is prohibitively high

9. Would any of the conditions you've noted above cause you to relocate your business outside the area in the next 5 years or so?

[] Yes [] No

10. Are you planning any new commercial or industrial activities that you will locate outside the area because on-site disposal of wastewater is not a feasible option?

[] Yes [] No

11. What are the wastewater treatment requirements (gallons per day and special treatment considerations) of that future activity?

_____ gallons per day Special treatment needs: _____

12. Have you been denied a permit for any modification to your property, or decided not to apply for a permit for a modification because you were advised that your sewage disposal system was inadequate, or that your site was unsuitable for expanding or repairing your septic system.

[] Yes [] No

13. Have you been unable to sell, rent or transfer property (land and/or residential or commercial buildings) in Catlett, Calverton or Midland because an existing septic system did not operate properly, or because soils were unsuitable for installation of any type of septic system and you could not get a valid disposal system certification from the Health Department?

Yes No

14. Do you have to go out of the area to obtain services or supplies because the kinds of businesses or service industries you require aren't located here? Yes No

a. If yes, do you believe their absence is due to the difficulty of maintaining a properly functioning septic system in this area, or obtaining a site which could be permitted for a septic system?

Yes No

b. Could you give an example or two of the types of businesses you feel are absent due to lack of adequate wastewater treatment options?

(Example: hardware store, gas station, car wash, or restaurant)

15. Have you experienced any other type of economic hardship or inconvenience that you feel is a result of conditions limiting the effectiveness and availability of septic systems for sewage treatment in your community?

Yes No

If yes, please describe the situation _____

16. Have you been bothered by odors or ponding water from septic systems other than your own?

Yes No

17. What is the best way to characterize the economic impact of your business on this community?

(example: \$\$\$ of county or other taxes paid last year)

18. Usual number of of full-time equivalent employees _____ number of part-time employees _____

Is this the number here:

Year round

Summer only

Other portion of a year _____ (months)

B. SEWAGE DISPOSAL SYSTEM INFORMATION

1. Check type of system:

- Conventional septic tank and drainfield (uses gravity flow instead of pumps)
- Septic tank, pump, and drainfield
- Low pressure distribution system
- Holding tank (_____ gallons)
- Other _____

2. Is there a separate greywater treatment system for process or wash water? Yes No
(Greywater is any non-toilet wastewater)

a. If yes, list fixtures connected to this separate system: _____

b. Where outside is the greywater discharged (location of pipe)? _____

IF THERE IS A SEPTIC TANK, please answer the following:

3. What is the size of the septic tank? _____ (gallons)

Tank depth (inches below ground) _____

Tank material: Concrete Unknown Metal Plastic

a. Age of existing tank & drainfield: _____ & _____ years unknown

b. System Maintenance:

Date last pumped: _____ Before that, how many years ago? _____

Name of company: _____

Comments of pumper _____

Date last inspected, but not pumped: _____

Who did the inspection? (Company or Health Dept.) _____

Were there any problems discovered at that time? Yes No

Describe problems: _____

Did that inspection reveal any evidence of damage to:

- tank
- distribution box
- drainfield pipe

System Repairs:

a. Has drainfield been repaired or replaced since your business has occupied this building?

Yes No How long ago? _____

b. What was the nature of the repair? _____

c. Do you know the apparent cause of failure? _____

(for example, tree roots, excessive water use, damaged drain tiles)

d. Has the system functioned well since the repair was made? Yes No

Comments: _____

C. PROBLEMS WITH EXISTING SEPTIC SYSTEM

1. Check any problems you have had in the past 12 months

- Slow draining or sluggish toilets or drains
- Toilet won't flush
- Sewage or plumbing back-ups into the building (drains or toilets)
- Foul sewage odors inside or outside the building
- Lush, green growth over the drainfield
- Low spots beginning to appear in lawn or other areas
- Ground mushy or soggy underfoot
- Sewage surfacing over the drainfield

2. If the problems are more noticeable in a particular season (or seasons), please check which ones:

spring summer fall winter

3. Do you believe that these problems are related to any of the following conditions:

- Extended period(s) of heavy rainfall
- Higher than normal water use (from seasonal fluctuations in business)
- Possible leak from toilet valve or dripping faucet
- Drain cleaning chemicals (or other chemicals disposed of in the sink or toilet)
- Objects causing blockage (tools, rags, sanitary products)
- Tree roots growing through the drainfield or tank
- Other: _____

4. Do you have any problems with separate greywater disposal?

- Ponding
- Odors
- Other _____

5. Have you taken any of the following water conservation measures to reduce or avoid problems?
(CHECK ALL THAT APPLY)

- Installed low flow fixtures, including toilet water savers
- Spread production throughout the week
- Abandoned a process or reduced a service because water usage couldn't be reduced sufficiently
- Other _____

D. SOURCE OF DRINKING WATER

1. Source of Drinking water:

- Private well
- Community well
- City or town water
- Bottled

IF SOURCE IS A PRIVATE WELL, PLEASE ANSWER THE FOLLOWING:

2. Depth of well _____ (feet) Year constructed _____
3. Name of company which drilled the well: _____
4. Have you had your well water tested for bacteria recently? Yes No
Was there any bacterial contamination? Yes No
Any other findings? _____
5. Is the water filtered? Yes No Is the filter located at the tap? Yes No
6. Have you or any of your employees experienced any gastrointestinal or other illnesses in the past year or so that you believe were related to drinking water from your well?
 Yes No
a. What time of year did this occur? _____

INTERVIEWER: Note any circumstances of the illness if the information is volunteered

Interviewer tests water for nitrate if the owner of the business desires

High levels should be confirmed by another test. Owner can call the Health Department for advice. For adults the MCL set by EPA is 10 mg/L. Levels may fluctuate and highest ones will generally occur during wet periods.

RECORD RESULTS OF NITRATE TEST: _____ mg/Liter

Ask if owner would like a soil scientist to examine soils on their property. This is the first step in a diagnostic process that can determine if septic system problems are correctable through modifications, repairs, or reduced water usage.

Initial here if interested in soil examination _____

E. ON GRID SHEET SHOW THE LOCATION OF THE SEPTIC TANK AND DRAINFIELD in relation to the building. Mark where the pipe exits the structure. Note location of well (if known), and any trees or visible tree roots close to the system

A large rectangular grid sheet with a solid border and a grid of dotted lines for plotting the septic tank and drainfield location. The grid consists of 10 vertical columns and 10 horizontal rows of dotted lines, creating a 9x9 grid of squares. The grid is intended for drawing the location of the septic tank and drainfield relative to a building.