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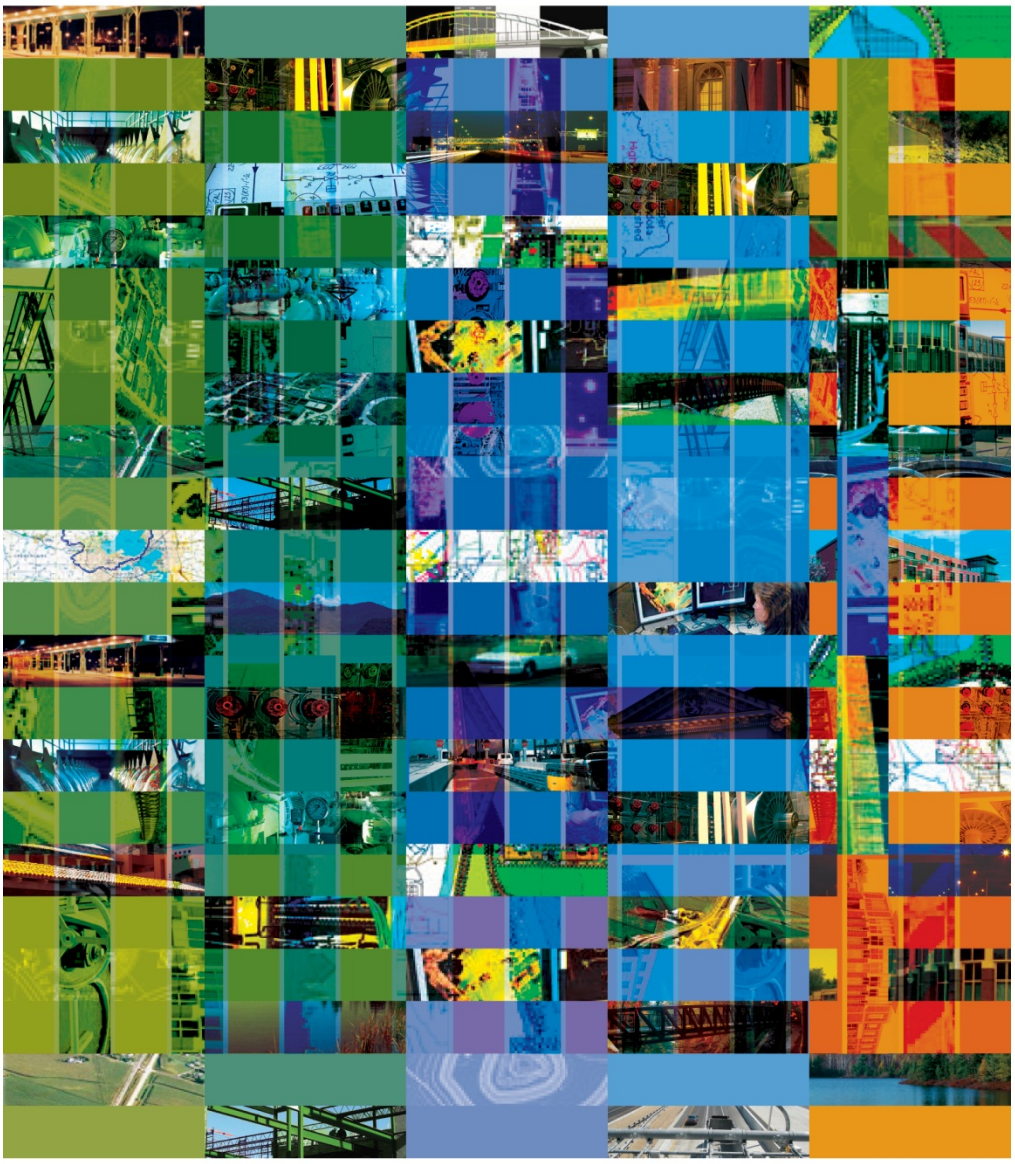
Sanitary Sewer Master Plan



Report

Town of Bargersville,

Indiana

February 2015

STRAND ASSOCIATES®

Report for

Town of Bargersville, Indiana

Sanitary Sewer Master Plan

Prepared by:

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February 2015

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SECTION 1
INTRODUCTION AND BACKGROUND

1.01 PROJECT

This project involves the development of a Sanitary Sewer Master Plan (SSMP) for the Town of Bargersville (Bargersville). The SSMP will focus on the prioritized needs of Bargersville's collection system, lift stations, and wastewater treatment plant (WWTP) capacity while accounting for the potential cost implications for future improvements. The SSMP will allow Bargersville to have a proactive approach to the key challenges and development facing them in the short-term (less than 5 years) and long-term (20 years). The SSMP will focus on the following items:

1. Complete system mapping and ultimate sizing of wastewater service area.
2. Establishment of flows and wasteloads from sewer system subbasins.
3. Establishment of the ultimate and existing capacities of the existing infrastructure.
4. Evaluate sizing and location of regional lift stations, force mains, and interceptor sewers.
5. Development of a concept for a new wastewater treatment plant near State Road (SR) 37/144 interchange.
6. Evaluating excessive inflow and infiltration issues in the Two Cent Road area.

1.02 GENERAL BACKGROUND

A. History

Bargersville was originally platted in 1850 and began to grow in 1908 when the Indianapolis Southern Railroad was constructed through Bargersville. This led to the construction of a new grain elevator and, in turn, the construction of new businesses. Through the 1950's Bargersville continued to grow; largely because of the rail system and an active agricultural business. The Bargersville area began to experience large increases in population between the mid 1990's and mid 2000's from development west of the downtown area and growth from the northern White River Township. Growth along SR 135 continued to prosper and was later annexed in 2010. Additional annexations over the last 10 years have more than tripled Bargersville's physical size.

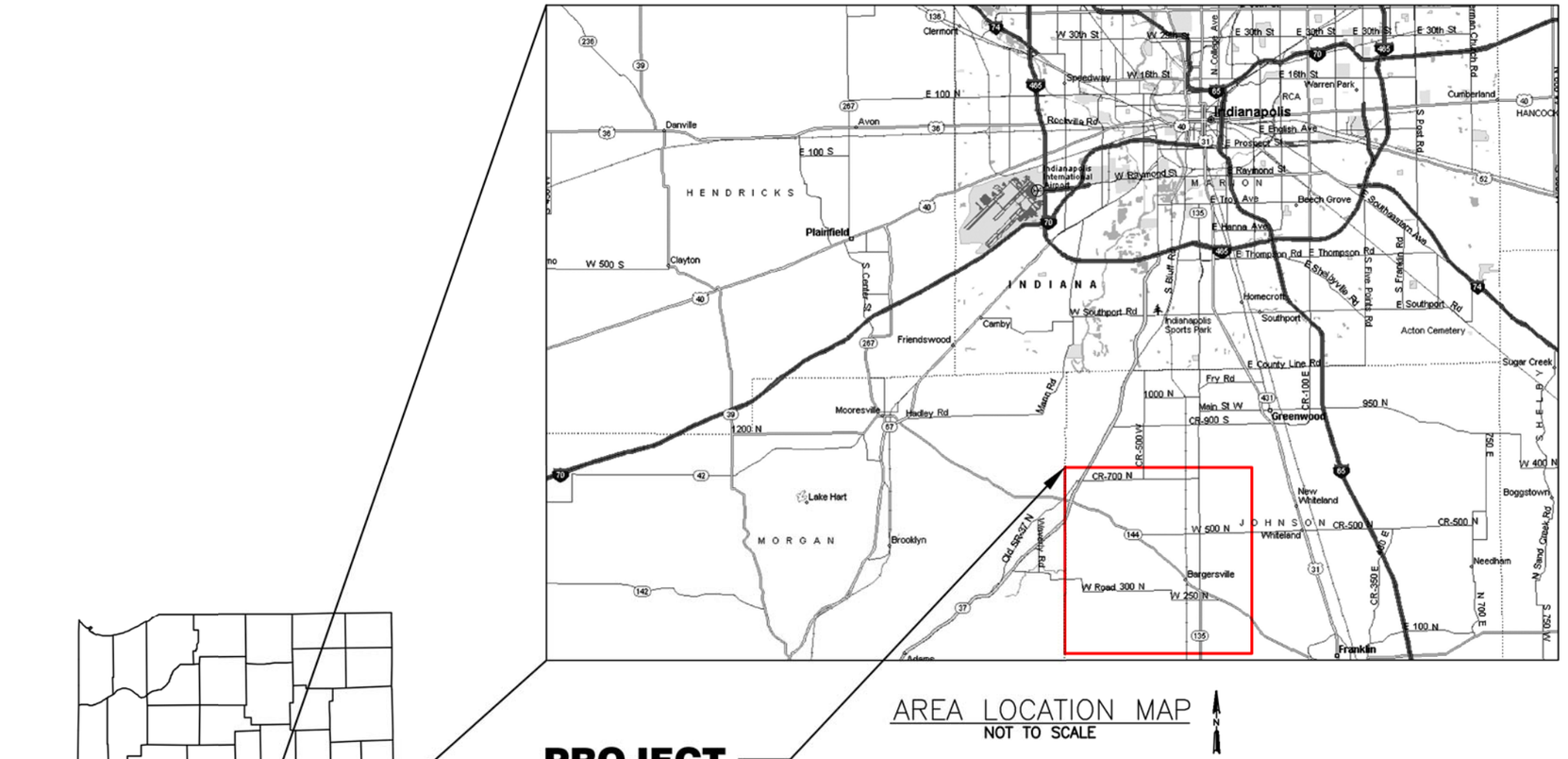
B. Geographical

Bargersville is located approximately 18 miles south of downtown Indianapolis in western Johnson County, Indiana. Bargersville covers an area of approximately 19 square miles and encompasses parts of both the White River and Union Townships. The downtown area is located just west of the major intersection of SR 135 and County Road (CR) 144. Bargersville's western boundary extends nearly to SR 37. A location map of Bargersville is shown in Figure 1.02-1.

The SR 37 corridor is currently slated to be converted to Interstate 69 (I-69) in the future. This project will be designed to connect Indianapolis to Evansville, Indiana; possibly creating significant growth opportunities in the western portion of Bargersville at the CR 144 and I-69 interchange.

C. Population

The historical population of Bargersville was obtained from STATS Indiana, an information service of the Indiana Business Research Center at Indiana University's Kelly School of Business. The



AREA LOCATION MAP
NOT TO SCALE

PROJECT AREA

BARGERSVILLE, IN

AREA LOCATION MAP

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE
JOHNSON COUNTY, INDIANA

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FIGURE 1.02-1
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average annual growth in Bargersville from 2010 to 2013, has been 3.0 percent. Assuming growth at a constant rate of 3 percent, this will would equate to a population increase of approximately 4,830 people over the next 20 years. It should be noted that estimating future growth is difficult to accomplish; however, when necessary for the remainder of this report, the 3 percent growth rate will be assumed. The recommendations provided and assumptions made in this report are valid regardless of the future growth rate. The historical population data for Bargersville is shown in Table 1.02-1.

Year	Bargersville Population	Annual Percent Change
1970	873	
1980	1647	88.7%
1990	1681	2.1%
2000	2120	26.1%
2010	5864	176.6%*
2011	6110	4.2%
2012	6226	1.9%
2013	6409	2.9%

*Largely due to annexations

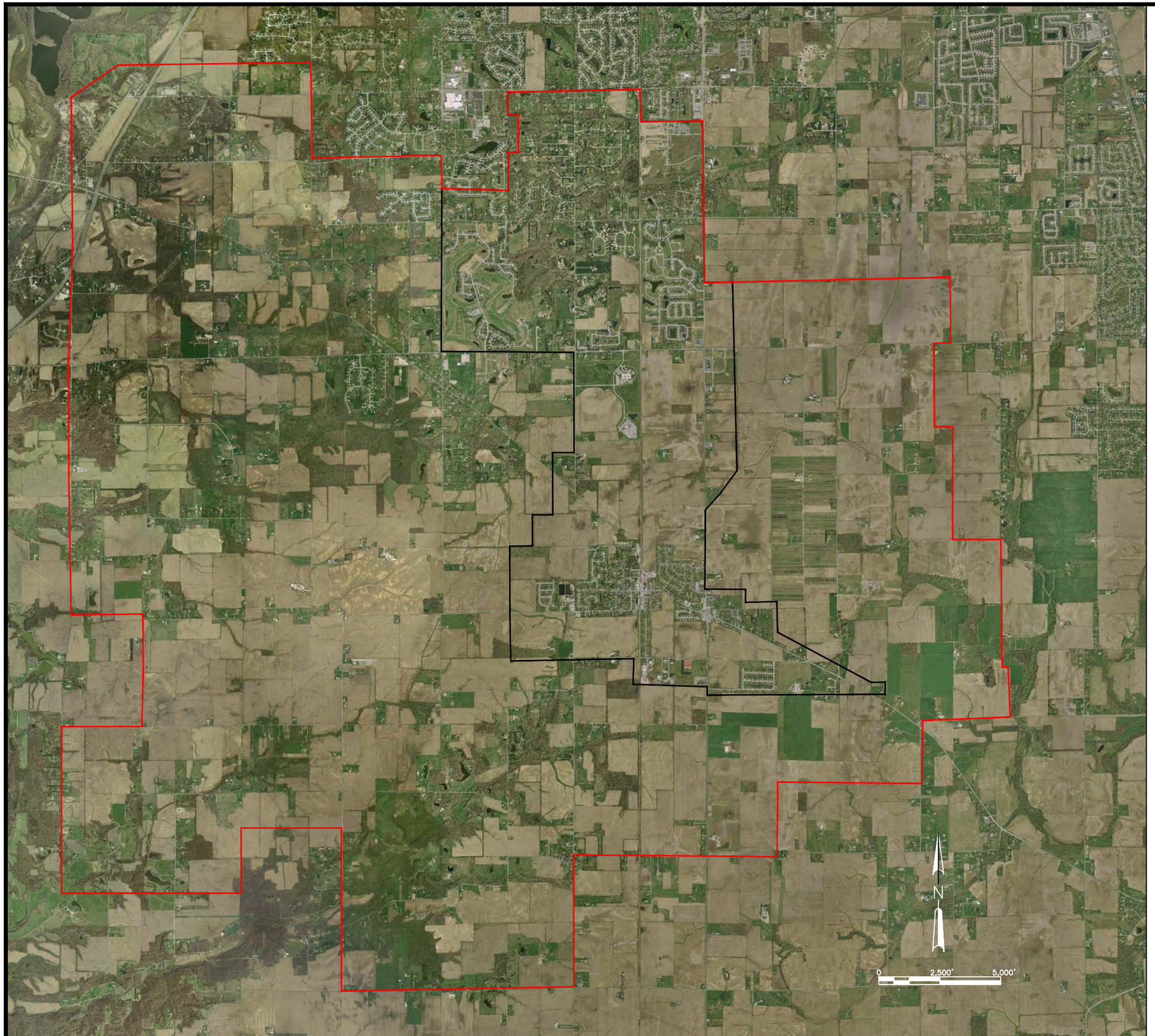
Table 1.02-1 Historical Bargersville Population

1.03 EXISTING SERVICE AREA

Recent annexations have resulted in Bargersville's town limits growing much faster than the wastewater service area. Currently, wastewater is collected and conveyed throughout the service area by a combination of gravity sewers and 15 lift stations. The service area has approximately 1,996 customers and encompasses 3,880 acres. The existing service area and Bargersville's town limits are shown in Figure 1.03-1.

1.04 ULTIMATE STUDY AND SERVICE AREA

The ultimate study and future sanitary sewer service area for Bargersville extends past the current corporate limits established in the Comprehensive Plan. According to the Comprehensive Plan, the Town anticipates significant growth and development to occur along the SR 135 corridor north of SR 144. It is also expected that the future I-69 construction could create significant growth opportunities in the western portions of Bargersville as well. Figure 1.03-1 includes the ultimate future service area for Bargersville.



EXISTING SERVICE AREA

ULTIMATE SERVICE AREA

EXISTING AND PROPOSED SANITARY SEWER SERVICE AREAS

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY, INDIANA

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FIGURE 1.03-1
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1.05 ABBREVIATIONS AND DEFINITIONS

Bargersville	Town of Bargersville
$CBOD_5$	five-day carbonaceous biochemical oxygen demand
CR	County Road
GIS	Geographic Information Systems
gpd	gallons per day
I-69	Interstate 69
mgd	million gallons per day
mg/L	milligrams per liter
NPDES	National Pollutant Discharge Elimination System
OPCC	opinion of probable construction cost
PE	population equivalent
SSMP	Sanitary Sewer Master Plan
TDH	Total Dynamic Head
USGS	United States Geological Survey
UV	ultraviolet
WWTP	wastewater treatment plant

SECTION 2
EXISTING SYSTEM

2.01 CURRENT SYSTEM

Bargersville operates and maintains collection and conveyance facilities that the serve the residential, commercial, and industrial users in the downtown area and along the SR 135 corridor in Bargersville. Wastewater is collected throughout the service area by a combination of gravity sewers and 15 lift stations and associated force mains. The existing WWTP consists of flow equalization lagoons, an influent fine screen, grit removal, two sequencing batch reactors (with mechanical aerators similar to isolation oxidation ditches), and ultraviolet (UV) disinfection. Sludge can be stored in the existing on-site lagoons (converted Biolac System lagoons) when they are not needed for treatment purposes, then dewaterd with a belt filter press and disposed of in a landfill. The WWTP has the capacity to treat an average daily flow of 1.5 million gallons per day (mgd).

2.02 SEWER SYSTEM

A. Collection System Details

Bargersville's existing collection system, shown in Figure 2.02-1, consists of approximately 24 miles of gravity sewer with 15 lift stations and associated force mains. The data presented in Figure 2.02-1 is based on information from Bargersville's GIS data set. Although the land area surrounding Bargersville is principally used for agricultural purposes, the existing collection system service area (approximately 4,900 acres) is largely residential.

B. Age, Length, Materials, and Size of Sewers

The existing collection system in Bargersville is a combination of older gravity sewers that serve the downtown area and surrounding neighborhoods and a new gravity system that serves the newer development to the north. The sewer sizes in the Bargersville collection system range from 4 to 12 inches. Table 2.02-1 outlines the approximate size and length of the pipes that make up Bargersville's sanitary sewer system. An overall system map including sanitary sewers, force mains, and lift stations is shown in Figure 2.02-1.

Pipe Diameter (inch)	Total Length (ft)
N/A	199,985
4	5,011
6	13,489
8	91,875
10	7,470
12	6,267

Table 2.02-1 Sanitary Sewer Pipes

Path: S:\COL\4000--4099\4005\050\Data\GIS\Figures\Figure 2.02-1 Sanitary Sewer 11x17.mxd

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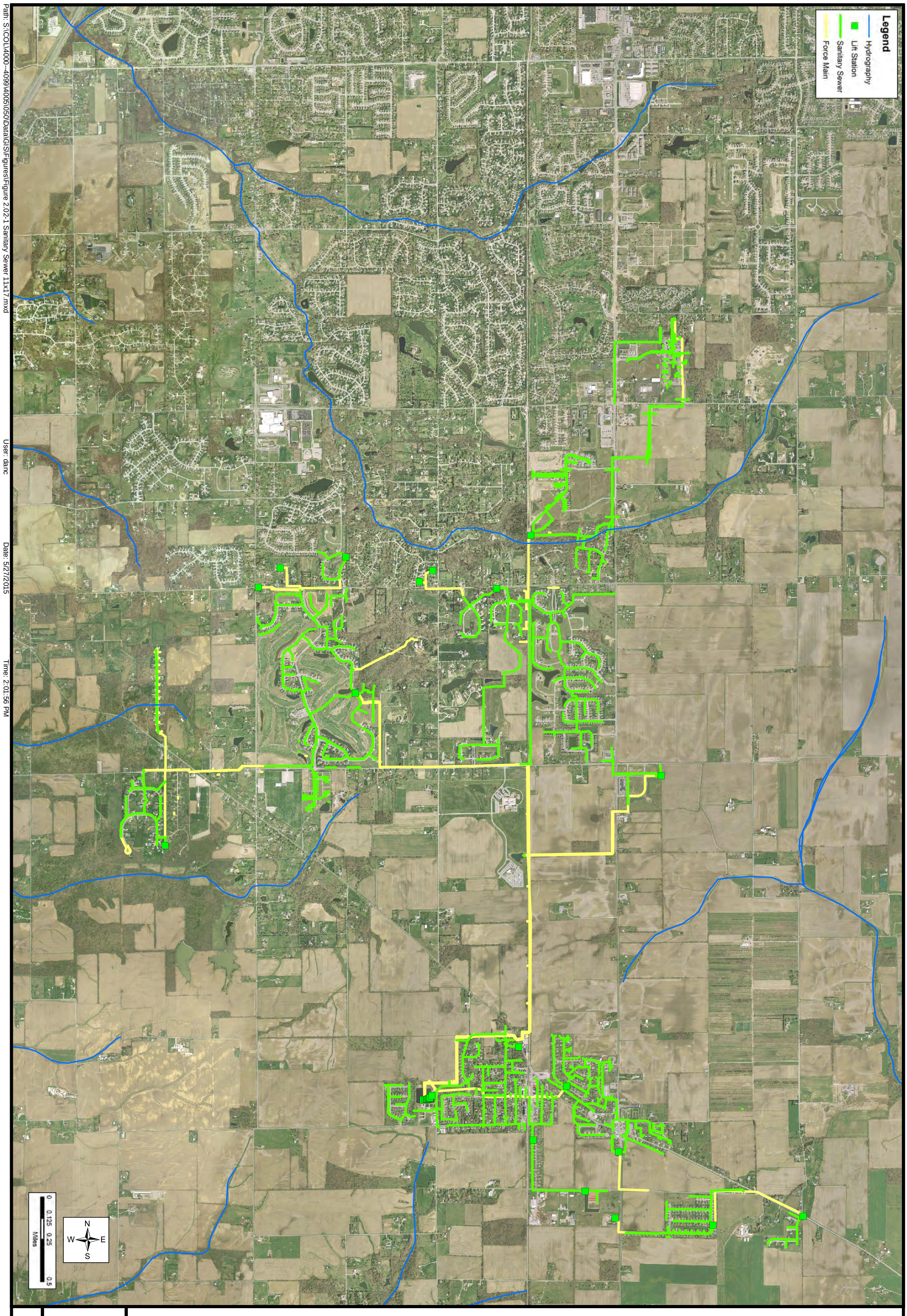

EXISTING SANITARY SEWER SYSTEM

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE
JOHNSON COUNTY, INDIANA

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FIGURE 2.02-1
4005.050

C. Lift Stations

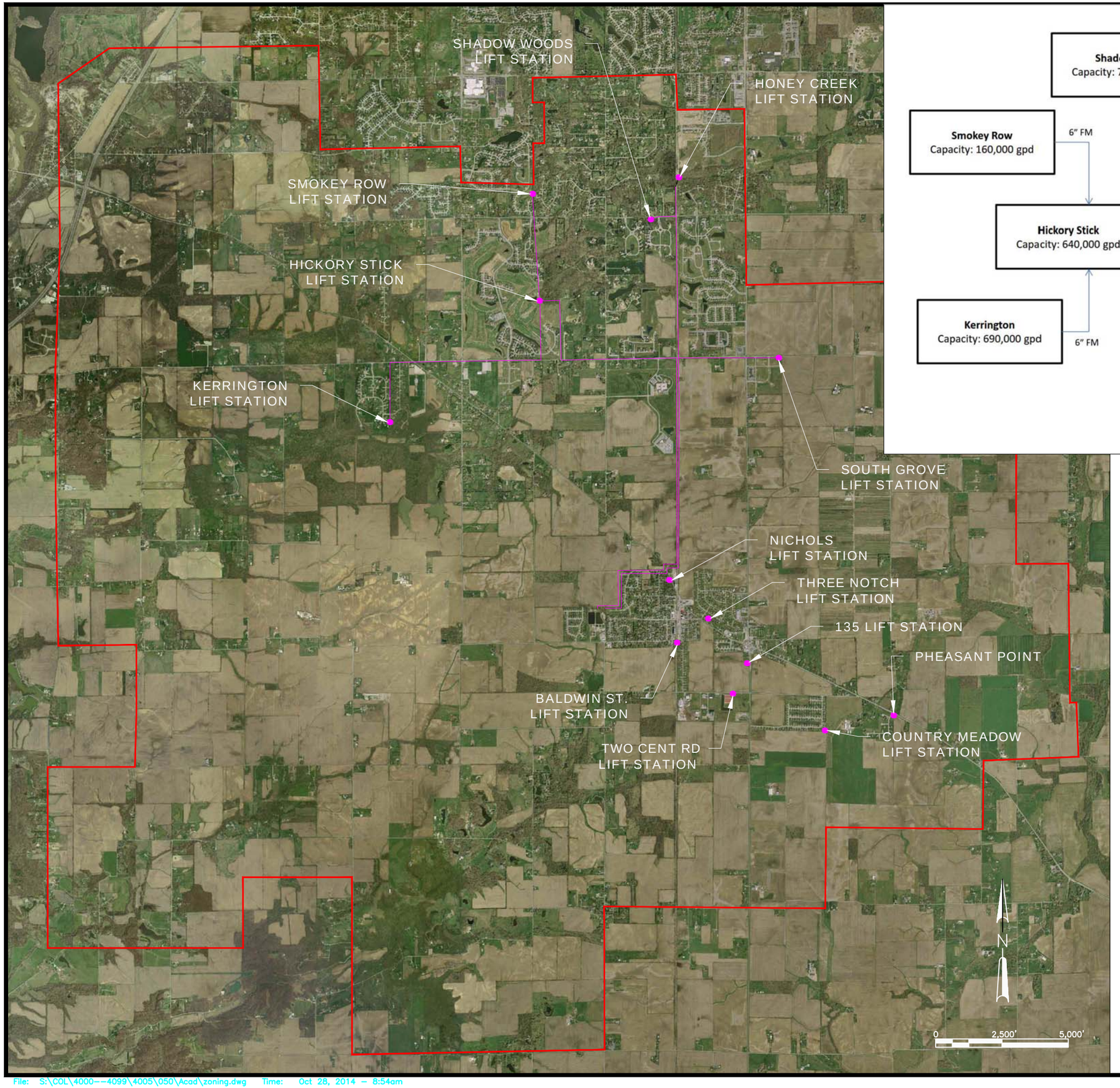
Bargersville currently operates 15 lift stations throughout the collection system. The location and design capacity of each lift station is listed in Table 2.02-2. An aerial photo showing the location of each lift station is shown in Figure 2.02-2. A schematic outlining Bargersville's lift station and force main network is shown in Figure 2.02-3.

