



OFFICE OF  
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COUNTY**

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**Brandt Sewers Preliminary Design and Storm Sewer Sampling**

*Project Update: September 11, 2007*

Currently the Unincorporated Village of Brandt, located in Bethel Township, in Miami County, has no central sewer service. Approximately 250 residents and businesses (100 properties) in Brandt utilize on-site (Septic Systems) wastewater treatment that is regulated by the Miami County Health Department. Due to the age of most of the properties, most of the sewage systems were constructed prior to many of the modern rules for wastewater disposal that exist today and most of the systems do not meet current Health Department Requirements. Replacing the antiquated systems in most cases is not an option as most of the Village lot sizes are not large enough to allow for a modern on-site wastewater disposal system to be installed.

**The goal of the Miami County Sanitary Engineer's Department (MCSE) is to remedy the environmental hazard of the failed and inadequate on-site disposal systems by installing centralized sewer at the lowest possible cost.**

The Preliminary Study has been awarded to LJB, inc. a Civil Engineering Consulting Firm out of Dayton, OH. The results of the Study are expected by winter 2007-08, with Design scheduled to start by Spring of 2008.

Several sources of funding sources were researched by the MCSE department to install the sewer system at the lowest possible cost. Four years ago the Miami County Sanitary Engineer's Office obtained \$340,000 of grant and \$500,000 of 0% loan money from the Ohio Public Works Commission. Through preliminary work earlier this year by MCSE, it was determined that Brandt is also eligible for additional 0% loans from the OEPA and up to a \$600,000 grant from the Ohio Department of Development under a program titled the Community Development Block Grant for Water and Sewer. The two key qualifiers for both of these programs is economic need of the community and the environmental hazard that exists.

Earlier this year, Bethel Township completed an Income Survey of Brandt to demonstrate economic need. To demonstrate an environmental hazard, Miami County Sanitary Engineering, with the guidance of the OEPA and the Miami County Health Department, conducted three dry weather sampling events of the Community of Brandt's storm sewer. The water that was collected from the storm sewers was heavily contaminated with Fecal Colliform, E. Coli, Total Nitrogen, and BOD, which demonstrates the hazardous environmental condition created by untreated human waste bypassing the antiquated on-site wastewater systems and entering the Storm Sewers of Brandt.

# Brandt Storm Sewer Sampling Program Synopsis

## Methodology

A series of water samples were collected from three sites in Brandt, Bethel Township, Miami County, Ohio. The samples were collected between 7/9/2007 and 7/13/2007 by Miami County employees Bryce Carmichael, and Brian Ely. The samples were collected on three different days with no precipitation twenty four hours prior to any of the collections. Upon completion of the collections each day the samples were driven to Brookside Laboratories, Inc. in New Knoxville, Ohio for analysis. There were four different samples taken at each site on each sampling day, to be processed for different water contaminants. The samples were assigned a unique sample number and marked for a specific procedural analysis. One sample was tested for nitrate and total nitrogen. The second sample was tested for biochemical oxygen demand or BOD<sub>5</sub>. The third sample was tested for Fecal Coliform content. The fourth sample was tested for E. Coli content. All samples were collected from Brandt storm sewers and analyzed for the afore mentioned constituents. The first set of samples was collected on 7/9/07 between 9:04 and 9:28 A.M. The second set was collected on 7/10/07 between 9:04 and 9:25 A.M. The third set was collected on 7/13/07 between 8:51 and 9:06 A.M.

## Sampling Sites

Brandt sampling site number one is located in the northwest corner of the community park, north of Church Court. These samples were collected from a culvert flowing into the creek. Brandt sampling site number two is located in the alley running parallel to U.S. 40 between U.S. 40 and Walnut Street, and intersected by Third and Fourth Streets. These samples were collected from a storm sewer manhole located in the middle of the alley. Brandt sampling site number three is located on the south side of U.S. 40. These samples were collected from a culvert by the side of the road and flowing into a small creek that passes under U.S. 40. See Figure 1 for exact locations.

## Results

It is assumed that if the storm sewers tested positive for Fecal Colliform, E. Coli, elevated nitrogen, or BOD<sub>5</sub> that widespread septic system failure has occurred throughout the storm sewer service area. As the data in Table 1 indicates, all three sampling points in Brandt, on all three days tested positive for Fecal Colliform and E. Coli. Furthermore elevated total nitrogen and BOD<sub>5</sub> levels were present as well. These results indicate that a large percentage of the properties in Brandt are discharging raw untreated sewers into the community's storm sewers. This indicates widespread failure of the existing on-lot systems throughout Brandt.