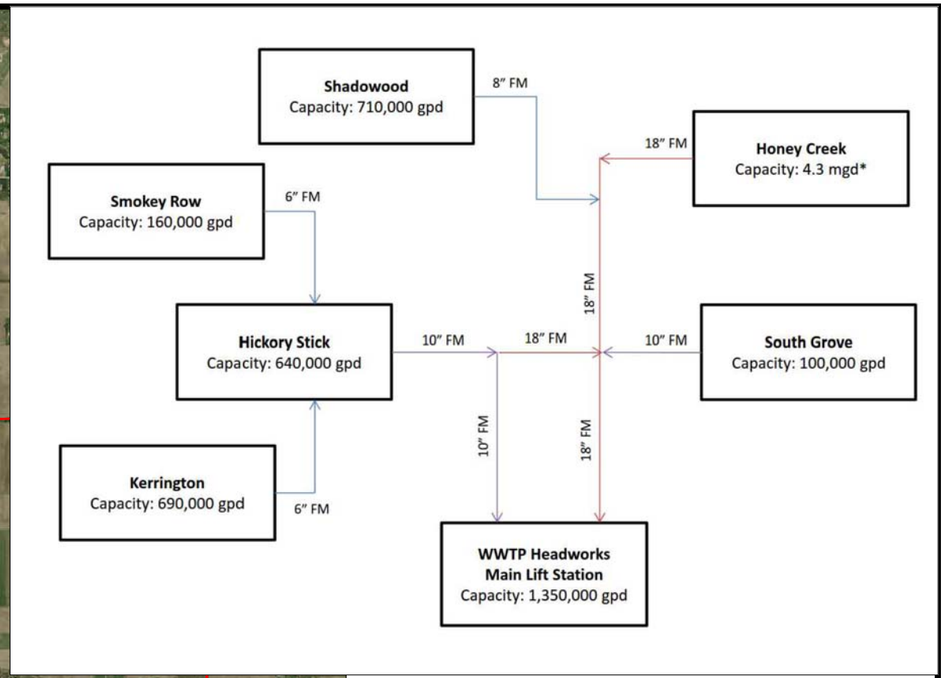
Lift Station Name	Location	No. of Pumps	Firm Capacity (gpm)
135 Lift Station	310 S. SR 135 Bargersville, IN	2	136
Country Meadow	763 Clydesdale Lane, Bargersville, IN	2	130
Demaree Road	2451 Sanbornite Lane, Greenwood, IN	2	551
Two Cent Road	E. Two Cent Road, Bargersville, IN	2	282
Hickory Stick	4300 Hickory Ridge Boulevard, Bargersville, IN	2	441
Honey Creek	Clary Crossing, Greenwood, IN	3	2,986
Kerrington	26 Almar Court, Bargersville, IN	2	478
Main Lift	599 Old South Street, Bargersville, IN	3	936
Nichols	49 North Street, Bargersville, IN	1	144
Baldwin Road	258 S.Baldwin Street, Bargersville, IN	2	336
Shadow Woods	3643 W. CR 600 N., Greenwood, IN	2	490
Smokey Row	3565 Lindsey Circle, Greenwood, IN	2	112
South Grove	2750 Fulmer Drive, Bargersville, IN	2	70
Three Notch	55 N Wagon Road, Bargersville, IN	2	300
Pheasant Point	403 E. Two Cent Road, Bargersville, IN	2	310

Table 2.02-2 Existing Lift Stations

Influent flows to the WWTP currently converge to one of three influent pipes: a 10-inch force main, 18-inch force main, or at the WWTP main lift station via a 12-inch gravity sewer. Several of the pumps in the northern portion of the WWTP basin are connected to the same force main or discharge to the gravity sewer upstream of another lift station. A schematic of the existing lift station and force main configuration is included in Figure 2.02-3. It should be noted that the Hickory Stick Lift Station has the ability to discharge directly to the 18-inch force main to help reduce the hydraulic retention time in the force main and lower the risk for odor issues. The Hickory Stick Lift Station is currently valved to pump to both the 10-inch and 18-inch force main.

The existing 10-inch and 18-inch force mains have the capacity to convey a combined flow of approximately 9.75 mgd of flow to the WWTP. However, because of the force main length obtaining this pumping capacity could require lift station and pump upgrades.





EXISTING FORCE MAINS

FUTURE SERVICE AREA

EXISTING LIFT STATIONS

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

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FIGURE 2.02-2
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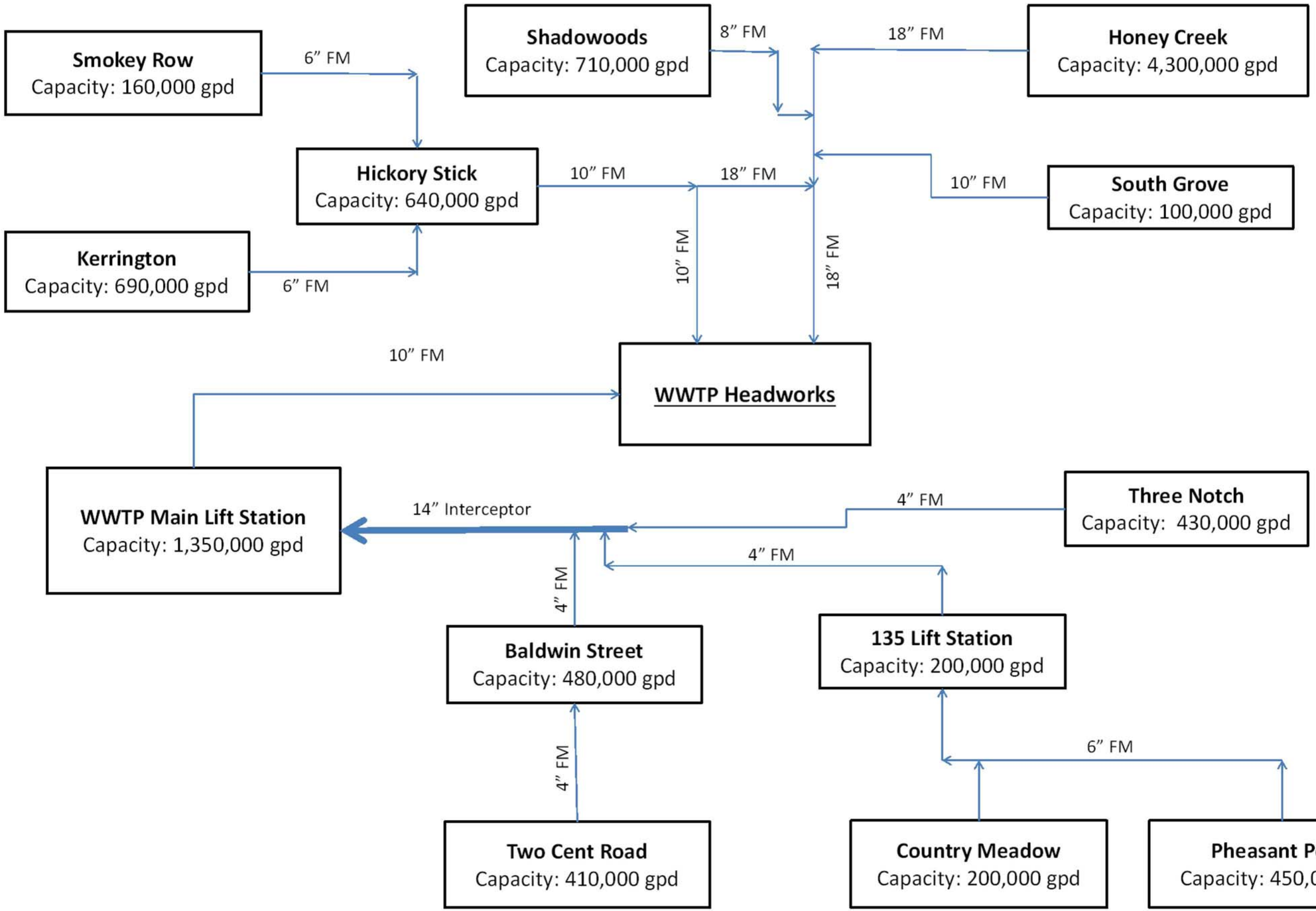

EXISTING LIFT STATIONS SCHEMATIC

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

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FIGURE 2.02-3
4005.050

2.03 WWTP FLOWS AND LOADINGS

Bargersville currently operates a Class III WWTP. which is rated for a design average flow of 1.5 mgd. Table 2.03-1 is a summary of the influent flows and loadings treated by the WWTP from September 2013 to September 2014. The WWTP discharge is governed by National Pollutant Discharge Elimination System (NPDES) Permit No. IN0022314 and effluent limits are shown in Table 2.03-2. The WWTP performance currently meets the effluent requirements. A copy of the existing NPDES Permit is included in Appendix A.

	Flow (mgd)		$CBOD_5$ (lb/day)		Suspended Solids (lb/day)		Ammonia (mg/L)	
Month	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
September 2013	0.446	0.582	796	1022	920	1603	35.45	45.00
October 2013	0.515	1.060	877	2,280	845	1,326	30.60	42.80
November 2013	0.553	0.945	759	1,003	901	1,387	29.39	37.00
December 2013	0.740	3.170	820	1,241	884	1,234	28.49	40.10
January 2014	0.737	1.760	809	1,243	917	1,479	25.56	33.80
February 2014	0.725	1.803	872	1,617	850	1,463	24.27	34.40
March 2014	0.732	1.120	838	1,772	934	1,807	23.23	32.50
April 2014	0.896	3.180	1,031	2,720	864	1,488	20.78	29.20
May 2014	0.685	1.170	799	1,159	925	1,426	26.15	33.90
June 2014	0.729	1.650	831	1,738	965	1,526	22.94	32.50
July 2014	0.566	0.790	868	1,430	858	1,376	31.18	38.40
August 2014	0.560	0.620	815	1,311	886	1,371	29.20	38.50
September 2014	0.659	0.836	757	2,053	875	1,311	30.99	48.00
Average	0.657	1.437	836	1584	894	1446	27.56	37.39

Table 2.03-1 Flow and Loading Summary September 2013 to September 2014

Parameter	Monthly Average	Weekly Average	Daily Minimum	Daily Maximum	Units
Flow	Report	Report			mgd
CBOD5					
Summer	25	40			mg/L
Winter	30	45			mg/L
TSS	30	45			mg/L
Ammonia-Nitrogen					
Summer	1.26	1.89			mg/L
Winter	1.82	2.73			mg/L
pH			6.0	9.0	Standard Units
Dissolved Oxygen					
Summer			6.0		mg/L
Winter			5.0		mg/L
E. coli	125			235	Colonies/ 100 mL

Table 2.03-2 NPDES Permit No. IN0022314 Parameters

SECTION 3
FUTURE SERVICE AREA

3.01 FUTURE LAND USE

Bargersville's Comprehensive Plan outlines and describes the future land use map. The future land use designations are intended to be used as a conceptual guide to land development. The proposed ultimate land use designations for Bargersville are shown in Figure 3.01-1. These land use designations will be used to develop estimates for sanitary flows and loadings that could accompany future development in Bargersville.

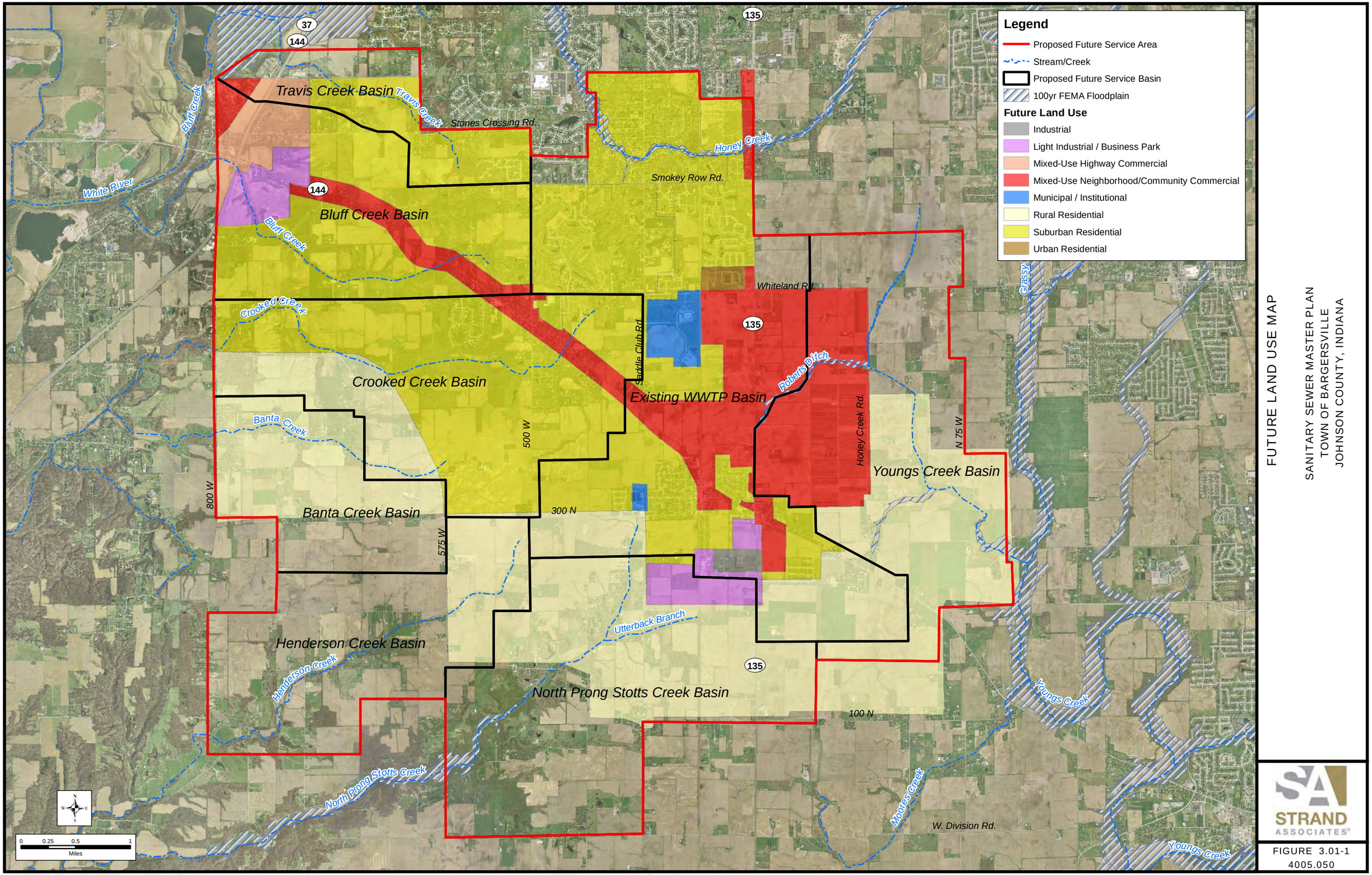
3.02 SEWER BASIN DELINEATION

The proposed future service area for Bargersville can be delineated into eight sewer service basins. These drainage basins were divided based on topographic contours from United States Geological Survey (USGS) and Geographic Information Systems (GIS) elevation data sets. Dividing the proposed service area into separate drainage basins will aid in the design of future infrastructure by highlighting the natural flow patterns within the service area. The eight drainage basins are shown in Figure 3.02-1 and further described in Table 3.02-1. The drainage basin name was based on the name of the creek that drains each basin.

Drainage Basin	Land Area (acres [ac])
Travis Creek Basin	1,005
Bluff Creek Basin	2,775
Crooked Creek Basin	3,535
Banta Creek Basin	1,580
Henderson Creek Basin	2,475
North Prong Stotts Creek Basin	2,745
Youngs Creek Basin	3,600
Existing WWTP Basin	5,930
Total Acreage	23,645

Table 3.02-1 Bargersville Sewer Basins

Each of these basins can be further delineated based on the land use types listed in Bargersville's comprehensive plan. The approximate acreage of each land use, within the eight sewer service basins, is outlined in Table 3.02-2.



FUTURE LAND USE MAP

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE
JOHNSON COUNTY, INDIANA

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FIGURE 3.01-1
4005.050

Path: S:\COL\4000--4099\4005\050\Data\GIS\Figures\Figure 3.01-1 Future Land Use 11x17.mxd User: danc Date: 10/28/2014 Time: 1:53:34 PM

BASIN	ESTIMATED ACREAGE	ESTIMATED ULTIMATE AVG. FLOW (MGD)	ESTIMATED ULIMATE PEAK FLOW (MGD)
Travis Creek Basin	1,005	0.38	1.4
Bluff Creek Basin	2,775	1.72	4.89
Crooked Creek Basin	3,535	1.29	4.33
Banta Creek Basin	1,580	0.3	1.1
Henderson Creek Basin	2,475	0.46	1.66
North Prong Stotts Creek Basin	2,745	0.9	2.87
Youngs Creek Basin	3,600	1.69	4.64
Existing WWTP Basin	5,930	3.59	9.17
Total	23,645	10.3	30.1

Travis Creek Basin

Bluff Creek Basin

Youngs Creek Basin

Existing WWTP Basin

Crooked Creek Basin

Banta Creek Basin

Henderson Creek Basin

North Prong Stotts Creek Basin

N

0 2,500' 5,000'

PROPOSED SANITARY SEWER BASINS

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY, INDIANA

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FIGURE 3.02-1
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Land Use Type	Travis Creek	Bluff Creek	Crooked Creek	Banta Creek	Henderson Creek	North Prong Stotts Creek	Youngs Creek	Existing WWTP
Rural Residential (ac)	260		695	1,580	2,475	2,555	2,590	
Suburban Residential (ac)	645	1,805	2,615					4,230
Urban Residential (ac)								55
Mixed-Use Highway Commercial (ac)	75	280	225					
Mixed-Use Neighborhood/Community Commercial (ac)	25	445					1,010	1,065
Light Industrial/Business Park (ac)		245				190		370
Municipal/Institutional (ac)								210
Total	1,005	2,775	3,535	1,580	2,475	2,745	3,600	5,930

Table 3.02-2 Sewer Basin Land Use Summary

3.03 SEWER BASIN FLOWS AND LOADINGS

A. Proposed Future Flows

The future flows were based on the land use delineations, highlighted in Figure 3.01-1, from Bargersville's Comprehensive Plan. These flows were estimated on a gallon-per-day-per-acre basis. To prioritize the location and needs of future infrastructure, the anticipated flows were categorized based on drainage basin. Demographic data from the Comprehensive Plan projected that the average household size in the year 2017 will be 2.74 people per household. Therefore, an estimation of 2.75 people per household and 85 gallons per day (gpd) per person was used to calculate future flows from residential type units. Table 3.03-1 outlines the flow approximations in gallons per acre for each land use type shown in Figure 3.01-1.

Land Use	Density (unit/ac)	Flow (gal/ac)
Agricultural/Rural Residential	1	234
Suburban Residential	2	468
Urban Residential	3	702
Mixed-Use Highway Commercial		1,000
Mixed-Use Neighborhood/Community Commercial		1,500
Light Industrial/Business Park		1,500
Industrial		2,500
Municipal/Institutional		1,500

Table 3.03-1 Future Flow Approximations

Based on the acreage of each future land use type (Table 3.02-2) and the associated flows listed in Table 3.03-1, the estimated ultimate average and peak flows for each sewer basin are outlined in Table 3.03-2. The estimated flows shown in Table 3.03-2 assume a 20 percent green space factor to account for roads, parking lots, and green space that could accompany development. The proposed future peak flow estimates were calculated using the peaking factor equation set forth in Ten State Standards.

Sewer Basin	Estimated Average Flow (mgd)	Estimated Peaking Factor	Estimated Peak Flow (mgd)
Travis Creek	0.38	3.67	1.40
Bluff Creek	1.72	2.84	4.89
Crooked Creek	1.29	3.36	4.33
Banta Creek	0.30	3.73	1.10
Henderson Creek	0.46	3.59	1.66
North Prong Stotts Creek	0.90	3.20	2.87
Youngs Creek	1.69	2.74	4.64
Existing WWTP	3.59	2.56	9.17
Total Estimated Flow	10		30

Table 3.03-2 Estimated Ultimate Flows

B. Future Loadings

The proposed ultimate future loadings were calculated based on the estimated population equivalent (PE) for each basin. It is estimated that influent $CBOD_5$ and TSS loadings are 0.22 pounds per day (lb/day)/PE and 0.25 lb/day/PE, respectively, which is recommended in Ten States Standards for new development. Ammonia and phosphorus loading estimations were based on average flow concentrations of 25 milligrams per liter (mg/L) and 8 mg/L respectively. Table 3.03-3 shows a summary of the estimated ultimate loadings for each drainage basin.

Drainage Basin	Influent $CBOD_5$ Loading (lb/day)	Influent TSS Loadings (lb/day)	Influent Ammonia Loadings (lb/day)	Influent Phosphorus Loadings (lb/day)
Travis Creek Basin	336	382	80	26
Bluff Creek Basin	2,873	3,264	365	117
Crooked Creek Basin	818	929	272	87
Banta Creek Basin	278	316	60	20
Henderson Creek Basin	435	494	98	31
North Prong Stotts Creek Basin	1,223	1,389	189	61
Youngs Creek Basin	3,581	4,070	358	115
Existing WWTP Basin	5,490	6,240	760	245
Total Estimated Loadings	15,034	17,084	2,182	702

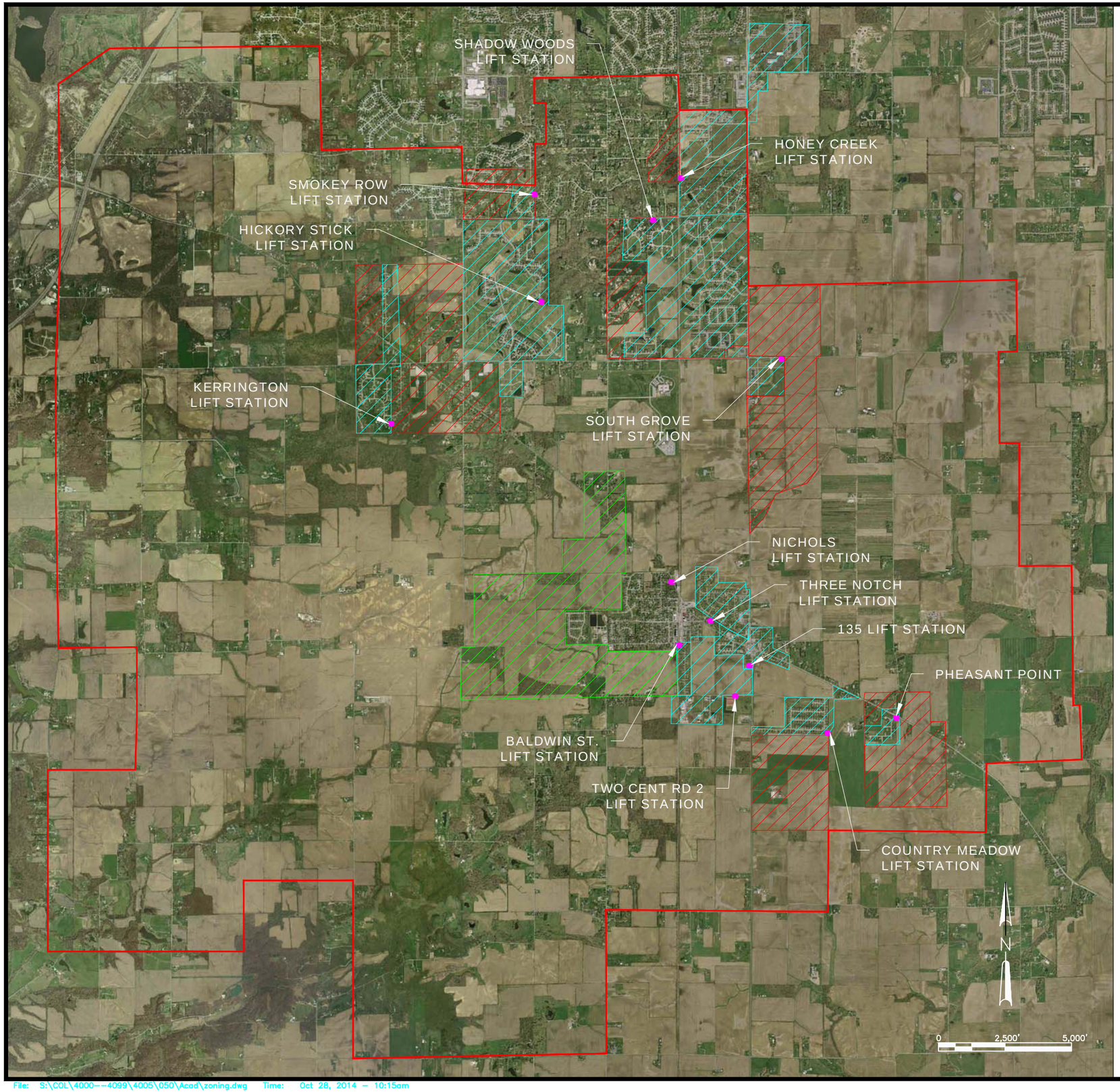
Table 3.03-3 Proposed Ultimate Loadings

3.04 ADDITIONAL CAPACITY REQUIREMENTS OF EXISTING LIFT STATIONS

The ultimate service area of Bargersville's existing lift stations was evaluated based on both the capacity of each lift station and the topographic service potential. The existing firm capacity of each lift station was previously described in Table 2.02-2 and the location of each lift station is shown in Figure 2.02-2.

The ultimate service area of each lift station, based topography, is shown in Figure 3.04-1. The areas highlighted in blue represent the existing service area and those in red represent the ultimate proposed service area.

Figure 3.04-1 shows the existing lift stations that have the potential to increase their existing service area. The proposed additional service area is based on the topography of the surrounding each of these lift stations. Additional infrastructure may be needed for these lift stations to serve the proposed ultimate service areas. The estimated ultimate peak flow for each of these lift stations can be calculated by combining the proposed acreage and future land use data shown in Figure 3.01-1. These estimated flows are presented in Table 3.04-1.



EXISTING LIFT STATION

FUTURE ULTIMATE SERVICE AREA

EXISTING LIFT STATION SERVICE AREA

ESTIMATED ULTIMATE LIFT STATION SERVICE AREA

PROPOSED FUTURE SERVICE AREA OF MAIN LIFT STATION

ESTIMATED EXISTING LIFT STATION EXPANSION POTENTIAL

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

STRAND ASSOCIATES®

FIGURE 3.04-1
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Lift Station	Estimated Existing Peak Flow (mgd)	Existing Firm Capacity (mgd)	Estimated Ultimate Peak Flow (mgd)	Estimated Future Capacity (mgd)
Smokey Row	0.017	0.16	0.11	0.055
Kerrington	0.042	0.69	0.62	0.074
Honey Creek	0.077	4.30	0.55	3.75
Shadow Woods	0.294	0.71	0.43	0.284
South Grove	0.008	0.10	1.45	-1.350
Main	0.698	1.35	1.50	-0.150
Country Meadows	0.082	0.19	0.21	-0.015
Pheasant Point	0.010	0.45	0.14	0.306

Table 3.04-1 Existing Lift Stations with Additional Future Service Area

The data in Table 3.04-1 indicates that upgrades to the South Grove, Main, and Country Meadows lift stations will be required to serve the proposed ultimate service area of each lift station. The future land use map indicates that the South Grove Lift Station will serve an area largely designated as mixed-use neighborhood/community commercial, the proposed service area for the Main Lift Station will be primarily suburban residential growth, and the proposed service area for the Country Meadows Lift Station will be mostly rural residential development.

Based on the data presented in Table 3.04-1, the Main and Country Meadows lift stations currently have the existing firm capacity to serve close to the estimated ultimate peak flow. Therefore, these lift stations should be monitored as development continues in the respective service areas.

Because of the topographic location and proximity to the golf course, growth within the Hickory Stick Lift Station's direct service area is anticipated to be minimal. However, there is the potential for growth in both the Kerrington and Smokey Row lift station service areas. Therefore, capacity upgrades may be required at Hickory Stick since each of these discharge upstream of the Hickory Stick Lift Station. Proposed upgrades to the existing lift stations will be discussed further in Section 4.

3.05 EXISTING WWTP FUTURE SERVICE AREA

The existing WWTP has an average daily flow design capacity of 1.5 mgd. Based on the data presented in Table 3.03-2, the estimated ultimate average daily flow will be 3.59 mgd. Therefore, additional WWTP capacity will be necessary to treat the existing service area. Further considerations of wastewater treatment options will be evaluated in Section 5.

SECTION 4
EVALUATION OF PROPOSED CONVEYANCE INFRASTRUCTURE

4.01 EXISTING LIFT STATIONS

It appears the existing South Grove, Main, Country Meadows, and Hickory Stick lift stations will need to be upgraded to serve the proposed ultimate service areas (Figure 3.04-1). The Hickory Stick Lift Station will need to be expanded because of increased capacity from lift stations tributary to it. The following serves as a narrative discussion regarding the recommendations for lift station expansion.

1. Hickory Stick

Currently, the Kerrington and Smokey Row lift stations discharge to the gravity sewer upstream of the Hickory Stick lift station. As previously described in Section 3, potential growth in these areas may impact the capacity requirements of the Hickory Stick Lift Station. Table 4.01-1 describes the existing and ultimate required capacity of the Hickory Stick Lift Station based on the proposed service areas of the Kerrington and Smokey Row lift stations.

Lift Station	Estimated Flow (mgd)
Existing Hickory Stick Lift station Firm Capacity	0.635
Existing Average Flow of Hickory Stick Service Area*	0.062
Kerrington Ultimate Average Flow**	0.221
Smokey Row Ultimate Average Flow	0.038
Total Average Flow	0.321
Population Equivalent	3,776
Peaking Factor	3.36
Ultimate Estimated Peak Flow (mgd)	**1.08**

*Limited growth potential due to golf course
**This flow could potentially discharge to Crooked Creek interceptor

Table 4.01-1 Hickory Stick Lift Station Ultimate Design Capacity

Table 4.01-1 shows that the ultimate peak flow capacity of the Hickory stick Lift Station will be an estimated 1.08 mgd. This estimate could potentially decrease if flow to the Kerrington Lift Station is conveyed to the proposed interceptor sewer in the Crooked Creek Basin. This alternative is further described in Section 4.02.

The future land use map indicates that growth in the Kerrington and Smokey Row lift stations service areas will mostly be suburban residential. It is estimated that the existing remaining capacity of the Hickory Stick Lift Station is 0.46 mgd. This equates to a PE of 1,950 or an estimated 710 homes. Therefore, if the Hickory Stick Lift Station continues to serve flow from the Kerrington and Smokey Row lift stations, upgrades will be required

once the combined influent flows from Kerrington and Smokey Row have exceeded 0.46 mgd of increased flow.

2. South Grove

The South Grove Lift Station currently has a small service area and limited connections. According to the Comprehensive Plan, growth in this area will be mixed use. The estimated existing remaining capacity of the lift station is approximately 0.09 mgd. This equates to a PE of approximately 350. Therefore, the South Grove Lift Station will need to be upgraded to meet the demands of growth in this area as development continues. The ultimate peak flow for the South Grove service area is estimated to be 1.45 mgd. This will require significant pump upgrades at the South Grove Lift Station. Since this lift discharges to the 18-inch force main, the pump requirements may be impacted by flows from the northern service area.

3. Country Meadows

The Country Meadows Lift Station currently serves approximately 130 residential households; equating to an estimated peak flow of 0.082 mgd. The existing firm capacity of the lift station is approximately 0.19 mgd and the ultimate estimated peak flow (Table 3.04-1) for the Country Meadows lift station service area is 0.21 mgd. Based on these estimations, the existing pumping station has 0.108 mgd of remaining capacity. This estimated capacity provides the potential to serve an additional PE of approximately 455, allowing for some residential growth within the service area. Since the existing firm capacity of the lift station is close to the ultimate potential of the service area, this station should be periodically monitored to determine whether upgrades appear to be necessary.

4. Main Lift Station

Currently, influent flows to the main lift station are via a 12-inch gravity sewer. This lift station serves the downtown and southern portions of Bargersville. Growth within the downtown area will be limited; however, there is the potential to serve an estimated additional 790 acres surrounding the existing WWTP with gravity sewer. According to the Comprehensive Plan, this area will be developed as suburban residential. Additionally, as shown in Figure 3.04-1, there is the potential for increased flow from the Country Meadow and Pheasant Point lift stations as well. Each of these lift stations discharge to the gravity sewer upstream of the Main Lift Station. Table 4.01-2 displays the ultimate estimated capacity of the Main Lift Station based on the potential development of 790 acres around the existing WWTP and growth in the County Meadow and Pheasant Point lift station service areas.

Lift Station	Estimated Flow (mgd)
Existing Main Lift Station Firm Capacity	1.35
Existing Average Flow to Main Lift Station	0.28
Potential Development of 790 acres	0.284
Country Meadow Lift Station*	0.073
Pheasant Point Lift Station*	0.052
135 Lift Station*	0.015
Baldwin Road Lift Station	0.025
Two Cent Road Lift Station*	0.021
Total Average Flow	0.750
Population Equivalent	8,827
Peaking Factor	4.48
Ultimate Estimated Peak Flow (mgd)	**3.36**

*Bypass alternative outlined in Section 6.

Table 4.01-2 Main Lift Station Ultimate Flow Estimate

Table 4.01-2 indicates that the ultimate peak flow capacity of the Main Lift Station will be an estimated 3.36 mgd. It is anticipated that a large portion of the increased flow will be from residential properties. Existing peak flows to the Main Lift Station are estimated to be approximately 1.12 mgd. It is estimated that the existing Main Lift Station has approximately 0.23 mgd of remaining capacity. Therefore, it is recommended that the capacity of the Main Lift Station is monitored as development continues in the southern portion of Bargersville's service area. Upgrades will be required as development progresses.

Alternatives to alleviate a portion of this flow are discussed in Section 6. The proposed projects outlined in Section 6 could prolong the design capacity of the Main Lift Station by diverting a portion of the flow directly to the WWTP headworks; bypassing the main lift station.

4.02 NEW INTERCEPTOR SEWERS

The existing WWTP sewer service basin is served with several smaller lift stations and gravity sewers. To minimize the number of lift stations, it is proposed that expansion of Bargersville's sanitary sewer service include interceptor sewers that discharge to larger regional lift stations. These interceptor sewers will provide the capacity to serve larger areas with gravity sewer, thereby decreasing the need to provide multiple lift stations within a sewer service basin. The proposed ultimate flows for each basin is shown in Table 3.03-2.

A. Travis Creek Basin

The proposed ultimate peak flow for the Travis Creek basin is estimated to be 1.40 mgd. At minimum slope this will require an interceptor sewer with a maximum diameter of 15 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 11,855 feet long with pipe diameters increasing from 10 to 15 inches. The topography of this basin should allow for the interceptor sewer to slope consistently from east to west. It is estimated that the average bury depth of the sewer will be approximately 10 feet deep.

Table 4.02-1 outlines the opinion of probable construction cost (OPCC) for this interceptor sewer.

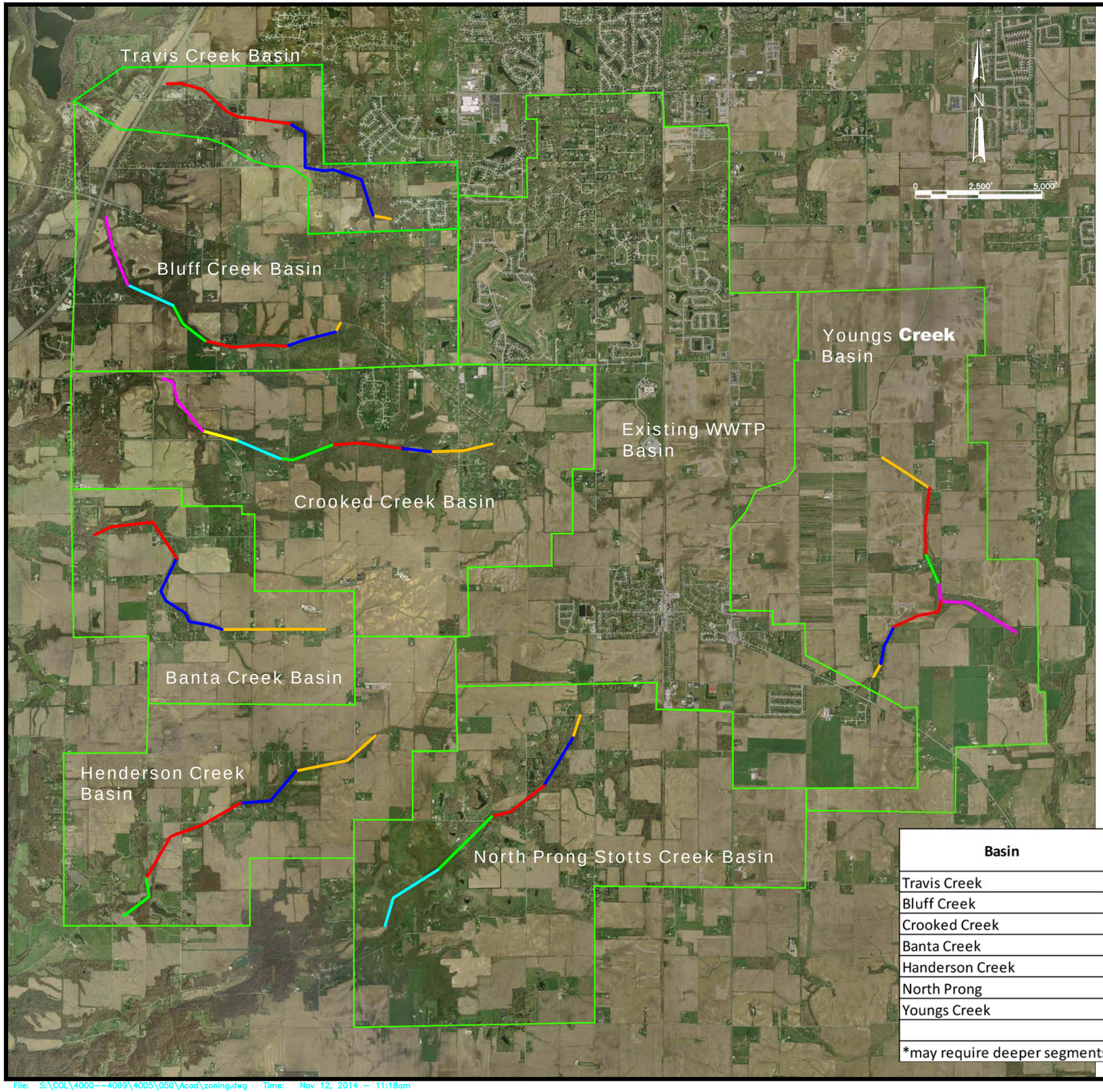
Item Descripton	Quantity	Unit	Unit Price	Total Price
10-inch PVC Sanitary Sewer, SDR 35, CIP	700	LF	$105	$73,500
12-inch PVC Sanitary Sewer, SDR 35, CIP	5,885	LF	$145	$853,325
15-inch PVC Sanitary Sewer, SDR 35, CIP	5,270	LF	$155	$816,850
4-foot-diameter Sanitary Manhole, 10 to 14 feet, CIP	40	EA	$4,500	$180,000
General Conditions (8%)				$153,894
Contingencies and Technical Services (35%)				$727,200
Total Estimated Construction Cost				**$2,804,775**

Table 4.02-1 Travis Creek Basin Interceptor Sewer

B. Bluff Creek Basin

The proposed ultimate peak flow for the Bluff Creek basin is estimated to be 4.89 mgd. At minimum slope this will require an interceptor sewer with a maximum diameter of 27 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 12,595 feet long with pipe diameters ranging from 10 inches to 27 inches. Similar to the Travis Creek basin, the proposed interceptor should be constructed with a consistent slope from east to west through the basin. It is estimated that the average bury depth of the sewer will be approximately 10 feet deep. The bury depth should allow for a larger service area since the topography in this basin slopes uniformly towards Bluff Creek.

Table 4.02-2 outlines the OPCC for this interceptor sewer.



PIPE DIAMETER

- 10-INCH
- 12-INCH
- 15-INCH
- 18-INCH
- 21-INCH
- 24-INCH
- 27-INCH

Basin	Approximate Interceptor Length (ft)	Estimated Average Bury Depth (ft)
Travis Creek	11,855	10
Bluff Creek	12,595	10
Crooked Creek	14,665	15*
Banta Creek	12,790	15
Handerson Creek	13,280	10
North Prong	11,820	10
Youngs Creek	14,555	10
*may require deeper segments in localized areas		

PROPOSED GRAVITY INTERCEPTORS

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

STRAND ASSOCIATES®

FIGURE 4.02-1
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Item Descripton	Quantity	Unit	Unit Price	Total Price
10-inch PVC Sanitary Sewer, SDR 35, CIP	405	LF	$105	$42,525
12-inch PVC Sanitary Sewer, SDR 35, CIP	2,005	LF	$145	$290,725
15-inch PVC Sanitary Sewer, SDR 35, CIP	3,235	LF	$155	$501,425
18-inch PVC Sanitary Sewer, SDR 35, CIP	1,975	LF	$178	$351,550
21-inch PVC Sanitary Sewer, SDR 35, CIP	1,955	LF	$225	$439,875
27-inch PVC Sanitary Sewer, SDR 35, CIP	3,020	LF	$290	$875,800
4-foot-diameter Sanitary Manhole, 10 to 14 feet, CIP	32	EA	$4,500	$144,000
General Conditions (8%)				$211,672
Contingencies and Technical Services (35%)				$1,000,200
Total Estimated Construction Cost				**$3,857,800**

Table 4.02-2 Bluff Creek Basin Interceptor Sewer

C. Crooked Creek Basin

The proposed ultimate peak flow for the Crooked Creek basin is estimated to be 4.33 mgd. At minimum slope this will require an interceptor sewer with a maximum diameter of 27 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 14,665 feet long with pipe diameters ranging from 10 to 27 inches. The topography in the Crooked Creek Basin is more rolling in nature when compared to the Travis and Bluff Creek basins. Therefore, the interceptor sewer should have an average bury depth of approximately 15 feet but may have localized segments up to 30 feet deep. This depth requirement for gravity sewers may make it uneconomical to serve this entire basin with gravity sewers and may drive the installation of smaller lift stations. This should be taken into account before any development occurring in this area. Bargersville noted that this area may have shallow bedrock in some areas which could increase construction costs and make the construction of interceptor sewers difficult.

This interceptor sewer has the potential to alleviate flow from the existing Kerrington Lift Station service area. Flow that is currently conveyed to this lift station could be gravity fed to the Crooked Creek basin interceptor sewer. The ultimate design of this sewer assumed flow from the Kerrington service area would be eventually conveyed to the Crooked Creek Basin interceptor.

Table 4.02-3 outlines the OPCC for this interceptor sewer.

Item Descripton	Quantity	Unit	Unit Price	Total Price
10-inch PVC Sanitary Sewer, SDR 35, CIP	2,455	LF	$105	$257,775
12-in PVC Sanitary Sewer, SDR 35, CIP	1,225	LF	$145	$177,625
15-inch PVC Sanitary Sewer, SDR 35, CIP	2,725	LF	$155	$422,375
18-inch PVC Sanitary Sewer, SDR 35, CIP	2,160	LF	$178	$384,480
21-inch PVC Sanitary Sewer, SDR 35, CIP	1,845	LF	$225	$415,125
24-inch PVC Sanitary Sewer, SDR 35, CIP	1,390	LF	$257	$357,230
27-inch PVC Sanitary Sewer, SDR 35, CIP	2,865	LF	$290	$830,850
4-foot diameter Sanitary Manhole, 10 to 14 feet, CIP	50	EA	$4,500	$225,000
General Conditions (8%)				$245,637
Contingencies and Technical Services (35%)				$1,160,600
Total Estimated Construction Cost				**$4,476,660**

Table 4.02-3 Crooked Creek Basin Interceptor Sewer

D. Banta Creek Basin

The proposed ultimate peak flow for the Banta Creek Basin is estimated to be 1.10 mgd. At minimum slope this will require an interceptor with a maximum diameter of 15 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 12,790 feet long with pipe diameters ranging from 10 inches to 15 inches. This interceptor should slope from east to west with an average bury depth of approximately 15 feet.

Table 4.02-4 outlines the OPCC for this interceptor sewer.

Item Descripton	Quantity	Unit	Unit Price	Total Price
10-inch PVC Sanitary Sewer, SDR 35, CIP	4,090	LF	$105	$429,450
12-inch PVC Sanitary Sewer, SDR 35, CIP	4,475	LF	$145	$648,875
15-inch PVC Sanitary Sewer, SDR 35, CIP	4,225	LF	$155	$654,875
4-foot Diameter Sanitary MH, 10 to 14 feet, CIP	42	EA	$4,500	$189,000
General Conditions (8%)				$153,800
Contingencies and Technical Services (35%)				$726,600
Total Estimated Construction Cost				**$2,802,600**

Table 4.02-4 Banta Creek Basin Interceptor Sewer

E. Henderson Creek Basin

The proposed ultimate peak flow for the Henderson Creek Basin is estimated to be 1.66 mgd. At minimum slope this will require an interceptor with a maximum diameter of 18 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 13,280 feet long with pipe diameters ranging from 10 inches to 18 inches. The Henderson Creek Basin naturally flows to the southwest, the topography within the basin will require that the proposed interceptor has an average bury depth of approximately 10 feet.

Table 4.02-5 outlines the OPCC for this interceptor sewer.

Item Description	Quantity	Unit	Unit Price	Total Price
10-inch PVC Sanitary Sewer, SDR 35, CIP	3,650	LF	$105	$383,250
12-inch PVC Sanitary Sewer, SDR 35, CIP	2,755	LF	$145	$399,475
15-inch PVC Sanitary Sewer, SDR 35, CIP	4,985	LF	$155	$772,675
18-inch PVC Sanitary Sewer, SDR 35, CIP	1,990	LF	$178	$354,220
4-foot Diameter Sanitary MH, 10 to 14 feet, CIP	45	EA	$4,500	$202,500
General Conditions (8%)				$169,000
Contingencies and Technical Services (35%)				$798,400
Total Estimated Construction Cost				**$3,079,520**

Table 4.02-5 Henderson Creek Basin Interceptor Sewer

F. North Prong Stotts Creek Basin

The proposed ultimate peak flow for the North Prong Stotts Creek Basin is estimated to be 2.87 mgd. At minimum slope this will require an interceptor with a maximum diameter of 21 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 11,820 feet long with pipe diameters ranging from 10 inches to 21 inches. The topography in this basin slopes to the southwest in a uniform manner. Therefore, it is estimated that the average bury depth of the interceptor sewer will be approximately 10 feet deep.

Table 4.02-6 outlines the OPCC for this interceptor sewer.