## **Brandt Sampling Program- TABLE 1**

Site Number	Sample Number	Sample Date and Time	Procedure Name	Result
Brandt #1	B-1	7/9/07 9:04 AM	Nitrogen-Nitrate	0.19 mg/l
Brandt #1	B-1	7/9/07 9:04 AM	Nitrogen-Total	46.93 ppm
Brandt #1	A-1	7/9/07 9:04 AM	BOD	41.1 mg/l
Brandt #1	0-2	7/9/07 9:04 AM	Fecal Coliform	2419.6 MPN/100 ml
Brandt #1	M-3	7/9/07 9:04 AM	E. Coli	2419.6 MPN/100 ml
Brandt #2	B-2	7/9/07 9:18 AM	Nitrogen-Nitrate	0.15 mg/l
Brandt #2	B-2	7/9/07 9:18 AM	Nitrogen-Total	52.78 ppm
Brandt #2	A-2	7/9/07 9:18 AM	BOD	39.6 mg/l
Brandt #2	A-23	7/9/07 9:18 AM	Fecal Coliform	>2419.6 MPN/100 ml
Brandt #2	K-3	7/9/07 9:18 AM	E. Coli	2419.6 MPN/100 ml
Brandt #3	B-3	7/9/07 9:28 AM	Nitrogen-Nitrate	0.38 mg/l
Brandt #3	B-3	7/9/07 9:28 AM	Nitrogen-Total	7.75 ppm
Brandt #3	A-3	7/9/07 9:28 AM	BOD	11.52 mg/l
Brandt #3	Z-1	7/9/07 9:28 AM	Fecal Coliform	>2419.6 MPN/100 ml
Brandt #3	D-2	7/9/07 9:28 AM	E. Coli	>2419.6 MPN/100 ml
Brandt #1	C-1	7/10/07 9:05 AM	Nitrogen-Nitrate	7.99 mg/l
Brandt #1	C-1	7/10/07 9:05 AM	Nitrogen-Total	11.04 ppm
Brandt #1	D-1	7/10/07 9:05 AM	BOD	3.94 mg/l
Brandt #1	Y	7/10/07 9:04 AM	Fecal Coliform	1986.3 MPN/100 ml
Brandt #1	X-2	7/10/07 9:04 AM	E. Coli	1299.7 MPN/ 100 ml
Brandt #2	C-2	7/10/07 9:13 AM	Nitrogen-Nitrate	0.23 mg/l
Brandt #2	C-2	7/10/07 9:13 AM	Nitrogen-Total	5.67 ppm
Brandt #2	D-2	7/10/07 9:13 AM	BOD	7.59 mg/l
Brandt #2	T-2	7/10/07 9:12 AM	Fecal Coliform	>2419.6 MPN/100 ml
Brandt #2	X-1	7/10/07 9:12 AM	E. Coli	>2419.6 MPN/100 ml
Brandt #3	C-3	7/10/07 9:25 AM	Nitrogen-Nitrate	0.7 mg/l
Brandt #3	C-3	7/10/07 9:25 AM	Nitrogen-Total	17.56 ppm
Brandt #3	E-3	7/10/07 9:25 AM	BOD	14.13 mg/l
Brandt #3	M-2	7/10/07 9:24 AM	Fecal Coliform	>2419.6 MPN/100 ml
Brandt #3	D-3	7/10/07 9:24 AM	E. Coli	>2419.6 MPN/100 ml
Brandt #1	F-1	7/13/07 8:51 AM	Nitrogen-Nitrate	4.37 mg/l
Brandt #1	F-1	7/13/07 8:51 AM	Nitrogen-Total	5.74 ppm
Brandt #1	G-1	7/13/07 8:51 AM	BOD	5.52 mg/l
Brandt #1	I-2	7/13/07 8:50 AM	Fecal Coliform	>2419.6 MPN/100 ml
Brandt #1	J-3	7/13/07 8:50 AM	E. Coli	1203.3 MPN/ 100 ml
Brandt #2	F-2	7/13/07 8:59 AM	Nitrogen-Nitrate	1.94 mg/l
Brandt #2	F-2	7/13/07 8:59 AM	Nitrogen-Total	2.66 ppm
Brandt #2	G-2	7/13/07 8:59 AM	BOD	2.15 mg/l
Brandt #2	U-2	7/13/07 8:58 AM	Fecal Coliform	1046.2 MPN/100 ml
Brandt #2	W-2	7/13/07 8:58 AM	E. Coli	2419.6 MPN/100 ml
Brandt #3	F-3	7/13/07 9:07 AM	Nitrogen-Nitrate	0.87 mg/l
Brandt #3	F-3	7/13/07 9:07 AM	Nitrogen-Total	25.63 ppm
Brandt #3	G-3	7/13/07 9:07 AM	BOD	26.28 mg/l
Brandt #3	L-2	7/13/07 9:06 AM	Fecal Coliform	>2419.6 MPN/100 ml
Brandt #3	E-2	7/13/07 9:06 AM	E. Coli	1203.3 MPN/ 100 ml