Item Descripton	Quantity	Unit	Unit Price	Total Price
10-in PVC Sanitary Sewer, SDR 35, CIP	925	LF	$105	$97,125
12-in PVC Sanitary Sewer, SDR 35, CIP	2,230	LF	$145	$323,350
15-in PVC Sanitary Sewer, SDR 35, CIP	2,435	LF	$155	$377,425
18-in PVC Sanitary Sewer, SDR 35, CIP	2,990	LF	$178	$532,220
21-in PVC Sanitary Sewer, SDR 35, CIP	3,240	LF	$225	$729,000
4-foot Diameter Sanitary MH, 10 to 14 feet, CIP	40	EA	$4,500	$180,000
General Conditions (8%)				$179,100
Contingencies and Technical Services (35%)				$846,400
Total Estimated Construction Cost				**$3,264,620**

Table 4.02-6 North Prong Stotts Creek Basin Interceptor

G. Youngs Creek Basin

The proposed ultimate peak flow for the Youngs Creek Basin is estimated to be 4.64 mgd. At minimum slope this will require an interceptor with a maximum diameter of 27 inches. The proposed location of this interceptor sewer and pipe segments is shown in Figure 4.02-1. The proposed interceptor is approximately 14,555 feet long with pipe diameters ranging from 10 inches to 27 inches. Youngs Creek forks in the southeast portion of the basin, therefore there may be the need for two separate interceptors that converge and convey flow to a regional lift station. Similar to the other interceptors, the Youngs Creek interceptor should have an approximate average bury depth of 10 feet.

Table 4.02-7 outlines the OPCC for this interceptor sewer.

Item Descripton	Quantity	Unit	Unit Price	Total Price
10-inch PVC Sanitary Sewer, SDR 35, CIP	2,800	LF	$105	$294,000
12-inch PVC Sanitary Sewer, SDR 35, CIP	1,565	LF	$145	$226,925
15-inch PVC Sanitary Sewer, SDR 35, CIP	4,970	LF	$155	$770,350
18-inch PVC Sanitary Sewer, SDR 35, CIP	1,930	LF	$178	$343,540
27-inch PVC Sanitary Sewer, SDR 35, CIP	3,290	LF	$290	$954,100
4-foot Diameter Sanitary MH, 10 to14feet, CIP	40	EA	$4,500	$180,000
General Conditions (8%)				$221,500
Contingencies and Technical Services (35%)				$1,046,600
Total Estimated Construction Cost				**$4,037,015**

Table 4.02-7 Youngs Creek Basin Interceptor Sewer

4.03 NEW REGIONAL LIFT STATIONS

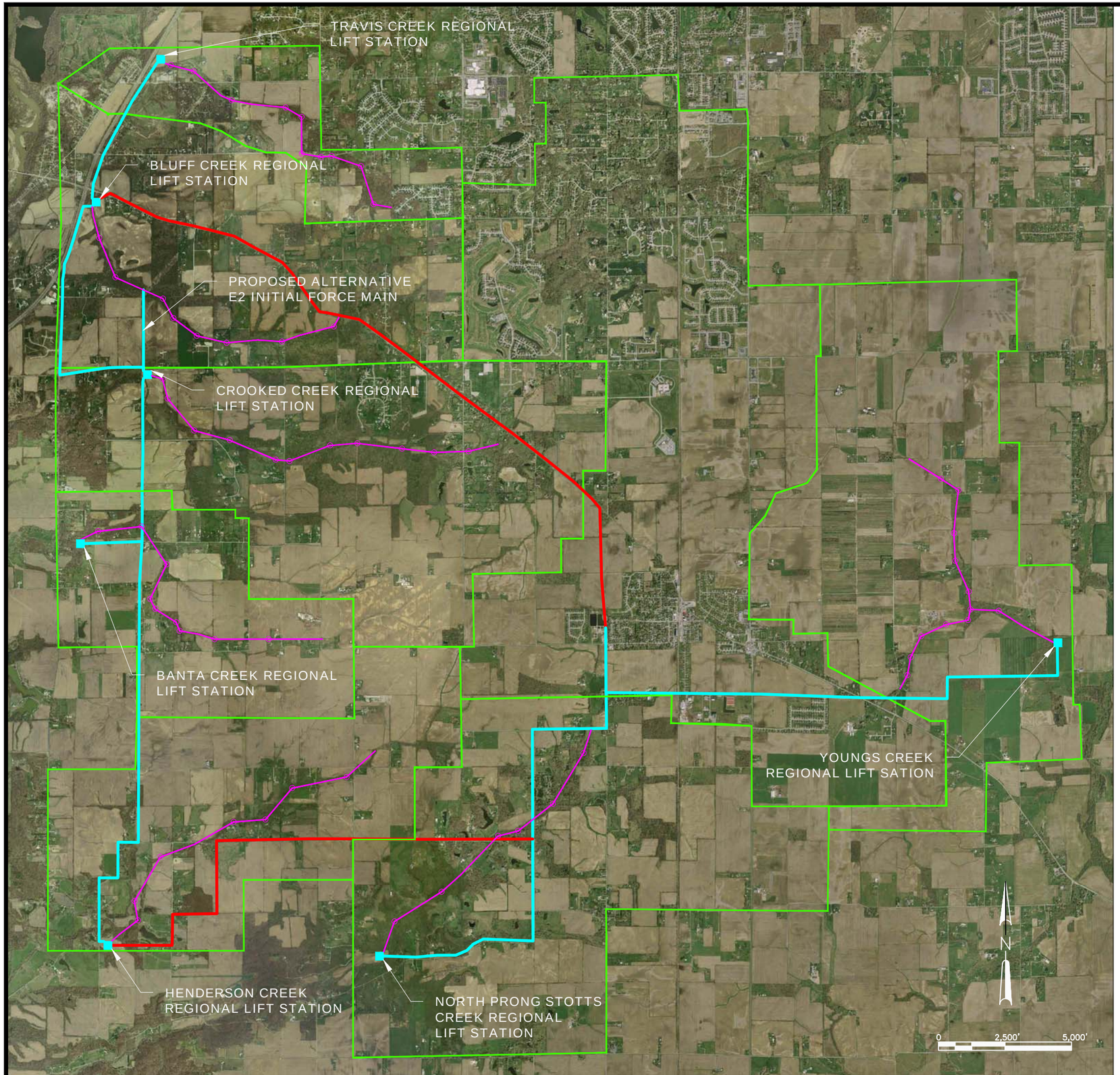
A. Youngs Creek Basin

The proposed location of the Youngs Creek Regional Lift Station is in the southeast corner of the basin. This will place the lift station east of the confluence of Youngs Creek and Roberts Ditch. The geographic location of the proposed regional lift station creates minimal alternatives for force main layout. It is proposed that flow from this lift station is pumped to the existing WWTP location. Currently, the Youngs Creek Basin consists mostly of undeveloped farmland with scattered rural residential homes. The ultimate peak flow for this basin is 4.64 mgd; this is largely because of the nearly 1,000 acres of proposed mixed-use neighborhood/community commercial development that is proposed on the future land use map from Bargersville's Comprehensive Plan. Because of the undeveloped nature of the basin, it is proposed that the lift station is designed with two force mains, one sized for low initial flows and the other for higher ultimate flows. This will allow the regional lift station to serve the lower existing flow while providing room for growth as development

continues along the SR 135 corridor. It is proposed that the lift station is initially designed with a 6-inch force main designed to convey peak flows of approximately 250 gpm (0.36 mgd). The initial capacity of the regional lift station will be able to serve an estimated PE of 1,545.

To serve the ultimate estimated peak flow of the Youngs Creek basin, it is proposed that an additional 16-inch force main is constructed in parallel to the initial 6-inch force main. The 16-inch force main will provide approximately 2,970 gpm (4.28 mgd) of increased capacity. The proposed dual force main design will ultimately be able to serve the estimated peak ultimate flow of 4.64 mgd from the Youngs Creek basin.

The proposed lift station location and dual force main layout is shown in Figure 4.03-1. The proposed force mains, estimated pump size, and OPCC for each phase is outlined in Table 4.03-1.



PROPOSED GRAVITY INTERCEPTOR SEWERS

PROPOSED FORCE MAINS

ALTERNATIVE FORCE MAINS

PROPOSED REGIONAL LIFT STATION

PROPOSED REGIONAL LIFT STATIONS

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

STRAND ASSOCIATES®

FIGURE 4.03-1
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	Quantity	Unit	Unit Price	Total Price
Phase 1–Initial Lift Station Design (Peak Flow 250 gpm)				
6-inch Force Main	21,310	LF	$50.00	$1,065,500
Utility Tracer Wire	21,310	LF	$0.44	$9,400
Automatic Air and Vacuum Release Assembly and Vault	5	EA	$3,500.00	$17,500
Site Work	1	LS	$302,000.00	$302,000
Wet Well (15 feett) / Building	1	LS	$128,200.00	$128,200
Submersible Pump (20 hp)	2	EA	$20,000.00	$40,000
Backup Generator/ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$250,000.00	$250,000
General Conditions (8%)	1	LS		$151,800
Contingencies and Technical Services (35%)	1	LS		$717,300
Phase 1 Total Estimated Construction Cost				**$2,766,700**
Phase 2– Ultimate Lift Station Design (Peak Flow 3,220 gpm)				
16-inch Force Main	21,310	LF	$100.00	$2,131,000
Utility Tracer Wire	21,310	LF	$0.44	$9,400
Site Work	1	LS	$15,100.00	$15,100
Submersible Pump (115 hp)	3	EA	$115,000.00	$345,000
Electrical Upgrades	1	LS	$62,500.00	$62,500
General Conditions (8%)				$205,000
Contingencies and Technical Services (35%)				$968,800
Phase 2 Total Estimated Construction Cost				**$3,736,800**
Ultimate Estimated Total Construction Cost				**$6,503,500**

Table 4.03-1 Youngs Creek Regional Lift Station

B. North Prong Stotts Creek Basin

Similar to Youngs Creek Basin, the proposed location of the North Prong Stotts Creek Basin lift station provides few options for force main layout. It is proposed that the force main discharges at the existing WWTP. According to the future land use map (Figure 3.01-1), this basin will largely consist of rural residential growth. The ultimate proposed peak flow for the basin is 2.87 mgd. Since development in this basin may largely consist of rural residential homes, is proposed that the regional lift station is initially designed with a lower service capacity but have the option for future expansion to serve the estimated ultimate peak flow of the basin.

Initially, it is proposed that the lift station is designed to serve a peak flow of 250 gpm (0.36 mgd) with a 6-inch force main. Combining this capacity and the estimated peaking factor of the basin, the initial phase of the regional lift station should have the capacity to serve an approximated PE of 1,325.

Similar to Youngs Creek Basin, the initial proposed capacity of this lift station will have to be upgraded to serve the ultimate peak flow of the basin. It is proposed than an additional 16-inch force main is constructed in parallel with the 6-inch force main. The North Prong Stotts Creek regional lift station has a smaller estimated peak flow than Youngs Creek basin. Therefore, the horsepower requirements of the ultimate design will be less than Youngs Creek even though the overall force main length and diameters are similar.

The proposed lift station location and dual force main layout is shown in Figure 4.03-1. The proposed force mains, estimated pump size, and OPCC for each phase is outlined in Table 4.03-2.

	Quantity	Unit	Unit Price	Total Price
Phase 1–Initial Lift Station Design (Peak Flow 250 gpm)				
6-inch Force Main	20,275	LF	$50.00	$1,013,750
Utility Tracer Wire	20,275	LF	$0.44	$8,900
Automatic Air and Vacuum Release Assembly and Vault	5	EA	$3,500.00	$17,500
Site Work	1	LS	$280,000.00	$280,000
Wet Well (15 feet)/Building	1	LS	$128,200.00	$128,200
Submersible Pump (20 hp)	2	EA	$20,000.00	$40,000
Backup Generator / ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$125,000.00	$125,000
General Conditions (8%)	1	LS		$135,900
Contingencies and Technical Services (35%)	1	LS		$642,000
Phase 1 Total Estimated Construction Cost				**$2,476,250**
Phase 2–Ultimate Lift Station Design (Peak Flow 1,995 gpm)				
16-inch Force Main	20,275	LF	$100.00	$2,027,500
Utility Tracer Wire	20,275	LF	$0.44	$8,900
Site Work	1	LS	$14,000.00	$14,000
Submersible Pump (25 hp)	3	EA	$25,000.00	$75,000
Electrical Upgrades	1	LS	$31,250.00	$31,250
General Conditions (8%)				$172,500
Contingencies and Technical Services (35%)				$815,200
Phase 2 Total Estimated Construction Cost				**$3,144,350**
Ultimate Estimated Total Construction Cost				**$5,620,600**

Table 4.03-2 North Prong Stotts Creek Regional Lift Station

C. Henderson Creek Basin

The proposed location of the Henderson Creek Basin regional lift station is such that flow could be pumped to either the existing WWTP or north to the Bluff Creek regional lift station. It should be noted that ultimately it is proposed that flow pumped to the Bluff Creek regional lift station is pumped to a new WWTP location (Section 4.03 G). Limited growth in the Henderson Creek area may prolong the estimate ultimate peak flow of 1.66 mgd. Therefore, it is important the lift station is designed to accommodate the existing and future estimated peak flow. The ultimate size of this regional lift station does not appear to be large enough to require phasing. It is proposed that the

initial construction of this lift station is designed to serve initial and ultimate flows. The proposed alternatives each propose a 12-inch force main. Force main design requires a minimum flow rate of 2 feet per second. Therefore, the design of this lift station will require minimum flow of approximately 700 gpm (1.0 mgd).

1. Alternative C1–Force Main to Existing WWTP

This alternative includes a 12-inch force main from the Henderson regional lift station to the existing WWTP. The proposed force main will be approximately 30,350 feet long. Although this alternative outlines the shorter force main layout, the overall pump requirements for the regional lift station are the same. The proposed force main layout is shown in Figure 4.03-1. The proposed force main diameter, estimated pump size, and OPCC is outlined in Table 4.03-3.

2. Alternative C2–Force Main to Banta Creek

The Henderson Creek Regional Lift Station could also ultimately pump flow to the Bluff Creek Regional Lift Station through a 12-inch force main. The proposed force main will be approximately 16,700 feet long and would manifold into the proposed Banta Creek force main. The overall distance from the proposed Henderson Creek Lift Station to the Bluff Creek Regional Lift Station is approximately 1,670 feet longer than pumping to the existing WWTP but could alleviate flow from the existing WWTP location. The proposed force main layout is shown in Figure 4.03-1 The proposed force main, estimated pump size, and OPCC is described in Table 4.03-3.

Alternative C1–Pump to Existing WWTP				
	Quantity	**Unit**	**Unit Price**	**Total Price**
12-inch Force Main	30,350	LF	$80.00	$2,428,000
Utility Tracer Wire	30,350	LF	$0.44	$13,400
Automatic Air and Vacuum Release Assembly and Vault	8	EA	$3,500.00	$28,000
Site Work	1	LS	$275,000.00	$275,000
Wet Well (20 feet)/Building	1	LS	$128,200.00	$128,200
Submersible Pump (40 hp)	3	EA	$40,000.00	$120,000
Backup Generator/ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$75,000.00	$75,000
General Conditions (8%)				$252,200
Contingencies and Technical Services (35%)				$1,191,700
Total Estimated Construction Cost				**$4,596,500**
Alternative C2–Pump to Bluff Creek Regional Lift Station				
	Quantity	**Unit**	**Unit Price**	**Total Price**
12-inch Force Main	16,700	LF	$80.00	$1,336,000
Utility Tracer Wire	16,700	LF	$0.44	$7,300
Automatic Air and Vacuum Release Assembly and Vault	8	EA	$3,500.00	$28,000
Site Work	1	LS	$275,000.00	$275,000
Wet Well (20 feet)/Building	1	LS	$128,200.00	$128,200
Submersible Pump (40 hp)	3	EA	$40,000.00	$120,000
Backup Generator/ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$75,000.00	$75,000
General Conditions (8%)				$164,400
Contingencies and Technical Services (35%)				$776,600
Total Estimated Construction Cost				**$2,995,500**

Table 4.03-3 Henderson Creek Regional Lift Station

Deciding between alternative C1 and C2 will be largely dependent on the location of WWTP upgrades. The WWTP upgrade alternatives are outlined in Section 5. The selected WWTP alternative will dictate whether there is capacity at the existing WWTP. Flow from the Henderson Creek Regional Lift Station will be accounted for in the sizing of the Bluff Creek Regional Lift Station outlined in Section 4.03 G.

D. Banta Creek Basin

Three alternatives were evaluated for the Banta Creek Basin: (1) pumping to the existing WWTP, (2) pumping to the Crooked Creek regional lift station, or (3) conveying flow by gravity from the Banta Creek interceptor to the Crooked Creek regional lift station. Although, Banta Creek Lift Station is lower, it was determined that flow from the Banta Creek interceptor could not be gravity fed to Crooked Creek because of the topography between the two lift stations. The potential to flow by gravity would require deep gravity sewers and, in turn, large amounts of excavation. Therefore, this alternative was not evaluated further. The ultimate peak flow estimated for the Banta Creek basin is 1.10 mgd. Similar to the Henderson Creek regional lift station, it is proposed that the Banta Creek regional lift station will not require phasing. It is proposed that the initial lift station design accounts for both initial and future ultimate flows.

1. Alternative D1–Pump to Existing WWTP

The force main from the Banta Creek regional lift station to the existing WWTP is approximately 20,705 feet long and will require a 10-inch force main. Because of the length of the force main Alternative D1 requires a larger diameter force main to overcome the estimated pipe loss. The proposed force main, estimated pump size, and OPCC is described in Table 4.03-4.

2. Alternative D2–Pump to Crooked Creek Regional Lift Station

Pumping flow from the Banta Creek Regional Lift Station to the Crooked Creek Lift Station force main will require a considerably shorter force main. This force main will ultimately convey flow from both Banta Creek and Henderson Creek Basin. The shorter force main results in less friction losses; therefore, smaller pumps could be used for this alternative. The proposed 12-inch force main will be approximately 9,540 feet long. This alternative is shown in Figure 4.03-1. The proposed force main, estimated pump size, and OPCC is described in Table 4.03-4.

Alternative D1–Pump to Existing WWTP				
Item Description	**Quantity**	**Unit**	**Unit Price**	**Total Price**
10-inch Force Main	20,705	LF	$75.00	$1,552,875.00
Utility Tracer Wire	20,705	LF	$0.44	$9,100.00
Automatic Air and Vacuum Release Assembly and Vault	5	EA	$3,500.00	$17,500.00
Site Work	1	LS	$250,000.00	$250,000.00
Wet Well (15 feet)/Building	1	LS	$115,000.00	$115,000.00
Submersible Pump (30 hp)	3	EA	$30,000.00	$90,000.00
Backup Generator/ATS	1	EA	$85,000.00	$85,000.00
Electrical	1	LS	$75,000.00	$75,000.00
General Conditions (8%)	1	LS	$60,000.00	$175,600.00
Contingencies and Technical Services (35%)	1	LS		$829,500.00
Total Estimated Construction Cost D1				**$3,199,575.00**
Alternative D2–Pump to Crooked Creek Regional Lift Station				
Item Description	**Quantity**	**Unit**	**Unit Price**	**Total Price**
12-inch Force Main	9,540	LF	$80.00	$763,200.00
Utility Tracer Wire	9,540	LF	$0.44	$4,200.00
Automatic Air and Vacuum Release Assembly and Vault	2	EA	$3,500.00	$7,000.00
Site Work	1	LS	$250,000.00	$250,000.00
Wet Well (15 feet)/Building	1	LS	$115,000.00	$115,000.00
Submersible Pump (20 hp)	3	EA	$20,000.00	$60,000.00
Backup Generator/ATS	1	EA	$85,000.00	$85,000.00
Electrical	1	LS	$75,000.00	$75,000.00
General Conditions (8%)	1	LS	$60,000.00	$108,800.00
Contingencies and Technical Services (35%)				$513,900.00
Total Estimated Construction Cost D2				**1,982,100**

Table 4.03-4 Banta Creek Regional Lift Station

Alternative D2 is estimated to require less infrastructure and smaller pumps. This alternative also provides the opportunity to alleviate flow from the existing WWTP location. Therefore, the Crooked Creek regional lift station will be designed to ultimately pump flow from the Banta Creek regional lift station.

E. Crooked Creek

Flow collected by the Crooked Creek interceptor could be pumped to either the existing WWTP or to the Bluff Creek regional lift station. As previously mentioned, the design of the Crooked Creek regional lift station could be impacted by the discharge location of the Banta Creek regional lift station. For planning purposes it was assumed that the Banta Creek regional lift station will pump to the Crooked Creek regional lift station. Additionally, the Crooked Creek interceptor has the potential to eliminate the existing Kerrington lift station. Therefore, it is also assumed that the ultimate peak flow potential of the Crooked Creek regional lift station includes flow from the existing Kerrington lift station service area.

The Crooked Creek Basin is currently populated by potential rural residential customers but this area is largely classified as suburban residential on Bargersville's future land use map. To better serve the existing customers and provide capacity for future growth, it is proposed that the Crooked Creek regional lift station include parallel force mains of varying diameters to serve the estimated ultimate peak flow of 5.43 mgd. Each of the proposed alternatives for this lift station include an OPCC for phased development of the regional lift station.

1. Alternative E1–Pump to the Existing WWTP

This alternative proposes parallel 6-inch and 16-inch force mains that convey flow to the existing WWTP location. Each of these force mains will be approximately 18,885 feet long. Initially, it is estimated that the 6-inch force main will have the capacity to convey a peak flow of 250 gpm (0.36 mgd), equating to an estimated PE of 1,260. The proposed force mains, estimated pump sizes, and OPCC is described in Table 4.03-5.

2. Alternative E2–Pump to Bluff Creek Regional Lift Station

Alternative E2 proposes the phased construction of two separate force mains; an 8-inch and 18-inch force main. This alternative proposes that flow is initially pumped to the Bluff Creek interceptor sewer to allow for shorter force main design. The initial 8-inch force main could be manifold with the force mains from Henderson and Banta Creek lift stations depending on the rate and location of development. As development occurs in these basins it is proposed that a second 18-inch force main is constructed from the Crooked Creek Regional Lift Station directly to the Bluff Creek Regional Lift Station. This will prevent initially oversizing the Bluff Creek interceptor sewer. If the Bluff Creek interceptor sewer was initially sized to convey the ultimate flows from Henderson, Banta and Crooked Creek basins it would require the construction of a 42-inch pipe. This would prove to be costly and potentially oversized for many years. Therefore, phase 2 of the Crooked Creek Pumping Station involves pumping directly to the Bluff Creek Regional Lift Station.

Initially pumping to the Bluff Creek Regional Lift Station will require far less force main length. The shorter force main saves on both material cost and pumping capacity because of the decreased pipe losses. Ultimately flow from the Banta Creek and Henderson Creek force mains could be manifold to the 18-inch force main to the Bluff Creek Regional Lift Station. The proposed layout for Alternative E2 is displayed in Figure 4.03-1. The cost comparison of Alternatives E1 and E2 are shown in Table 4.03-5.

Table 4.03-5 Crooked Creek Regional Lift Station

Alternative E1–Pump to Existing WWTP					Alternative E2–Pump to Bluff Creek Regional Lift Station				
	Quantity	Unit	Unit Price	Total Price		Quantity	Unit	Unit Price	Total Price
Phase 1–Initial Lift Station Design (Peak Flow 250 gpm)					**Phase 1–Initial Lift Station Design (Peak Flow 350 gpm)**				
6-inch Force Main	18,885	LF	$50.00	$994,250	8-inch Force Main	2,785	LF	$65.00	$181,025
Utility Tracer Wire	18,885	LF	$0.44	$8,300	Utility Tracer Wire	2,785	LF	$0.44	$1,200
Automatic Air and Vacuum Release Assembly and Vault	5	LF	$3,500.00	$17,500	Automatic Air and Vacuum Release Assembly and Vault	2	LF	$3,500.00	$7,000
Site Work	1	LS	$302,000.00	$302,000	Site Work	1	LS	$302,000.00	$302,000
Wet Well (25 feet)/Building	1	LS	$135,000.00	$135,000	Wet Well (25 feet)/Building	1	LS	$135,000.00	$135,000
Submersible Pump (10 hp)	2	EA	$10,000.00	$20,000	Submersible Pump (10 hp)	2	EA	$10,000.00	$20,000
Backup Generator/ATS	1	EA	$35,000.00	$35,000	Backup Generator/ATS	1	EA	$35,000.00	$35,000
Electrical	1	LS	$250,000.00	$250,000	Electrical	1	LS	$250,000.00	$250,000
General Conditions (8%)	1	LS		$137,000	General Conditions (8%)	1	LS		$74,500
Contingencies and Technical Services (35%)	1	LS		$599,200	Contingencies and Technical Services (35%)	1	LS		$325,900
Phase 1 Total Estimated Construction Cost				**$2,448,250**	**Phase 1 Total Estimated Construction Cost**				**$1,331,625**
Phase 2–Ultimate Lift Station Design (Peak Flow 3,770 gpm)					**Phase 2–Ultimate Lift Station Design (Peak Flow 3,770 gpm)**				
16-inch Force Main	18,885	LF	$100.00	$1,888,500	18-inch Force Main	9,300	LF	$125.00	$1,162,500
Utility Tracer Wire	18,885	LF	$0.44	$8,300	Utility Tracer Wire	9,300	LF	$0.44	$4,100
Site Work	1	LS	$15,100.00	$15,100	Site Work	1	LS	$15,100.00	$15,100
Submersible Pump (185 hp)	3	EA	$185,000.00	$555,000	Submersible Pump (50 hp)	3	EA	$50,000.00	$150,000
Electrical Upgrades	1	LS	$62,500.00	$62,500	Electrical Upgrades	1	LS	$62,500.00	$62,500
General Conditions (8%)	1	LS		$202,400.00	General Conditions (8%)	1	LS		$111,500.00
Contingencies and Technical Services (35%)	1	LS		$885,300.00	Contingencies and Technical Services (35%)	1	LS		$488,000.00
Phase 2 Total Estimated Construction Cost				**$3,617,100**	**Phase 2 Total Estimated Construction Cost**				**$1,993,700**
Ultimate Estimated Total Construction Cost				**$6,065,350**	**Ultimate Estimated Total Construction Cost**				**$3,325,325**

Because of the economic benefits of Alternative E2, it will be assumed that flow from the Crooked Creek regional lift station is pumped to the Bluff Creek regional lift station. These flows will impact the initial and ultimate capacity of the Bluff Creek lift station.

F. Travis Creek Basin

The proposed location of the Travis Creek lift station is in the northwest corner of Bargersville's sanitary service area. This geographic location provides few options for force main location. It is proposed that the Travis Creek regional lift station pumps flow to the Bluff Creek regional lift station. The Travis Creek Basin has an estimated ultimate peak flow of 1.40 mgd. The proposed lift station design includes an 8-inch force main. This force main will be able to initially convey lower flows but is still sized appropriately to serve the ultimate peak flows of the basin. Therefore, this lift station should not require phasing and can be completely constructed within a single project. The proposed force main layout and lift station location is shown in Figure 4.03-1. The proposed force main, estimated pump size, and OPCC is described in Table 4.03-6.

Item Description	Quantity	Unit	Unit Price	Total Price
8-inch Force Main	5,690	LF	$65.00	$369,850
Utility Tracer Wire	5,690	LF	$0.44	$2,500
Automatic Air and Vacuum Release Assembly and Vault	2	EA	$3,500.00	$7,000
Site Work	1	LS	$275,000.00	$275,000
Wet Well (15 feet)/Building	1	LS	$128,200.00	$128,200
Submersible Pump (50 hp)	2	EA	$50,000.00	$100,000
Backup Generator/ATS	1	EA	$350,000.00	$350,000
Electrical	1	LS	$250,000.00	$250,000
General Conditions (8%)	1	LS		$118,600.00
Contingencies and Technical Services (35%)	1	LS		$560,400
Total Estimated Construction Cost				**$2,161,550**

Table 4.03-6 Travis Regional Lift Station

G. Bluff Creek Basin

The proposed Bluff Creek regional lift station will be the largest lift station in Bargersville's system. This regional lift station has the potential to collect flows from the Henderson Creek, Crooked Creek (combined with Banta Creek), and Travis Creek regional lift stations. The location of the proposed Bluff Creek regional lift station allows for flow to be pumped to either the existing WWTP or to a new WWTP location. The proposed location of a new WWTP is within the Bluff Creek basin; therefore, the pumping distance will be minimal. The proposed WWTP location is discussed further in Section 5. The estimated ultimate potential peak flow that could be served by the Bluff Creek Regional Lift Station is 13.38 mgd. Bargersville's Comprehensive Plan outlines much of the

Bluff Creek basin as suburban residential growth with the potential for industrial type development along the CR 144 and SR 37 corridor. Each of the alternatives propose phasing of this regional lift station to better sever the initial and estimated ultimate flow.

1. Alternative G1–Pump to Existing WWTP

Pumping flow from the Bluff Creek Regional Lift Station to the existing WWTP will require approximately 22,355 feet of force main. The most direct route is to construct this force main along the CR 144 corridor. This force main could potentially discharge to a new gravity interceptor sewer upstream of the existing WWTP. Initially it is proposed that a 10-inch force main with an estimated capacity of 900 gpm (1.3 mgd) convey flow to the existing WWTP. Ultimately, an additional 24-inch force main will need to operate in parallel to the 10-inch force main to serve the potential peak flow from the basin.

The proposed layout for this alternative is shown in Figure 4.03-1. The estimate OPCC of Alternative G1 is shown in Table 4.03-7.

2. Alternative G2–Force Main to Proposed New WWTP

Flow from the Bluff Creek Basin could be pumped to a new WWTP. This WWTP would require much shorter pumping distance. Therefore, the force main diameter could be decreased as a result of the lessened TDH. The proposed location and size of a new WWTP is discussed further in Section 5.

The estimated OPCC of Alternative G2 is shown in Table 4.03-7.

Table 4.03-7 Bluff Creek Regional Lift Station

Alternative G1–Pump to Existing WWTP					Alternative G2–Pump to New WWTP				
	Quantity	Unit	Unit Price	Total Price		Quantity	Unit	Unit Price	Total Price
Phase 1–Initial Lift Station Design (Peak Flow 900 gpm)					**Phase 1–Initial Lift Station Design (Peak Flow 1200 gpm)**				
10-inch Force Main	22,355	LF	$75.00	$1,676,625	10-inch Force Main	1,000	LF	$75.00	$75,000
Utility Tracer Wire	22,355	LF	$0.44	$9,800	Utility Tracer Wire	1,000	LF	$0.44	$440
Automatic Air and Vacuum Release Assembly and Vault	5	LF	$3,500.00	$17,500	Automatic Air and Vacuum Release Assembly and Vault	2	LF	$3,500.00	$7,000
Site Work	1	LS	$302,000.00	$302,000	Site Work	1	LS	$302,000.00	$302,000
Wet Well (15 feet)/Building	1	LS	$135,000.00	$135,000	Wet Well (25 feet)/Building	1	LS	$135,000.00	$135,000
Submersible Pump (30 hp)	3	EA	$30,000.00	$90,000	Submersible Pump (10 hp)	2	EA	$10,000.00	$20,000
Backup Generator/ATS	1	EA	$85,000.00	$85,000	Backup Generator/ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$250,000.00	$250,000	Electrical	1	LS	$250,000.00	$250,000
General Conditions (8%)	1	LS		$205,300	General Conditions (8%)	1	LS		$70,000
Contingencies and Technical Services (35%)	1	LS		$969,900	Contingencies and Technical Services (35%)	1	LS		$330,600
Phase 1 Total Estimated Construction Cost				**$3,741,125**	**Phase 1 Total Estimated Construction Cost**				**$1,275,040**
Phase 2–Ultimate Lift Station Design (Peak Flow 9,290 gpm)					**Phase 2–Ultimate Lift Station Design (Peak Flow 9,290 gpm)**				
24-inch Force Main	22,355	LF	$155.00	$3,465,025	20-inch Force Main	1,000	LF	$145.00	$145,000
Utility Tracer Wire	22,355	LF	$0.44	$9,800	Utility Tracer Wire	1,000	LF	$0.44	$440
Site Work	1	LS	$15,100.00	$15,100	Site Work	1	LS	$15,100.00	$15,100
Submersible Pump (185 hp)	4	EA	$185,000.00	$740,000	Submersible Pump (40 hp)	3	EA	$40,000.00	$120,000
Electrical Upgrades	1	LS	$62,500.00	$62,500	Electrical Upgrades	1	LS	$62,500.00	$62,500
General Conditions (8%)	1	LS		$343,400.00	General Conditions (8%)	1	LS		$27,400.00
Contingencies and Technical Services (35%)	1	LS		$1,622,500.00	Contingencies and Technical Services (35%)	1	LS		$129,700.00
Phase 2 Total Estimated Construction Cost				**$6,258,325**	**Phase 2 Total Estimated Construction Cost**				**$500,140**
Ultimate Estimated Total Construction Cost				**$9,999,450**	**Ultimate Estimated Total Construction Cost**				**$1,775,180**

REVISED–SECTION 5
EVALUATION OF WWTP ALTERNATIVES

5.01 SUMMARY OF WWTP ALTERNATIVES

As demonstrated in the previous sections of this report, the capacity of Bargersville's existing WWTP is not sufficient to serve the ultimate capacity of the proposed sewer service area. As such, it is necessary to evaluate alternatives for increasing WWTP capacity to serve the ultimate service area. The evaluation of wastewater treatment alternatives must include the following considerations:

1. The ultimate service area consists of approximately 38.3 square miles. Economically providing wastewater treatment to such a large geographical area will prove challenging.

2. The use of a single large WWTP is generally a more efficient method of providing treatment than the use of two smaller plants. This analysis will consider long-term operation, maintenance and replacement costs, and capital costs.

3. The sizing of a potential new WWTP may prove challenging. Flows from initial development will likely be very small; however, the ultimate size of the WWTP will likely need to be significantly larger because of the large geographical area and the potential for development. This problem will be most acute during initial development, when flows may not be sufficient to operate a WWTP.

4. The existing WWTP is effectively landlocked and located adjacent to existing and proposed residential developments. These residents are adversely impacted by the proximity of the WWTP.

The following alternatives have been developed and are evaluated in this section of the report:

- Alternative 1: Construction of New WWTP near the SR 37/144 interchange and Continued Use of Existing WWTP

- Alternative 2: Construction of New WWTP near the SR 37/144 interchange and Ultimate Abandonment of Existing WWTP

- Alternative 3: Expansion of Existing WWTP with No Construction of New WWTP

5.02 ALTERNATIVE 1: CONSTRUCTION OF NEW WWTP NEAR THE SR 37/144 INTERCHANGE AND CONTINUED USE OF EXISTING WWTP

This alternative consists of the construction of a new WWTP designed to serve new developments in the western part of the service area. It is proposed that this facility would ultimately serve the following drainage basins as developed in Section 4:

- Henderson Creek
- Banta Creek
- Crooked Creek

- Bluff Creek
- Travis Creek

The remaining service area would be served by the existing WWTP.

A. Initial Capacity

The initial capacity of the facility will be developed based on the following:

1. The potential for serving the Waverly area (Morgan County between SR 37 and White River)

2. Potential for immediate development at the SR 37/144 interchange.

The initial sizing of the WWTP will prove challenging because if the plant is too large, it may prove impossible to adequately treat low flows. If the plant is too small, it may need expansion almost immediately to serve fast growing developments, which will be significantly more expensive than constructing the facility at the correct capacity to begin with. The sizing of this proposed plant should be such that part of the facility may be taken offline to accommodate the potential for low flows.

Currently there are plans to develop approximately 30 acres of a 240-acre commercial development near the SR 37/144 interchange. The flow from this initial 30 acres is anticipated to be approximately 25,000 gallons. However, the flows estimated from the remainder of the 240-acre development are estimated to total 250,000 gallons, using numbers previously developed for commercial development in this report. Correspondence with Morgan County has indicated it plans on moving forward with a WWTP on the west side of SR 37. It will be assumed no flow to this system will come from Morgan County.

To accommodate these factors, it is recommended the following occur:

1. The WWTP be initially designed for a design average flow of at least 250,000 gallons per day.

2. The WWTP design consider the potential for very low flows initially (less than 25,000 gallons per day) and be designed to accommodate such flows.

B. Ultimate Capacity of the WWTP

Under this alternative, Bargersville will ultimately have two WWTPs as the existing WWTP will have ultimate design average and peak flow capacities and serve population equivalents as shown in Table 5.02-1. The SR 37/144 facility would serve the drainage basins and have the initial and ultimate flows and population equivalents shown in Table 5.02-2.

Service Basin	Estimated Ultimate Average Flow (mgd)	Estimated PE
Existing WWTP	3.59	24,952
Youngs Creek	1.69	16,278
North Prong Stotts Creek	0.90	5,557
Henderson Creek	0.46	1,977
Total	6.64	48,764
Total Estimated Peak Flow	15.10	

Table 5.02-1 Alternative 1 Ultimate Estimates of Flows for Existing WWTP

Service Basin	Estimated Initial Average Flow (mgd)	Estimated Population Equivalents	Estimated Ultimate Average Flow (mgd)	Estimated PE
Travis Creek	0.00	0	0.38	1,527
Bluff Creek	0.25	2,500	1.72	13,057
Crooked Creek	0.00	0	1.29	3,716
Banta Creek	0.00	0	0.30	1,265
Total	0.25	2,500	3.70	19,565
Total Estimated Peak Flow	1.12		11.1	

Table 5.02-2 Alternative 1 Initial and Ultimate Estimates of Flows for SR 37/144 WWTP

The initial design of the 37/144 WWTP should take into account the ultimate sizing, as it is estimated the facility will need to have an ultimate flow that is more than ten times larger than the initial proposed flow. It is likely the facility should be designed initially as a modular facility (package plant) such as AeroMod or similar facility that is easily expandable to three to four times its original size. Once the facility reaches a certain size, it is likely that it will need to be converted to a more conventional WWTP, such as an extended aeration-type WWTP with separate clarification. The tanks for the initial WWTP should be designed so that they can be used for alternative purposes in the future, such as conversion to sludge digesters.

C. WWTP Location

The proposed WWTP should be located near the SR 37/144 interchange for the following reasons:

1. This intersection represents one of the lowest points in the collection system (Travis Creek crossing of SR 37 is slightly lower) and the recommended location of the Bluff Creek Regional Lift Station. Therefore, all development in the Bluff Creek basin will be able to flow via gravity to an area near this location.

2. The intersection is near the center of the potential development in the area, lowering conveyance costs.

3. The intersection is near two potential receiving streams, Bluff Creek and White River.

To meet the estimated ultimate design average flow of 3.7 mgd, it is estimated that a site is necessary with at least 15 acres available for use as a WWTP site. The following considerations should be taken into account when locating the ultimate location of the site:

1. The site should be easily accessible to truck traffic to allow for chemical and equipment deliveries and sludge haulers.

2. The site location should be as far as possible from proposed residential and commercial developments to avoid nuisance issues. Regardless of the location, the WWTP will likely be upwind of future development, so odor control will likely be necessary at the facility.

3. The site does not necessarily need to be on the same site as the Bluff Creek Regional Lift Station.

4. The facility may be on the east or west side of SR 37. The west side of the road is preferred as it is likely the WWTP will be farther away from proposed developments; however, this will require crossing the road with wastewater infrastructure, which will likely prove costly.

D. Discharge Stream

Bluff Creek and White River are both available as potential discharge streams for effluent from the proposed WWTP. It is likely that the location of the WWTP will be such that discharging to Bluff Creek is easier from a technical standpoint, as discharging to the White River will likely require additional effluent conveyance infrastructure (the river is approximately 3,000 feet from the SR 37/144 interchange). This conveyance infrastructure will likely need to cross SR 37 (depending on the location of the WWTP) and may require obtaining easements or right-of-way to accommodate the infrastructure.

Discharging to the White River does have the following advantages:

1. Proposed effluent limits (BOD, TSS, and Ammonia) will potentially be lower because of the higher dilutive flow of the White River.

2. Requirements for antidegradation may be eliminated because of the high dilution factor of the stream.

If Bargersville moves forward with this alternative, it is recommended the location of the discharge be evaluated in more detail.

E. Costs Associated with Alternative 1

The costs evaluated for this report for Alternative 1 will include the construction and operation of a new WWTP in the Bluff Creek Basin. As noted previously, it is assumed this WWTP will have an initial capacity of 0.25 mgd. The capital and operational costs associated with this alternative are shown in Table 5.02-3 and the operational costs are shown in Table 5.02-4.

Quantity	Units	Unit Cost	Number	Installation Factor	Total Cost
Excavation	CY	$ 8.70	3300	1	$ 29,000.00
Crushed Stone	CY	$ 45.00	260	1	$ 12,000.00
Compacted Fill	CY	$ 25.00	1300	1	$ 33,000.00
Base Slab Concrete	CY	$ 380.00	300	1	$ 114,000.00
Wall Concrete	CY	$ 750.00	560	1	$ 420,000.00
Influent Screen	LS	$ 60,000.00	1	1.35	$ 81,000.00
AeroMod Equipment	LS	$ 150,000.00	1	1.35	$ 203,000.00
Rotary Lobe Blowers	LS	$ 20,000.00	4	1.35	$ 108,000.00
UV Disinfection Equipment	LS	$ 90,000.00	1	1.35	$ 122,000.00
Blower/MCC Building	SF	$ 250.00	1000	1	$ 250,000.00
Subtotal					$ 1,372,000.00
Electrical (20%)					$ 274,000.00
Mechanical (15%)					$ 206,000.00
Site Work (10%)					$ 137,000.00
Subtotal					$ 1,989,000.00
General Conditions (8%)					$ 159,000.00
Subtotal–Construction					$ 2,148,000.00
Contingencies and Technical Services (35%)					$ 752,000.00
Opinion of Probable Construction Cost					**$ 2,900,000.00**

Table 5.02-3 Capital Costs for 0.25 mgd WWTP

Item	Cost	
Salaries and Wages	$	35,000.00
Permitting	$	1,800.00
Contractual Services	$	6,500.00
Transportation	$	2,000.00
Insurance	$	4,000.00
Power	$	40,000.00
Materials, Supplies and Chemicals	$	10,000.00
Sludge Disposal	$	15,000.00
Subtotal Annual Operational Costs	$	114,300.00
Annual Depreciation Costs (2.5%)	$	75,000.00
Total Operational and Depreciation Costs	**$**	**189,300.00**

Table 5.02-4 Operational Costs of 250,000 WWTP

Alternatively, a smaller WWTP was considered for this development. Because of immediate development pressures, a 25,000 gpd facility was assumed (this value was proposed by a developer with interest in the Bluff Creek area). The capital costs associated with a 25,000 gpd steel package plant are shown in Table 5.02-5 and the operational costs are shown in Table 5.02-6.

Quantity	Units	Unit Cost	Number	Installation Factor	Total Cost
Influent Pump Station	LS	$ 200,000.00	1	1	$ 200,000.00
Excavation	CY	$ 8.70	230	1	$ 2,000.00
Crushed Stone	CY	$ 45.00	56	1	$ 3,000.00
Compacted Fill	CY	$ 25.00	250	1	$ 6,000.00
Base Slab Concrete	CY	$ 380.00	45	1	$ 17,000.00
Influent Screen	LS	$ 5,000.00	1	1.35	$ 7,000.00
Package Plant Equipment	LS	$ 250,000.00	1	1.1	$ 275,000.00
Rotary Lobe Blowers	LS	$ 12,000.00	3	1.35	$ 49,000.00
UV Disinfection Equipment	LS	$ 25,000.00	1	1.35	$ 34,000.00
Subtotal					$ 593,000.00
Electrical (15%)					$ 89,000.00
Mechanical (5%)					$ 30,000.00
Site Work (10%)					$ 59,000.00
Subtotal					$ 771,000.00
General Conditions (8%)					$ 62,000.00
Subtotal–Construction					$ 833,000.00
Contingencies and Technical Services (35%)					$ 292,000.00
Opinion of Probable Construction Cost					**$ 1,125,000.00**

Table 5.02-5 Capital Costs for 25,000 gallon/day Steel Package Plant

Item	Cost
Salaries and Wages	$ 17,500.00
Permitting	$ 1,800.00
Contractual Services	$ 6,500.00
Transportation	$ 2,000.00
Insurance	$ 4,000.00
Power	$ 12,000.00
Materials, Supplies and Chemicals	$ 10,000.00
Sludge Disposal	$ 8,000.00
Subtotal Annual Operational Costs	$ 61,800.00
Annual Depreciation Costs (2.5%)	$ 25,000.00
Total Operational and Depreciation Costs	**$ 86,800.00**

Table 5.02-6 Annual Operational Costs for 25,000 gallon/day WWTP

As part of the recent development activity, the Town of Bargersville considered the installation of a 25,000 gallon per day “Algae Wheel”-type WWTP to serve the immediate development adjacent to the SR 37/144 interchange. This technology was evaluated; however, the following was noted:

- The use of this type of treatment for municipal wastewater needing to meet stringent effluent limits is not well established.

- There were no large scale capital or O&M savings associated with the Algae Wheel equipment. The equipment does show a significant reduction in power when compared to other technologies, but this is a relatively small component of the operational costs. The unit produces a similar amount of sludge as a conventional activated sludge plant does, and because of the lack of established operational protocols for the unit, it is difficult to assume less operational effort with this type of WWTP.

The costs associated with the Algae Wheel technology were similar to those estimated for the conventional 25,000 gallon/day WWTP shown in Tables 5.02-5 and 5.02-6 .

5.03 ALTERNATIVE 2: USE OF EXISTING WWTP IN SHORT-TERM FOLLOWED BY LONG-TERM ABANDONMENT AND CONSTRUCTION OF WWTP NEAR THE SR 37/144 INTERCHANGE

This alternative includes the following phased WWTP improvements:

1. Construct the Bluff Creek Regional Lift Station and a force main back to the existing WWTP. This will pump flows from new developments in the short term back to the existing WWTP.

2. Once the 1.5 mgd capacity of the existing WWTP is reached, a new WWTP will be constructed at a suitable location in the Bluff Creek drainage basin. This plant may initially either be sized to only handle flows from the western part of the service area or it may be designed to handle flows from the existing WWTP as well.

3. In the future (depending on Bargersville's requirements), the existing WWTP will be abandoned and converted to a regional lift station, pumping the flow from this point to the new WWTP.

This alternative has the following advantages:

1. Bargersville will avoid having to operate and maintain two WWTPs, which will save significantly on operation and maintenance costs.

2. Complications regarding initial sizing of the new WWTP at the SR 37/144 interchange will be avoided as this WWTP will not go into service until there is a significant amount of flow to divert to the facility.

3. The capacity of the existing facility is used more efficiently as more of its capacity will be used until it is ultimately abandoned.

4. The ultimate abandonment and demolition of the existing WWTP will eliminate long-term concerns regarding the proximity of the WWTP to existing residential development. It also eliminates concerns regarding the ability of the existing WWTP to expand on the current site.

5. The future WWTP can be sited after future development patterns emerge that allow it to be located in an optimal location to avoid proximity concerns.

This alternative has the following disadvantages:

1. The force main from the Bluff Creek Regional Lift Station will be fairly long and will lead to the potential of odor-forming compounds.

2. The ultimate abandonment of the existing WWTP will eliminate an existing WWTP with a significant amount of value. It should be noted that the abandonment and demolition of this facility would not occur for a significant amount of time; however, it will still result in an economic loss to Bargersville.

A. Sequence of Proposed Alternative Phasing

The timing of this alternative would be as follows.

1. Construction of Bluff Creek Regional Lift Station and Force Main

The costs developed for the Bluff Creek Lift Station in Section 4 of this report are for a lift station that is significantly oversized for the immediate need and includes the components necessary to pump the ultimate anticipated flow. It is possible to install a significantly smaller lift station that is designed to be easily expanded to meet the requirements of future flows to save on short-term capital costs. Many of the components necessary for the larger ultimate flows will not be needed for the smaller immediate flows.

This construction would occur immediately as required by the proposed development in the area. A force main would also be constructed from the proposed lift station to one of the following locations:

- Directly into the headworks of the WWTP (approximately 27,000 linear feet)

- Into the interceptor sewers upstream of the Hickory Stick Lift Station (approximately 16,000 linear feet)

The construction of a force main to the Hickory Stick Lift Station would save significantly on capital costs; however, this would be a short-term solution because of the ultimate capacity of the Hickory Stick Lift Station. However, in the short term, this may be viable as Hickory Stick currently appears to have significant additional capacity. Table 5.03-1 shows the estimated capital costs associated with a Bluff Creek Lift Station designed for discharge into the sanitary sewers upstream of Hickory Stick Lift Station, and Table 5.03-2 shows the estimated capital costs associated with a Bluff Creek Lift Station designed for discharge directly to the WWTP headworks.

	Quantity	Unit	Unit Price	Total Price
Phase 1–Initial Lift Station Design (Peak Flow 900 gpm)				
10-inch Force Main	16,000	LF	$75.00	$1,200,000
Utility Tracer Wire	16,000	LF	$0.44	$7,000
Automatic Air and Vacuum Release Assembly and Vault	5	LF	$3,500.00	$17,500
Site Work	1	LS	$25,000.00	$25,000
Wet Well (15 feet) and valve vault	1	LS	$100,000.00	$100,000
Submersible Pump (20 hp)	2	EA	$20,000.00	$40,000
Backup Generator/ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$75,000.00	$75,000
General Conditions (8%)	1	LS		$124,000
Contingencies and Technical Services (35%)	1	LS		$585,700
Phase 1 Total Estimated Construction Cost				**$2,259,200**

Table 5.03-1 Capital Costs for Bluff Creek Lift Station and Force Main Discharging Upstream of Hickory Stick

	Quantity	Unit	Unit Price	Total Price
Phase 1–Initial Lift Station Design (Peak Flow 900 gpm)				
10-inch Force Main	27,000	LF	$75.00	$2,025,000
Utility Tracer Wire	27,000	LF	$0.44	$11,900
Automatic Air and Vacuum Release Assembly and Vault	5	LF	$3,500.00	$17,500
Site Work	1	LS	$25,000.00	$25,000
Wet Well (15 feet) and Valve Vault	1	LS	$100,000.00	$100,000
Submersible Pump (30 hp)	2	EA	$30,000.00	$60,000
Backup Generator/ATS	1	EA	$85,000.00	$85,000
Electrical	1	LS	$75,000.00	$75,000
General Conditions (8%)	1	LS		$192,000
Contingencies and Technical Services (35%)	1	LS		$907,000
Phase 1 Total Estimated Construction Cost				**$3,498,400**

Table 5.03-2 Capital Costs for Bluff Creek Lift Station and Force Main Discharging to WWTP Headworks

The operational costs of lift stations are generally assumed to be approximately $10,000/year. The depreciation costs assumed for lift stations are significantly less than for WWTP because there is significantly less equipment than there is with a WWTP.

2. Construction of New WWTP at SR 37/144 interchange

   Once the existing WWTP reaches its design capacity, a new WWTP would be constructed near the SR 37/144 interchange. The following may occur at this point:

   a. The existing WWTP would be abandoned and demolished, and the proposed WWTP be made large enough to accommodate all flows from the service area. The existing WWTP would be converted into a regional lift station, and the force main installed in Phase 1 would be reused to pump back to the new WWTP.

   b. The existing WWTP could remain in service, serving the flow from the eastern part of the service area. Under this scenario, the existing and proposed WWTPs would be operated simultaneously until the decision was ultimately made to demolish the existing WWTP.

Continuing to operate both facilities would provide Bargersville with a significant short-term capital cost savings as it would allow the proposed WWTP at 37/144 to be sized 1.5 mgd smaller than originally intended and not require upgrades to the existing main lift station. However, these capital costs savings would be offset by operational costs as these costs would be approximately twice the operational costs of a single WWTP.

5.04 ALTERNATIVE 3: EXPAND EXISTING WWTP TO SERVE THE ENTIRE SERVICE AREA

This alternative includes expanding the existing WWTP to serve the ultimate service area and only having a single WWTP. All remote drainage basins would pump either directly or indirectly to this WWTP (see Section 4 for a discussion on conveyance alternatives). The ultimate design average and peak-hourly flows would be 10.3 and 30.1 mgd, respectively. This alternative has the following benefits:

1. Operating a single WWTP is more efficient than operating two separate WWTPs. The long-term operation, maintenance, and replacement costs of a single WWTP will be significantly less than two smaller WWTPs.

2. The WWTP site does appear to have adequate room to fit the proposed process equipment necessary to expand the WWTP to 10.3 mgd. However, it should be noted that this site will be very small for a WWTP of this ultimate size.

This alternative has the following disadvantages:

1. The existing WWTP is in a poor location because of the proximity of existing residential development. The WWTP location currently leads to complaints by neighbors about odors. While Bargersville is taking steps to alleviate the odor

problems and has had success using oxidizing chemicals in force mains and activated carbon units, the potential for future aesthetic problems with a WWTP that is over six times larger than the current WWTP is high.

2. The site is land-locked. Preliminary analysis has shown that it appears to be large enough to accommodate the necessary unit processes for future expansion, but it will be on a very small site for that size of facility.

3. The existing lagoons on-site will ultimately need to be removed and proposed process equipment will need to be installed in their place. This will lead to additional construction costs and complications.

The short-term costs associated with this alternative are similar to Alternative 2 because the existing WWTP is currently at less than half capacity and it will take a significant amount of time before it is necessary to expand the WWTP (at 3 percent annual growth in the service area, it is over 20 years before the capacity of the facility is expanded). If development occurs in the Bluff Creek drainage basin, it will be necessary to construct a lift station and force main to the existing WWTP. These costs are developed in Section 5.03.

Because of the length of time between now and the proposed expansion, the short-term costs of this alternative are similar to the costs associated with operating the existing WWTP. Costs will be incurred for the construction of the Bluff Creek Lift Station and force main as previously noted if development occurs in this area.

A. Phase 1–Expansion to 3.59 mgd

The first proposed phase of the existing WWTP under this alternative is expansion to 3.59 mgd. The proposed Phase 1 upgrades will be based on these estimated ultimate flows and loadings. Based on design criteria established in the Ten States Standards, Phase 1 will require the infrastructure described in Table 5.04-1. The WWTP currently has a capacity of 1.5 mgd, and current annual average flows into the facility are approximately 0.65 mgd. As such, the facility can treat approximately 100 percent additional flow before needing expansion and the first recommended expansion would more than double the existing capacity.

Infrastructure	Design Parameter	Existing Design	Required Capacity	Required Upgrades
Oxidation Ditch	15 lb BOD/day/1000 cu ft	262,165 cu ft	366,000 cu ft	One new ditch of similar design
Clarifier	900 gpd/ sq ft	none	10,190 sq ft	Two 85-foot-diameter clarifiers
Digester	60-day SRT	none	1,200,000 gal	One new digester (75 x 110)

Table 5.04-1 Existing WWTP Phase 1 Expansion

In addition to the added tankage, upgrades to the influent pumps, headworks, blowers, and effluent UV disinfection equipment will be required to accommodate the increased flow. The

upgrades may also require a splitter structure to control flow distribution. The proposed layout of the Phase 1 expansion is shown in Figure 5.04-1.

B. Phase 2–Expansion to 6.64 mgd Capacity

Basin	Esimated Ultimate Average Flow (mgd)	Estimated Ultimate Peak Flow (mgd)
Existing WWTP	3.59	9.17
Youngs Creek	1.69	4.64
North Prong Stotts Creek	0.90	2.87
Henderson Creek	0.46	1.66
Total Estimate Ultimate Flows	6.64	15.10

Table 5.04-2 Drainage Basins and Ultimate Estimated Flows of Existing WWTP

The Phase 2 Expansion will require the following upgrades:

- Addition of two oxidation ditches
- Addition of two secondary clarifiers
- Addition of one aerobic digester

Additionally it is likely that equipment upgrades will be necessary to the influent pumping and headworks, UV disinfection, and return and waste sludge systems.

The proposed layout of the Phase 2 expansion is highlighted in Figure 5.04-1.

C. Phase 3–Expansion to 10.3 mgd Capacity

This expansion would allow the treatment of the entire future service area at the existing WWTP location. The ultimate future flow estimate for the entire service area is approximately 10.32 mgd average daily flow and 31.0 mgd a peak flow. These flow estimates are detailed in Table 5.04-3. The ultimate proposed build out of the existing WWTP site is shown in Figure 5.04-1. This expansion will include the following improvements:

- Addition of two oxidation ditches
- Addition of two secondary clarifiers
- Addition of one aerobic digester

Similar to Phase I, it is likely that equipment upgrades will be necessary to the influent pumping and headworks, UV disinfection, return and waste sludge systems, and sludge handling facilities.

PHASE 1 PROPOSED BUILD OUT

(AVG FLOW 3.60 MGD)

- 1 NEW OXIDATION DITCH
- 2 NEW 85 FT DIAMETER CLARIFIERS
- 1 NEW AEROBIC DIGESTER
- 1 NEW SPLITTER STRUCTURE
- 1 NEW RAS PUMPING STRUCTURE
- UPGRADE HEADWORKS AND UV DISINFECTION

PHASE 2 PROPOSED BUILD OUT

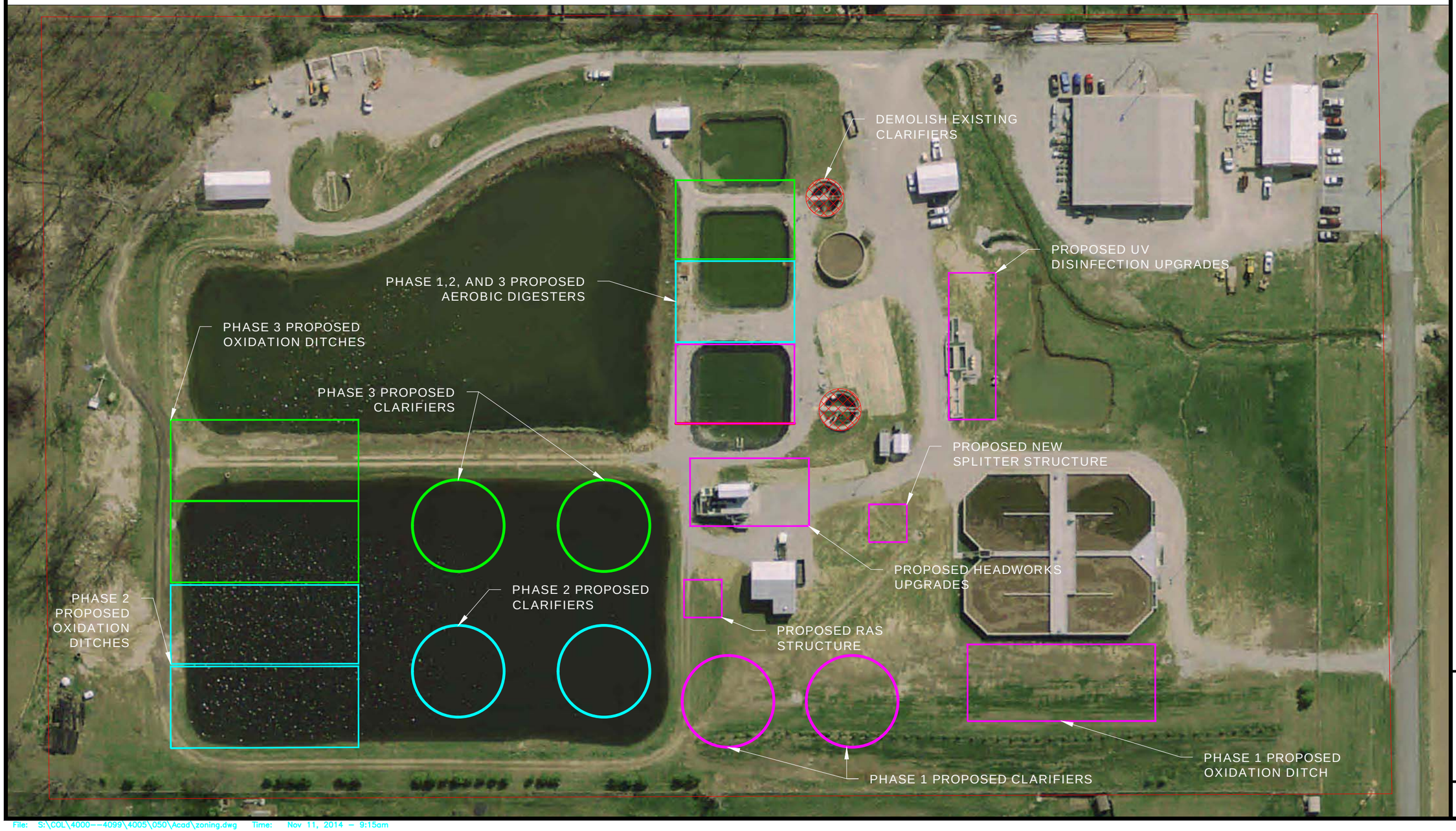
(AVG FLOW 6.65 MGD)

- 2 NEW OXIDATION DITCH
- 2 NEW 85 FT DIAMETER CLARIFIERS
- 1 NEW AEROBIC DIGESTER
- UPGRADE SPLITTER STRUCTURE, HEADWORKS, AND UV DISINFECTION

PHASE 3 PROPOSED BUILD OUT

SERVE ENTIRE FUTURE SERVICE AREA
(AVG FLOW 10.30 MGD)

- 2 NEW OXIDATION DITCH
- 2 NEW 85 FT DIAMETER CLARIFIERS
- 1 NEW AEROBIC DIGESTER
- UPGRADE SPLITTER STRUCTURE, HEADWORKS, AND UV DISINFECTION



WWTP ALTERNATIVE NO. 3

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY, INDIANA

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FIGURE 5.04-1
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Service Basin	Estimated Ultimate Average Flow (mgd)	Estimated PE
Travis Creek	0.38	1,527
Bluff Creek	1.72	13,057
Crooked Creek	1.29	3,716
Banta Creek	0.30	1,265
Henderson Creek	0.46	1,977
North Prong Stotts Creek	0.90	5,557
Youngs Creek	1.70	16,278
WWTP Basin	3.59	24,952
Total Estimated Average Flow	10.3	
Total Estimated Peak Flow	31.0	

Table 5.04-3 Alternative 3–Ultimate Service Area Flows

SECTION 6
DOWNTOWN FLOW ALLEVIATION

6.01 EXISTING CONVEYANCE SYSTEM

Currently, the gravity sewer at the intersection of Harriman Avenue, Old Plank Road, and Short Street experiences overflows during periods of high flow with the existing layout of the conveyance system, the flow from the Three Notch, Baldwin Street, and 135 lift stations is pumped to the same 14-inch gravity interceptor that conveys flow through the downtown portion of Bargersville to the main WWTP lift station. The 135 Lift Station is also responsible for pumping flow from the County Meadow and Pheasant Point lift stations, and the Baldwin Street Lift Station pumps flow from the Two Cent Road Lift Station. Figure 6.01-1 is a schematic of these lift stations.

Bargersville noted that the 135 Lift Station has a significant amount of operational issues and is in need of rehabilitation. The Baldwin Street Pumping Station is becoming aged and the 4-inch force main is reaching the design capacity. Continuing to pump flow from the Two Cent Road Lift Station to the Baldwin Street Pumping Station may require upgrades to both the lift station and force main in the near future. It is estimated that the total capacity of the existing 14-inch gravity interceptor is 1.44 mgd and that the existing peak flows through this pipe are approximately 1.12 mgd. The existing estimate is based on flow approximations from WWTP flow data and the number of customers upstream of the gravity interceptor. It should be noted that the aforementioned flow estimate could increase during periods of wet weather flow.

Although upgrades to the 135 and Baldwin Street lift stations would improve their performance, continuing to pump this flow north to the downtown interceptor will continue to decrease the limited remaining capacity of the 14-inch interceptor. This will continue to create surcharging occurrences during periods of high flow. Additionally, the existing Main Lift Station also has limited capacity for increased flow (see Section 4). The existing capacity of this lift station may be adding to the upstream surcharging issues during periods of wet weather flow. The 14-inch interceptor has the capacity to convey approximately 1.44 mgd whereas the Main Lift Station is designed to pump peak flows of 1.35 mgd. Therefore, development in the southern portion of Bargersville's existing wastewater service area may be limited by the capacity of the existing Main Lift Station more so than by the gravity interceptor.

Alternatives to alleviate a portion of this flow from both the existing interceptor and Main Lift Station were evaluated to improve the overall performance of the conveyance system and increase the development potential of the existing wastewater service area.

6.02 PROPOSED CONVEYANCE INFRASTRUCTURE

The following infrastructure is proposed to alleviate flow from the downtown gravity interceptor sewer:

- Construct new gravity sewer from the 135 Lift Station to the Two Cent Road Lift Station.
- Construct new force main from the Two Cent Road Lift Station to the WWTP headworks.
- Upgrade the existing pumps in the Two Cent Road Lift Station.
- Redirect force mains from Pheasant Point and Country Meadow Lift Stations.

These proposed upgrades will alleviate flow from the downtown gravity interceptor, reducing the risk for surcharging during peak flow conditions. In addition, pumping directly from the Two Cent Road Lift

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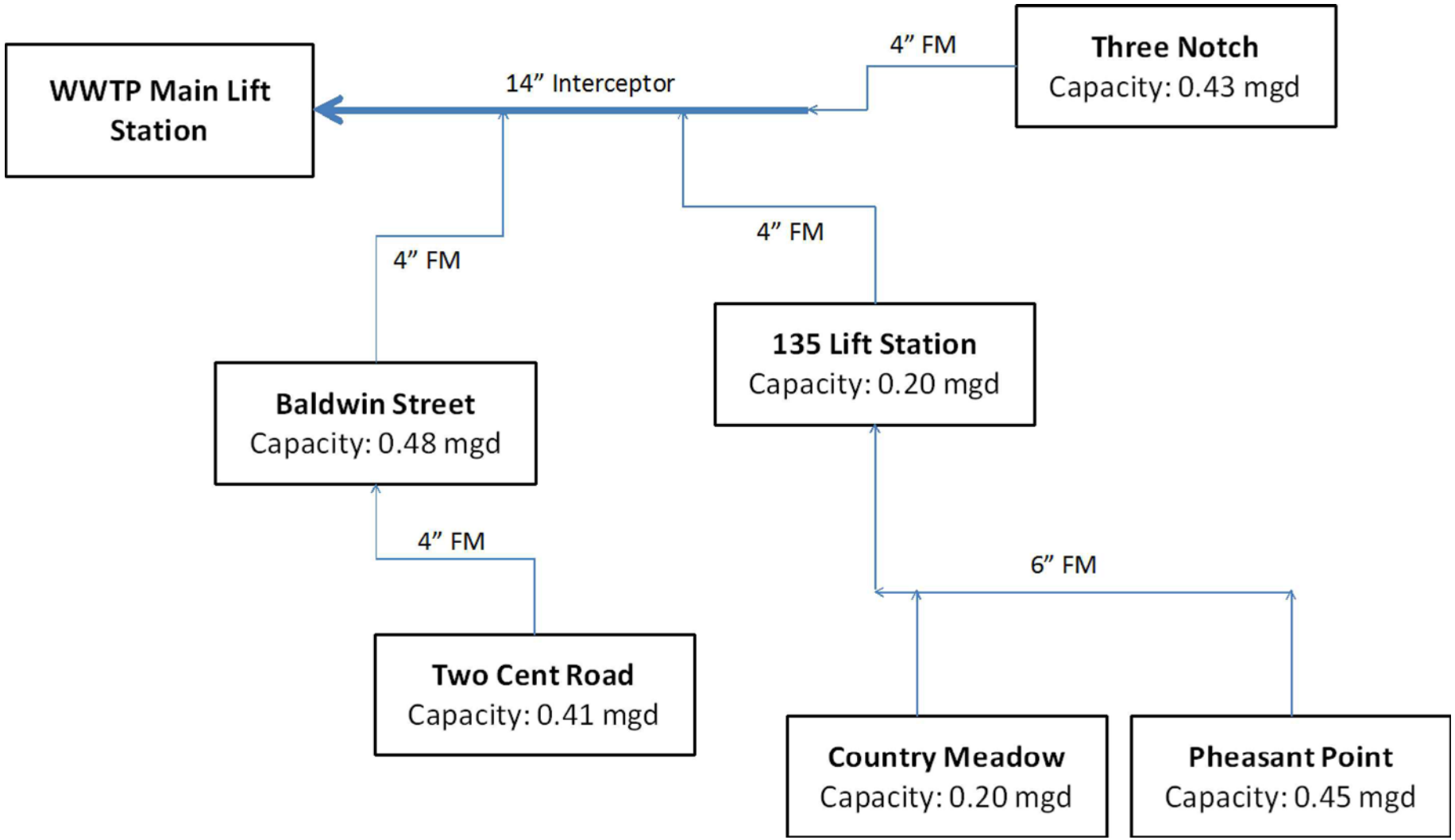

EXISTING LIFT STATION SCHEMATIC

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE
JOHNSON COUNTY, INDIANA

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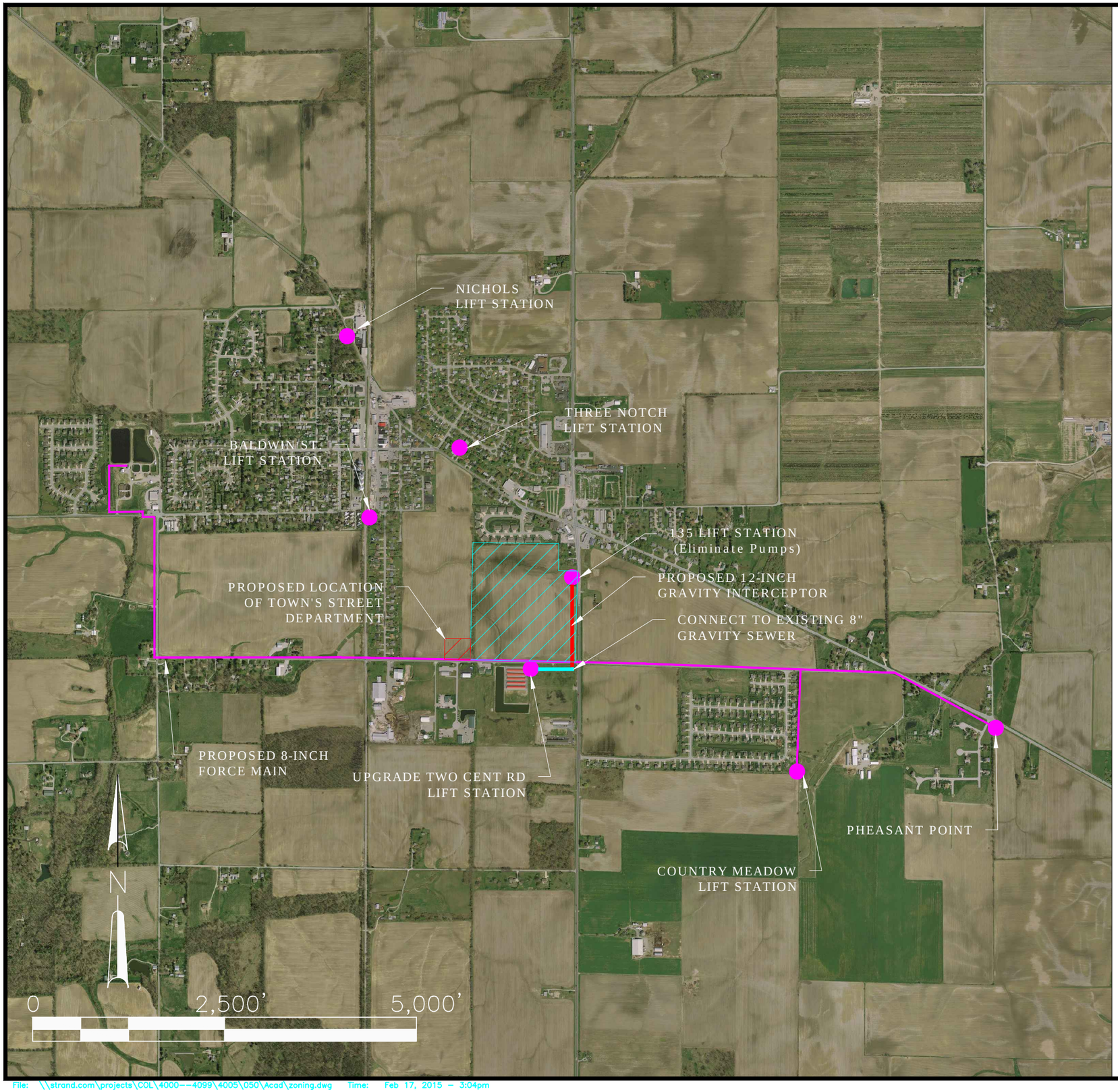
FIGURE 6.01-1

4005.050



EXISTING LIFT STATION

PROPOSED FORCE MAIN

PROPOSED GRAVITY SEWER

EXISTING GRAVITY SEWER

PROPOSED LOCATION OF
FUTURE SPORTS COMPLEX

PROPOSED SYSTEM LAYOUT

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

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FIGURE 6.02-1
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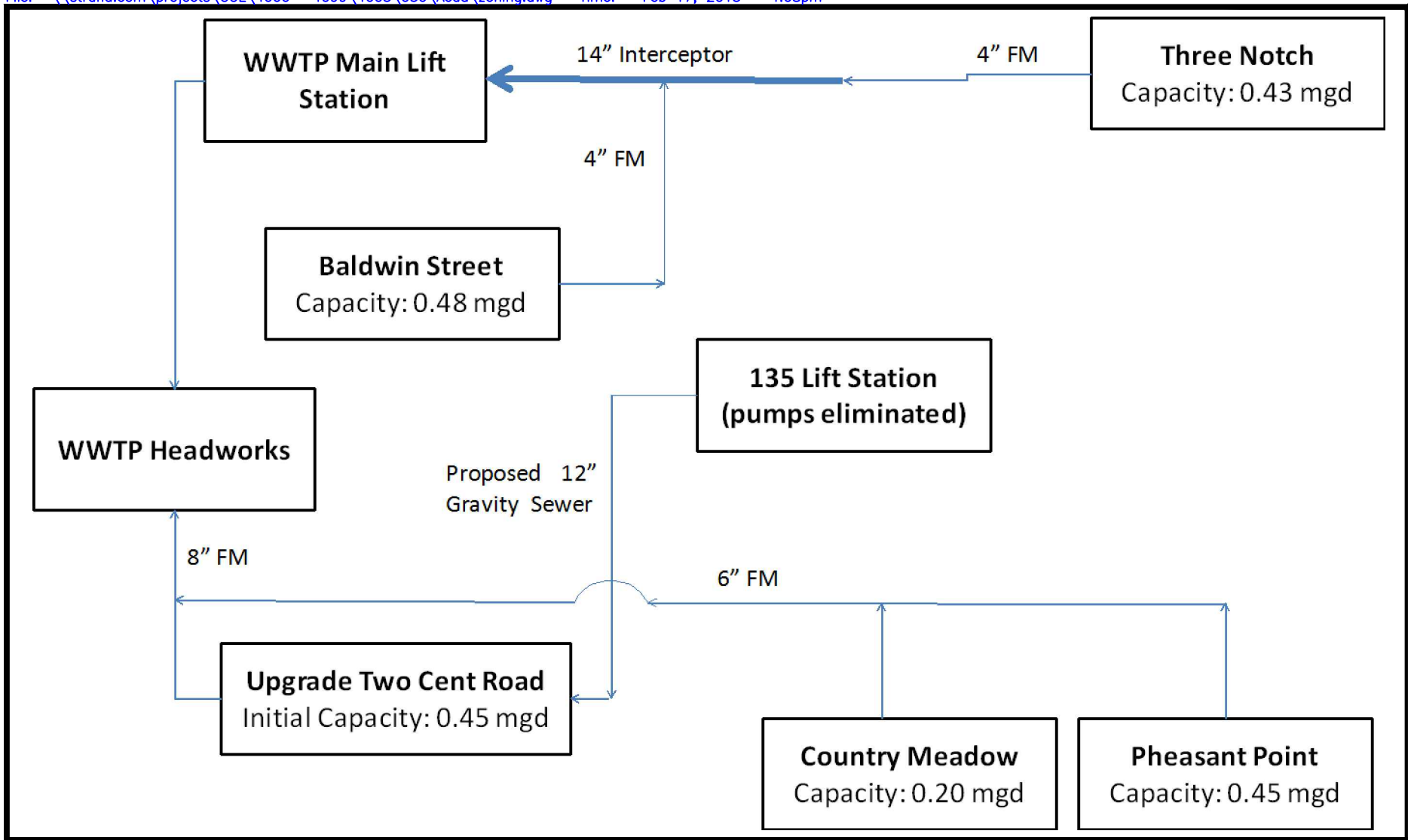

PROPOSED LIFT STATION SCHEMATIC

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE
JOHNSON COUNTY, INDIANA

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FIGURE 6.02-2
4005.050

Station to the WWTP headworks increases the pumping capacity of the main WWTP Lift Station for future growth in the northern portions of the WWTP service area. The proposed infrastructure will eliminate the need for rehabilitation projects at the 135 and Baldwin Street lift stations while providing a new gravity sewer and force main to the unsewered area between Two Cent Road and the WWTP.

A. Proposed Gravity Sewer

Sizing of the proposed gravity sewer from the 135 Lift Station to the Two Cent Road Lift Station will be designed to convey both existing and ultimate peak flows from the southeast portion of the existing WWTP basin. According to Bargersville's existing lift station reports, the 135 Lift Station is 20 feet deep. Combining this with GIS topographical data equates to a wet well invert elevation of approximately 805 feet. Similarly, the Two Cent Road Lift Station has a wet well invert elevation of approximately 796 feet. This elevation difference allows for a gravity sewer to connect the two existing lift stations.

Initially, it is proposed that a 12-inch gravity sewer is constructed to provide the capacity to serve the existing flows from the 135 and the potential 40-acre sports complex development along SR 135. It is proposed that the gravity sewer is constructed from the existing 135 Lift Station to the existing 8-inch gravity sewer at the intersection of SR 135 and Two Cent Road. The proposed gravity sewer will be approximately 1,025 feet long. The proposed design assumes that the existing gravity sewer is deep enough to meet the minimum slope requirements of the 12-inch sewer from the 135 Lift Station. These elevations should be field verified before final design. The proposed layout is shown in Figure 6.02-1. The OPCC for this portion of the proposed upgrades is outlined in Table 6.02-1. The existing 8-inch gravity sewer has a small service area. Therefore, there is capacity for the initial flows from the 135 Lift Station. As development occurs in this area, the 8-inch sewer may need to be upgraded to a 12-inch gravity sewer. The capacity should be monitored periodically as new customers are connected to the system.

B. Proposed Two Cent Road Lift Station Upgrades

The proposed new force main from the Two Cent Road Lift Station will be designed to pump flow directly to the headworks of the existing WWTP. This will help to alleviate flow from both the downtown gravity interceptor and the existing Main Lift Station, providing additional capacity for future growth. It is proposed that a new 8-inch force main is constructed from the Two Cent Road Lift Station to the WWTP. The 8-inch force main is sized to convey the existing and ultimate flows of this service area. The proposed layout will require approximately 8,200 feet of pipe to connect the lift station to the WWTP headworks.

Because of the force main length and increased flow, the existing pumps in the Two Cent Road Lift Station will require upgrades. Initially, it is estimated that these pumps will require 315 gpm of capacity with an ultimate design of 500 gpm. The proposed location of the new force main is shown in Figure 6.02-1. The estimated design requirements for the proposed Two Cent Road upgrades are shown in Table 6.02-1 and the OPCC is described in Table 6.02-2. A schematic of the proposed conveyance system upgrades is displayed in Figure 6.02-2.

Initially, these proposed conveyance system upgrades will alleviate approximately 0.20 mgd of peak flow from the existing 14-inch gravity interceptor and Main Lift Station. The ultimate design could potentially alleviate approximately 0.70 mgd of peak flow from the existing system. These proposed

projects should eliminate the existing surcharging issues and provide conveyance infrastructure for development in the southern portion of Bargersville's service area.

C. Country Meadow and Pheasant Point Lift Stations

It is proposed that flow from the Country Meadow and Pheasant Point lift stations is pumped through a new 6-inch force main that is manifold to the proposed 8-inch force main from the Two Cent Road Lift Station. This will alleviate flow from the 135 Lift Station and create the needed infrastructure for development on the southwest side of Bargersville. Altering the force main design of these lift stations will require pump upgrades to accommodate the increased head and future flow requirements. The proposed layout of the new force main is shown in Figure 6.02-1. The estimated design requirements for the Country Meadow and Pheasant Point proposed upgrades are shown in Table 6.02-1 and the OPCC is described in Table 6.02-2. It should be noted that since these lift stations serve residential neighborhoods, an on-site backup generator was not included for these lift stations. A schematic of the proposed conveyance system upgrades is displayed in Figure 6.02-2.

	Number of Pumps	Estimated Future Flow Requirements (gpm)	Estimated Total Dynamic Head (ft)	Estimated Pump Requirements (hp)
Two Cent Road	2	290	132	23
Country Meadows	2	150	130	17
Pheasant Point	2	100	140	17

Table 6.02-1 Estimated Design Requirements

Item Description	Quantity	Unit	Unit Price	Total Price
12- Inch Gravity Sewer				
12-inch PVC Sanitary Sewer, SDR 35, CIP	1,025	LF	$145.00	$148,600.00
4-foot-diameter Sanitary Manhole, 10 to 14 feet, CIP	5	EA	$4,500.00	$22,500.00
General Conditions (8%)				$13,700.00
Contingencies and Technical Services (35%)				$64,700.00
Total Estimated Gravity Sewer Construction Cost				$249,500.00
Two Cent Road Lift Station Upgrades				
8-inch Force Main	8,200	LF	$65.00	$533,000.00
Utility Tracer Wire	8,200	LF	$0.44	$3,600.00
Automatic Air and Vacuum Release Assembly and Vault	4	EA	$3,500.00	$14,000.00
Site Work	1	LS	$25,000.00	$25,000.00
Lift Station Building	1	LS	$50,000.00	$50,000.00
Submersible Pump (23 hp)	2	EA	$20,000.00	$40,000.00
Backup Generator/ATS	1	LS	$85,000.00	$85,000.00
Electrical	1	LS	$75,000.00	$75,000.00
General Conditions (8%)				66,000.00
Contingencies and Technical Services (35%)				$312,100.00
Total Estimated Lift Station and Force Main Construction Cost				$1,203,700.00
Country Meadows and Pheasant Point Lift Station Upgrades				
6-inch Force Main	7,300	LF	$50.00	$365,000.00
Utility Tracer Wire	7,300	LF	$0.44	$3,212.00
Automatic Air and Vacuum Release Assembly and Vault	3	EA	$3,500.00	$10,500.00
Submersible Pump (17 hp, 2 each site)	4	EA	$15,000.00	$60,000.00
Electrical	2	LS	$60,000.00	$120,000.00
General Conditions (8%)				44,700.00
Contingencies and Technical Services (35%)				$211,200.00
Total Estimated Lift Station and Force Main Construction Cost				$814,612.00
Total Estimated Construction Cost				$2,267,800.00

Table 6.02-2 Proposed Sewer and Lift Station Upgrades

SECTION 7
SUMMARY AND RECOMMENDATIONS

7.01 SUMMARY AND RECOMMENDATIONS

This report represents long-term ultimate planning for Bargersville. As such, this report serves not as a definitive guide regarding immediate infrastructure improvements but serves as a framework to make future decisions as development occurs and it becomes necessary to extend wastewater infrastructure to serve this development.

The recommendations set in this report generally fall into the following three categories:

- Recommendations for infrastructure in new service areas.
- Recommendations for ultimate wastewater treatment alternatives.
- Recommendations for improvements to existing collection system infrastructure.

A. Recommendations for Infrastructure in New Service Areas

This report was completed with the intent of planning for the ultimate service area on a holistic basis with the intent of minimizing the amount of mechanical wastewater infrastructure (lift stations and wastewater treatment plants) necessary to provide this service. Accommodating this led to the breakdown of the ultimate service area into drainage basins and the installation of interceptor sewers that generally followed the alignment of existing creeks in the area and a series of regional lift stations and force mains serving each of these areas. The ultimate capacity of these lift stations is shown in Table 7.01-1, and a layout of the lift stations and force mains is shown in Figure 7.01-1.

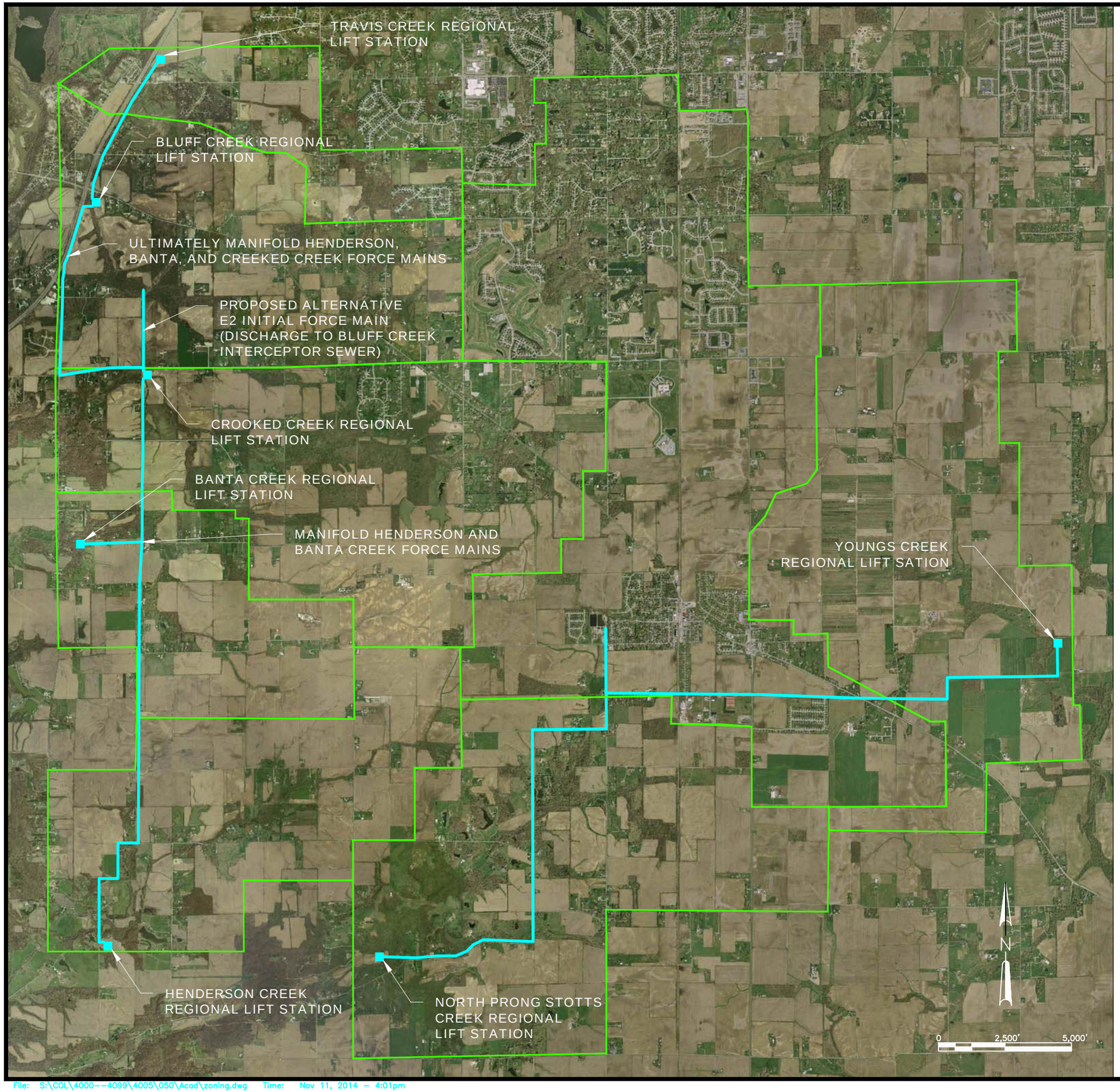
Regional Lift Station	Estimated Average Flow (mgd)	Estimated Peaking Factor	Estimated Peak Flow (mgd)
Travis Creek	0.38	3.67	1.39
Bluff Creek	1.72	2.84	4.88
Crooked Creek	1.29	3.36	4.33
Banta Creek	0.30	3.73	1.12
Henderson Creek	0.46	3.59	1.65
North Prong Stotts Creek	0.90	3.20	2.88
Youngs Creek	1.69	2.74	4.63

Table 7.01-1 Ultimate Capacity of Proposed Regional Lift Stations

B. Recommendations for Ultimate Wastewater Treatment

It is recommended that Bargersville continue to use its existing WWTP until it is at capacity and then construct a new facility in a better location to serve the entire service area. The reasoning for this is as follows:

- The existing WWTP has a current capacity of 1.5 mgd, of which 0.66 mgd is currently used.



PROPOSED SEWER BASIN DELINATIONS

PROPOSED FORCE MAINS

PROPOSED REGIONAL LIFT STATION

PROPOSED REGIONAL LIFT STATIONS

SANITARY SEWER MASTER PLAN
TOWN OF BARGERSVILLE, INDIANA
JOHNSON COUNTY INDIANA

STRAND ASSOCIATES®

FIGURE 7.01-1
4005.050

File: S:\COL\4000--4099\4005\050\Acad\zoning.dwg Time: Nov 11, 2014 - 4:01pm

- The operation, maintenance, and depreciation costs associated with two WWTPs is significant and should be avoided when possible. The available capacity of the existing WWTP further indicates the construction of a second WWTP in this service area is not warranted.

- At an estimated 3 percent growth rate, the existing WWTP can likely continue to operate for approximately 20 years before additional capacity is required.

- Locating a future WWTP in a more suitable location will alleviate long-term aesthetic concerns associated with a WWTP in a residential area, which is currently a concern for Bargersville.

C. Recommendations for Improvements to Existing Collection System Infrastructure

Bargersville has noted that the existing collection system has bottleneck issues that result in periodic surcharging close to the intersection of Old Plank Road and Harriman Avenue. To decrease the surcharging potential, it is recommended that a portion of this flow is diverted around the south side of Bargersville and pumped directly to the headworks of the WWTP. Alleviating flow from the older downtown sewer system has several advantages:

- Decreases surcharging potential during wet weather events.
- Eliminates an existing lift station in need of rehabilitation.
- Constructs sewer infrastructure for development in the southern portion of Bargersville.
- Potentially increases the design life of the existing Main Lift Station.

The existing infrastructure in the northern portion of Bargersville's service area appears to have the capacity to support some growth. Because of the connectivity of lift stations and force mains in this area, it is recommended that the upstream and downstream impacts of development are evaluated before any construction activity. Increased flow to the manifold force mains could impact the capacity of each lift station that is connected.

APPENDIX A
NPDES PERMIT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

VIA ELECTRONIC MAIL April 18, 2012

Mr. Michael Davis, Superintendent
Town of Bargersville Utilities
24 North Main Street
Bargersville, Indiana 46016

Dear Mr. Davis:

Re: Final NPDES Permit No. IN0022314
Town of Bargersville Wastewater Treatment Plant
Johnson County

Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been processed in accordance with Sections 402 and 405 of the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251, et seq.), and IDEM's permitting authority under IC 13-15. The enclosed NPDES permit covers your discharges to the North Prong of Stotts Creek. All discharges from this facility shall be consistent with the terms and conditions of this permit.

One condition of your permit requires monthly reporting of several effluent parameters. Reporting is to be done on the Monthly Report of Operation (MRO) form. This form is available on the internet at the following web site:

http://www.in.gov/idem/5104.htm

You should duplicate this form as needed for future reporting.

Another condition which needs to be clearly understood concerns violation of the effluent limitations in the permit. Exceeding the limitations constitutes a violation of the permit and may bring criminal or civil penalties upon the permittee. (See Part II.A.1 and II.A.11 of this permit). It is very important that your office and treatment operator understand this part of the permit.

Please note that this permit issuance can be appealed. An appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by you within 18 days from the date this letter is postmarked, by filing a request for an adjudicatory hearing with the Office of Environmental Adjudication (OEA), at the following address:

Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue, Room 501
Indianapolis, IN 46204

Please send a copy of any such appeal to me at IDEM, Office of Water Quality-Mail Code 65-42, 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.

The permit should be read and studied. It requires certain action at specific times by you, the discharger, or your authorized representative. One copy of this permit is also being sent to your operator to be kept at the treatment facility. You may wish to call this permit to the attention of your consulting engineer and/or attorney.

If you have any questions concerning your NPDES permit, please contact Leigh Voss at 317/232-8698. Questions concerning appeal procedures should be directed to the Office of Environmental Adjudication, at 317/232-8591.

Sincerely,

Paul Higginbotham, Chief
Permits Branch
Office of Water Quality

Enclosures
cc: Johnson County Health Department
Ms. Victoria Ditchley, Certified Operator
Mr. Matt Whitaker, Town of Bargersville WWTP
U.S. EPA, Region 5

STATE OF INDIANA

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to the

TOWN OF BARGERSVILLE

hereinafter referred to as "the permittee." The permittee owns and/or operates the **Town of Bargersville Wastewater Treatment Plant**, a major municipal wastewater treatment plant located at 600 West Old South Street, Bargersville, Indiana in Johnson County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters consisting of the North Prong of Stotts Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: May 1, 2012.

Expiration Date: April 30, 2017.

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and application forms as are required by the Indiana Department of Environmental Management. The application shall be submitted to IDEM at least 180 days prior to the expiration date of this permit, unless a later date is allowed by the Commissioner in accordance with 327 IAC 5-3-2 and Part II.A.4 of this permit.

Issued on April 18, 2012, for the Indiana Department of Environmental Management.

Paul Higginbotham, Chief
Permits Branch
Office of Water Quality

TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class III, 1.5 MGD treatment facility consisting of a fine screen, grit removal system, a Biolac Treatment system, dual oxidation ditch system (Phased Isolation Ditch Technology), a secondary clarifier, UV disinfection, and an effluent flow meter. Sludge is treated by aerobic digestion and bio-solids are hauled off-site.

After the incoming wastewater passes through the Headworks Building where primary treatment occurs the flow splits. Wastewater in the amount of 0.5 MGD is diverted to the Biolac Treatment system and continues to a secondary clarifier, and the remaining wastewater (1.0 MGD) is diverted to the dual oxidation ditch system in which clarification will occur. After secondary treatment occurs the wastewater is treated by ultraviolet disinfection.

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee shall take samples and measurements at a location representative of each discharge to determine whether the effluent limitations have been met. Refer to Part I.B of this permit for additional monitoring and reporting requirements.

1. Beginning on the effective date of this permit, the permittee is authorized to discharge from Outfall 001, which is located at Latitude: 39° 31' 16" N, Longitude: 86° 10' 38" W. The discharge is subject to the following requirements:

TABLE 1

	Quantity or Loading			**Quality or Concentration**			**Monitoring Requirements**	
Parameter	Monthly Average	Weekly Average	Units	Monthly Average	Weekly Average	Units	Measurement Frequency	Sample Type
Flow [1]	Report	----	MGD	----	----	----	5 X Weekly	24-Hr. Total
$CBOD_5$	312.9	500.7	lbs/day	25	40	mg/l	5 X Weekly	24-Hr. Composite
TSS	375.5	563.3	lbs/day	30	45	mg/l	5 X Weekly	24-Hr. Composite
Ammonia-nitrogen								
Summer [2]	15.8	23.7	lbs/day	1.26	1.89	mg/l	5 X Weekly	24-Hr. Composite
Winter [3]	22.8	34.2	lbs/day	1.82	2.73	mg/l	5 X Weekly	24-Hr. Composite
Phosphorus	----	----	----	Report	----	mg/l	Monthly	24-Hr. Composite

TABLE 2

Parameter	Quality or Concentration: Daily Minimum	Monthly Average	Daily Maximum	Units	Monitoring Requirements: Measurement Frequency	Sample Type
pH [4]	6.0	----	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen [5]						
Summer [2]	6.0	----	----	mg/l	5 X Weekly	4 Grabs/24-Hrs.
Winter [3]	5.0	----	----	mg/l	5 X Weekly	4 Grabs/24-Hrs.
E. coli [6]	----	125 [7]	235 [8]	cfu/100 ml	5 X Weekly	Grab
Influent Mercury [9]	----	----	Report	ng/l	6 X Annually	Grab
Effluent Mercury [9]	----	----	Report	ng/l	6 X Annually	Grab

[1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once annually.

[2] Summer limitations apply from May 1 through November 30 of each year.

[3] Winter limitations apply from December 1 through April 30 of each year.

[4] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Discharge Monitoring Report forms.

[5] The daily minimum concentration of dissolved oxygen in the effluent shall be reported as the arithmetic mean determined by summation of the four (4) daily grab sample results divided by the number of daily grab samples. These samples are to be collected over equal time intervals.

[6] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (fecal coliform or *E. coli*) do not occur from April 1 through October 31, annually.

The *Escherichia coli (E. coli)* limitations apply from April 1 through October 31 annually. IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli (E. coli)*:

1. Coliscan MF® Method
2. EPA Method 1603 Modified m-TEC agar
3. mColi Blue-24®
4. Colilert® MPN Method

[7] The monthly average *E. coli* value shall be calculated as a geometric mean. Per 327 IAC 5-10-6, the concentration of *E. coli* shall not exceed one hundred twenty-five (125) cfu or mpn per 100 milliliters as a geometric mean of the effluent samples taken in a calendar month. No samples may be excluded when calculating the monthly geometric mean.

[8] If less than ten samples are taken and analyzed for *E. coli* in a calendar month, no samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. However, when ten (10) or more samples are taken and analyzed for *E. coli* in a calendar month, not more than ten percent (10%) of those samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. When calculating ten percent, the result must not be rounded up. In reporting for compliance purposes on the Discharge Monitoring Report (DMR) form, the permittee shall record the highest non-excluded value for the daily maximum.

[9] Mercury monitoring shall be conducted six times annually (i.e. every other month) for the term of the permit. Monitoring shall be conducted in the months of February, April, June, August, October, and December of each year. Mercury monitoring and analysis will be performed using EPA Test Method 1631, Revision E. If Method 1631, Revision E is further revised during the term of this permit, the permittee and/or its contract laboratory is required to utilize the most current version of the method immediately after approval by EPA.

The permittee shall measure and report this parameter as <u>total recoverable</u> metal.

2. <u>Minimum Narrative Limitations</u>

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

a. including the mixing zone, to contain substances, materials, floating debris, oil, scum or other pollutants:

(1) that will settle to form putrescent or otherwise objectionable deposits;

(2) that are in amounts sufficient to be unsightly or deleterious;

(3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;

(4) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;

(5) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.

b. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Data on Plant Operation

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by this permit.

3. Monthly Reporting

The permittee shall submit accurate monitoring reports to the Indiana Department of Environmental Management containing results obtained during the previous month and shall be postmarked no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the month in which the permit becomes effective. These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Report of Operation (MRO). Permittees with metals monitoring requirements shall also complete and submit the Indiana Monthly Monitoring Report Form (MMR-State Form 30530) to report their influent and/or effluent data for metals and other toxics. All reports shall be mailed to IDEM, Office of Water Quality – Mail Code 65-42, Compliance Data Section, 100 North Senate Ave., Indianapolis, Indiana 46204-2251. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the

MRO for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

4. Definitions

a. Calculation of Averages

Pursuant to 327 IAC 5-2-11(a)(5), the calculation of the average of discharge data shall be determined as follows: For all parameters except fecal coliform and *E. coli*, calculations that require averaging of sample analyses or measurements of daily discharges shall use an arithmetic mean unless otherwise specified in this permit. For fecal coliform, the monthly average discharge and weekly average discharge, as concentrations, shall be calculated as a geometric mean. For *E. coli*, the monthly average discharge, as a concentration, shall be calculated as a geometric mean.

b. Terms

(1) "Monthly Average" -The monthly average discharge means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

(2) "Weekly Average" - The weekly average discharge means the total mass or flow weighted concentration of all daily discharges during any calendar week for which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar week. The average weekly discharge limitation is the maximum allowable average weekly discharge for any calendar week.

(3) "Daily Maximum" - The daily maximum discharge limitation is the maximum allowable daily discharge for any calendar day. The "daily discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that represents the calendar day for purposes of sampling.

(4) "24-hour Composite" - A 24-hour composite sample consists of at least four (4) individual flow-proportioned samples of wastewater, taken by the grab sample method over equal time intervals during the period of operator attendance or by an automatic sampler, which are taken at approximately equally spaced time intervals for the duration of the discharge within a 24-hour period and which are combined prior to analysis. A flow proportioned composite sample shall be obtained by:

(a) recording the discharge flow rate at the time each individual sample is taken,

(b) adding together the discharge flow rates recorded from each individual sampling time to formulate the "total flow value,"

(c) dividing the discharge flow rate of each individual sampling time by the total flow value to determine its percentage of the total flow value, and

(d) multiplying the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.

(5) $CBOD_5$: Five-day Carbonaceous Biochemical Oxygen Demand

(6) TSS: Total Suspended Solids

(7) *E. coli*: Escherichia coli bacteria

(8) The "Regional Administrator" is defined as the Region V Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.

(9) The "Commissioner" is defined as the Commissioner of the Indiana Department of Environmental Management, located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.

(10) Limit of Detection or LOD is defined as a measurement of the concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix. The LOD is equivalent to the Method Detection Level or MDL.

(11) Limit of Quantitation or LOQ is defined as a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration about the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also called the limit of quantification or quantification level.

(12) Method Detection Level or MDL is defined as the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by the procedure set forth in 40 CFR Part 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

5. Test Procedures

The analytical and sampling methods used shall conform to the current version of 40 CFR, Part 136, unless otherwise specified within this permit. Multiple editions of Standard Methods for the Examination of Water and Wastewater are currently approved for most methods, however, 40 CFR Part 136 should be checked to ascertain if a particular method is approved for a particular analyte. The approved methods may be included in the texts listed below. However, different but equivalent methods are allowable if they receive the prior written approval of the State agency and the U.S. Environmental Protection Agency.

a. Standard Methods for the Examination of Water and Wastewater
18^{th}, 19^{th}, or 20^{th} Editions, 1992, 1995 or 1998 American Public Health Association, Washington, D.C. 20005.

b. A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis
1972 American Society for Testing and Materials,
Philadelphia, PA 19103.

c. Methods for Chemical Analysis of Water and Wastes
June 1974, Revised, March 1983, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, 1014 Broadway, Cincinnati, OH 45202.

6. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record and maintain records of all monitoring information on activities under this permit, including the following information:

a. The exact place, date, and time of sampling or measurements;

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

c. The dates and times the analyses were performed;

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

e. The analytical techniques or methods used; and

f. The results of all required analyses and measurements.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Discharge Monitoring Report and on the Monthly Report of Operation form. Such increased frequency shall also be indicated on these forms. Any such additional monitoring data which indicates a violation of a permit limitation shall be followed up by the permittee, whenever feasible, with a monitoring sample obtained and analyzed pursuant to approved analytical methods. The results of the follow-up sample shall be reported to the Commissioner in the Monthly Discharge Monitoring Report.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three-year period shall be extended:

a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or

b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

C. REOPENING CLAUSES

In addition to the reopening clause provisions cited at 327 IAC 5-2-16, the following reopening clauses are incorporated into this permit:

1. This permit may be modified or, alternately, revoked and reissued after public notice and opportunity for hearing to incorporate effluent limitations reflecting the results of a wasteload allocation if the Department of Environmental Management determines that such effluent limitations are needed to assure that State Water Quality Standards are met in the receiving stream.

2. This permit may be modified due to a change in sludge disposal standards pursuant to Section 405(d) of the Clean Water Act, if the standards when promulgated contain different conditions, are otherwise more stringent, or control pollutants not addressed by this permit.

3. This permit may be modified, or, alternately, revoked and reissued, to comply with any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:

   a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. controls any pollutant not limited in the permit.

4. This permit may be modified or, alternatively, revoked and reissued after public notice and opportunity for hearing to incorporate monitoring requirements and effluent limitations for phosphorus if the Department of Environmental Management determines that such monitoring requirements and effluent limitations are needed to assure that State Water Quality standards are met in the receiving streams.

5. This permit may be modified, or alternately, revoked and reissued after public notice and opportunity for hearing to include Whole Effluent Toxicity (WET) limitations or to include limitations for specific toxicants if the results of the biomonitoring and/or the Toxicity Reduction Evaluation (TRE) study indicate that such limitations are necessary.

6. This permit may be modified, or, alternately, revoked and reissued, after public notice and opportunity for hearing to:

   a. reduce the mercury monitoring frequency, if a minimum of 12 months (six (6) consecutive samples) of monitoring data indicates that there is not a reasonable potential for mercury to exceed water quality standards, or

   b. include effluent limitations for mercury, if the mercury is found to be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above a water quality criteria.

D. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The 1977 Clean Water Act explicitly states, in Section 101(3) that it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited. In support of this policy the U.S. EPA in 1995 amended the 40 CFR 136.3 (Tables IA and II) by adding testing methods for measuring acute and short-term chronic toxicity of whole effluents and receiving waters. To adequately assess the character of the effluent, and the effects of the effluent on aquatic life, the permittee shall conduct Whole Effluent Toxicity Testing. Part 1 of this section describes the testing procedures, Part 2 describes the Toxicity Reduction Evaluation which is only required if the effluent demonstrates toxicity, as described in paragraph f.

1. Whole Effluent Toxicity Tests

   The permittee shall conduct the series of bioassay tests described below to monitor the toxicity of the discharge from Outfall 001.

If toxicity is demonstrated as defined under paragraph f below, the permittee is required to conduct a toxicity reduction evaluation (TRE).

a. Bioassay Test Procedures and Data Analysis

(1) All test organisms, test procedures and quality assurance criteria used shall be in accordance with the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms; Fourth Edition Section 13, Cladoceran (*Ceriodaphnia dubia*) Survival and Reproduction Test Method 1002.0; and Section 11, Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test Method, (1000.0) EPA 821-R-02-013, October 2002, or most recent update.

(2) Any circumstances not covered by the above methods, or that require deviation from the specified methods shall first be approved by the IDEM's Permits Branch Toxicologist.

(3) The determination of effluent toxicity shall be made in accordance with the Data Analysis general procedures for chronic toxicity endpoints as outlined in Section 9, and in Sections 11 and 13 of the respective Test Method (1000.0 and 1002.0) of Short-term Methods of Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms (EPA 821-R-02-013), Fourth Edition, October 2002 or most recent update.

b. Types of Bioassay Tests

The permittee shall conduct a 7-day Cladoceran (*Ceriodaphnia dubia*) Survival and Reproduction Test and a 7-day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test on samples of the final effluent. All tests will be conducted on 24-hour composite samples of final effluent. All test solutions shall be renewed daily. On days three and five fresh 24-hour composite samples of the effluent collected on alternate days shall be used to renew the test solutions.

If in any control more than 10% of the test organisms die in 96 hours, or more than 20% of the test organisms die in 7 days, that test shall be repeated. In addition, if in the *Ceriodaphnia* test control the number of newborns produced per surviving female is less than 15, or if 60% of surviving control females have less than three broods; and in the fathead minnow test if the mean dry weight of surviving fish in the control group is less than 0.25 mg, that test shall also be repeated. Such testing will determine whether the effluent affects the survival, reproduction, and/or growth of the test organisms. Results of all tests regardless of completion must be reported to IDEM.

c. Effluent Sample Collection and Chemical Analysis

(1) Samples for the purposes of Whole Effluent Toxicity Testing will be taken at a point that is representative of the discharge, but prior to discharge. The maximum holding time for whole effluent is 36 hours for a 24 hour composite sample.

Bioassay tests must be started within 36 hours after termination of the 24 hour composite sample collection. Bioassay of effluent sampling may be coordinated with other permit sampling requirements as appropriate to avoid duplication.

(2) Chemical analysis must accompany each effluent sample taken for bioassay test. The analysis detailed under Part I.A. should be conducted for the effluent sample. Chemical analysis must comply with approved EPA test methods.

d. Frequency and Duration

The toxicity tests specified in paragraph b. shall be conducted once **annually** for the duration of the permit. The results of the toxicity tests are due once within each twelve month period as calculated from twelve months after the effective date of the permit.

If toxicity is demonstrated as defined under paragraph f (1), (2) or (3), the permittee is required to conduct a Toxicity Reduction Evaluation (TRE) as specified in Section 2.

e. Reporting

(1) Results shall be reported according to EPA 821-R-02-013, Section 10 (Report Preparation). Two copies of the completed report for each test shall be submitted to the Compliance Data Section of the IDEM no later than sixty days after completion of the test.

(2) For quality control, the report shall include the results of appropriate standard reference toxic pollutant tests for chronic endpoints and historical reference toxic pollutant data with mean values and appropriate ranges for the respective test species *Ceriodaphnia dubia* and *Pimephales promelas*. Biomonitoring reports must also include copies of Chain-of-Custody Records and Laboratory raw data sheets.

(3) Statistical procedures used to analyze and interpret toxicity data including critical values of significance used to evaluate each point of toxicity should be described and included as part of the biomonitoring report.

f. Demonstration of Toxicity

(1) Acute toxicity will be demonstrated if the effluent is observed to have exceeded **1.0** TU_a(acute toxic units) based on 100% effluent for the test organism in 48 and 96 hours for *Ceriodaphnia dubia* or *Pimephales promelas*, respectively.

(2) Chronic toxicity will be demonstrated if the effluent is observed to have exceeded **1.0** TU_c (chronic toxic units) for *Ceriodaphnia dubia* or *Pimephales promelas* .

(3) If toxicity is found in any of the tests specified above, a confirmation toxicity test using the specified methodology and same test species shall be conducted within two weeks of receiving the chronic toxicity test results. If any two (2) consecutive tests, including any and all confirmation tests, indicate the presence of toxicity, the permittee must begin the implementation of a Toxicity Reduction Evaluation (TRE) as described below. The whole effluent toxicity tests required above may be suspended (upon approval from IDEM) while the TRE is being conducted.

g. Definitions

(1) TU_c is defined as 100/NOEC or $100/IC_{25}$, where the NOEC or IC_{25} is expressed as a percent effluent in the test medium.

(2) TU_a is defined as $100/LC_{50}$ where the LC_{50} is expressed as a percent effluent in the test medium of an acute Whole Effluent Toxicity (WET) test that is statistically or graphically estimated to be lethal to fifty percent (50%) of the test organisms.

(3)"Inhibition concentration 25" or "IC_{25}" means the toxicant (effluent) concentration that would cause a twenty-five percent (25%) reduction in a nonquantal biological measurement for the test population. For example, the IC_{25} is the concentration of toxicant (effluent) that would cause a twenty-five percent (25%) reduction in mean young per female or in growth for the test population.

(4)"No observed effect concentration" or "NOEC" is the highest concentration of toxicant (effluent) to which organisms are exposed in a full life cycle or partial life cycle (short term) test, that causes no observable adverse effects on the test organisms, that is, the highest concentration of toxicant (effluent) in which the values for the observed responses are not statistically significantly different from the controls.

2. Toxicity Reduction Evaluation (TRE)

The development and implementation of a TRE (including any post-TRE biomonitoring requirements) is only required if toxicity is demonstrated as defined by Paragraph 1.f.

Development of TRE Plan	Within 90 days of two failed toxicity tests.
Initiate Effluent TRE	Within 30 days of TRE Plan approval by IDEM.
Progress Reports	Every 90 days from the initiation date of the TRE.
Submit Final TRE Results	Within 90 days of the completion of the TRE, not to exceed 3 years from the date of the initial determination of toxicity (two failed toxicity tests).
Post-TRE Biomonitoring Requirements	Immediately upon completion of the TRE, conduct 3 consecutive months of toxicity tests, if no toxicity is shown, reduce toxicity tests to once every 6 months for the duration of the permit term. If post – TRE biomonitoring demonstrates toxicity, revert to implementation of a TRE.

a. Development of TRE Plan

Within 90 days of determination of toxicity, the permittee shall submit plans for an effluent TRE to the Compliance Data Section of the IDEM. The TRE plan shall include appropriate measures to characterize the causative toxicant and the variability associated with these compounds. Guidance on conducting effluent toxicity reduction evaluations is available from EPA and from the EPA publications listed below:

(1) Methods for Aquatic Toxicity Identification Evaluations:

Phase I Toxicity Characterization Procedures, Second Edition (EPA/600/6-91/003), February 1991.

Phase II Toxicity Identification Procedures (EPA 600/R-92/080), September 1993.

Phase III Toxicity Confirmation Procedures (EPA/600/R-92/081), September 1993.

(2) Methods for Chronic Toxicity Identification Evaluations
Phase I Characterization of Chronically Toxic Effluents EPA/600/6-91/005F, May 1992.

(3) Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070), April 1989.

(4) Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants (EPA/833-B-99-022), August 1999.

b. Conduct the TRE

Within 30 days after approval of the TRE plan by IDEM, the permittee must initiate an effluent TRE consistent with the TRE plan. Progress reports shall be submitted every 90 days to the Compliance Data Section of the Office of Water Quality (OWQ) beginning 90 days after initiation of the TRE.

c. Reporting

Within 90 days of the TRE completion, the permittee shall submit to the Compliance Data Section of the Office of Water Quality (OWQ) the final study results and a schedule for reducing the toxicity to acceptable levels through control of the toxicant source or treatment of whole effluent.

d. Compliance Date

The permittee shall complete items a, b, and c from Section 2 and reduce the toxicity to acceptable levels as soon as possible but no later than three years after the date of determination of toxicity.

e. Post-TRE Biomonitoring Requirements (Only Required After Completion of a TRE)

After the TRE, the permittee shall conduct monthly toxicity tests with 2 or more species for a period of three months. Should three consccutive monthly tests demonstrate no toxicity, the permittee shall conduct chronic tests every six months for the duration of the permit. Thcse tests shall be conducted in accordance with the procedures under the Whole Effluent Toxicity Tests Section. The results of these tests shall be submitted to the Compliance Data Section of the Office of Water Quality (OWQ).

If toxicity is demonstrated as defined in paragraph 1.f after the initial three month period, testing must revert to a TRE as in Part 2 (TRE).

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Provide Information

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the facility that:

a. could significantly change the nature of, or increase the quantity of, pollutants discharged; or

b. the Commissioner may request to evaluate whether such cause exists.

In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit a renewal of this permit in accordance with 327 IAC 5-3-2(a)(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or operation from which a discharge of pollutants occurs is responsible for applying for and

obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. The application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if:

a. permission is requested in writing before such deadline;

b. IDEM grants permission to submit the application after the deadline; and

c. the application is received no later than the permit expiration date.

As required under 327 IAC 5-2-3(g)(1) and (2), POTWs with design influent flows equal to or greater than one million (1,000,000) gallons per day and POTWs with an approved pretreatment program or that are required to develop a pretreatment program, will be required to provide the results of whole effluent toxicity testing as part of their NPDES renewal application.

5. Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date.

b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner.

c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility.

d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

6. Permit Actions

In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

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

b. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge controlled by the permittee (e.g., plant closure, termination of the discharge by connecting to a POTW, a change in state law or information indicating the discharge poses a substantial threat to human health or welfare).

Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of, pollutants discharged; or

2. the commissioner may request to evaluate whether such cause exists.

7. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or an invasion of rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

8. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

9. Oil and Hazardous Substance Liability

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

10. State Laws

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

11. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Water Pollution Control Board is liable for a civil penalty not to exceed twenty-five thousand dollars ($25,000) per day of any violation. Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation commits a class C infraction.

Pursuant to IC 13-30-10, a person who intentionally, knowingly, or recklessly violates any provision of this permit, the water pollution control laws or a rule or standard adopted by the Water Pollution Control Board commits a class D felony punishable by the term of imprisonment established under IC 35-50-2-7(a) (up to one year), and/or by a fine of not less than five thousand dollars ($5,000) and not more than fifty thousand dollars ($50,000) per day of violation. A person convicted for a violation committed after a first conviction of such person under this provision is subject to a fine of not more than one hundred thousand dollars ($100,000) per day of violation, or by imprisonment for not more than two (2) years, or both.

12. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(9), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under a permit shall, upon conviction, be punished by a fine of not more than ten thousand dollars ($10,000) per violation, or by imprisonment for not more than one hundred eighty (180) days per violation, or by both.

13. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

14. Operator Certification

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. The permittee shall designate one (1) person as the certified operator with complete responsibility for the proper operations of the wastewater facility.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), "responsible charge" means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

15. Construction Permit

Except in accordance with 327 IAC 3, the permittee shall not construct, install, or modify any water pollution treatment/control facility as defined in 327 IAC 3-1-2(24). Upon completion of any construction, the permittee must notify the Compliance Data Section of the Office of Water Quality in writing.

16. Inspection and Entry

In accordance with 327 IAC 5-2-8(7), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a point source, regulated facility, or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;

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

c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and

d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

B. MANAGEMENT REQUIREMENTS

1. Facility Operation, Maintenance and Quality Control

a. In accordance with 327 IAC 5-2-8(8), the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for collection and treatment that are:

(1) installed or used by the permittee; and

(2) necessary for achieving compliance with the terms and conditions of the permit.

Neither 327 IAC 5-2-8(8), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit. Taking redundant treatment units off line does not violate the bypass provisions of the permit, provided that the permittee is at all times: maintaining in good working order and efficiently operating all facilities and systems; providing best quality effluent; and achieving compliance with the terms and conditions of the permit.

b. The permittee shall operate the permitted facility in a manner which will minimize upsets and discharges of excessive pollutants. The permittee shall properly remove and dispose of excessive solids and sludges.

c. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.

d. Maintenance of all waste collection, control, treatment, and disposal facilities shall be conducted in a manner that complies with the bypass provisions set forth below.

e. Any extensions to the sewer system must continue to be constructed on a separated basis. Plans and specifications, when required, for extension of the sanitary system must be submitted to the Facility Construction Section, Office of Water Quality in accordance with 327 IAC 3-2-1. There shall also be an ongoing preventative maintenance program for the sanitary sewer system.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(11):

a. Terms as defined in 327 IAC 5-2-8(11)(A):

(1) "Bypass" means the intentional diversion of a waste stream from any portion of a treatment facility.

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

b. Bypasses, as defined above, are prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, as defined above;

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

(3) The permittee submitted notices as required under Part II.B.2.d; or

(4) The condition under Part II.B.2.f below is met.

c. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the "Spill Response and Reporting Requirements" in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. The permittee must provide the Commissioner with the following notice:

(1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.

(2) The permittee shall orally report or fax a report of an unanticipated bypass within 24 hours of becoming aware of the bypass event. The permittee must also provide a written report within five (5) days of the time the permittee becomes aware of the bypass event. The written report must contain a description of the noncompliance (i.e. the bypass) and its cause; the period of noncompliance, including exact dates and times; if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass event.

e. The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.b. The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.

f. The permittee may allow any bypass to occur that does not cause a violation of the effluent limitations in the permit, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.B.2.b.,d and e of this permit.

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(12):

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

b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this subsection, are met.

c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:

(1) An upset occurred and the permittee has identified the specific cause(s) of the upset;

(2) The permitted facility was at the time being operated in compliance with proper operation and maintenance procedures;

(3) The permittee complied with any remedial measures required under "Duty to Mitigate", Part II.A.2; and

(4) The permittee submitted notice of the upset as required in the "Incident Reporting Requirements," Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal.

a. Collected screenings, slurries, sludges, and other such pollutants shall be disposed of in accordance with provisions set forth in 329 IAC 10, 327 IAC 6.1, or another method approved by the Commissioner.

b. The permittee shall comply with existing federal regulations governing solids disposal, and with applicable provisions of 40 CFR Part 503, the federal sludge disposal regulation standards.

c. The permittee shall notify the Commissioner prior to any changes in sludge use or disposal practices.

d. The permittee shall maintain records to demonstrate its compliance with the above disposal requirements.

5. Power Failures

In accordance with 327 IAC 5-2-10 and 327 IAC 5-2-8(13) in order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, or

b. shall halt, reduce or otherwise control all discharge in order to maintain compliance with the effluent limitations and conditions of this permit upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit.

6. Unauthorized Discharge

Any overflow or release of sanitary wastewater from the wastewater treatment facilities or collection system that results in a discharge to waters of the state and is not specifically authorized by this permit is expressly prohibited. These discharges are subject to the reporting requirements in Part II.C.3 of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(10)(F) and 5-2-16(d), the permittee shall give notice to the Commissioner as soon as possible of any planned alterations or additions to the facility (which includes any point source) that could significantly change the nature of, or increase the quantity of, pollutants discharged. Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited. Material and substantial alterations or additions to the permittee's operation that were not covered in the permit (e.g., production changes, relocation or combination of discharge points, changes in the nature or mix of products produced) are also cause for modification of the permit. However those alterations which constitute total replacement of the process or the production equipment causing the discharge converts it into a new source, which requires the submittal of a new NPDES application.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(9), 327 IAC 5-2-13, and 327 IAC 5-2-15, monitoring results shall be reported at the intervals and in the form specified in "Data On Plant Operation", Part I.B.2.

3. Incident Reporting Requirements

Pursuant to 327 IAC 5-2-8(10) and 327 IAC 5-1-3, the permittee shall orally report to the Commissioner information on the following incidents within 24 hours from the time permittee becomes aware of such occurrence. If the incident meets the emergency criteria of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

a. Any unanticipated bypass which exceeds any effluent limitation in the permit;

b. Any emergency incident which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the incident by calling 317/233-7745 (888/233-7745 toll free in Indiana). This number should only be called when reporting these emergency events;

c. Any upset (as defined in Part II.B.3 above) that exceeds any technology-based effluent limitations in the permit; or

d. Any release, including basement backups, from the sanitary sewer system (including satellite sewer systems operated or maintained by the permittee) not specifically authorized by this permit. Reporting of known releases from private laterals not caused by a problem in the sewer system owned or operated by the permittee is not required under Part II.C.3, however, documentation of such events must be maintained by the permittee and available for review by IDEM staff.

The permittee can make the oral reports by calling 317/232-8670 during regular business hours. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. For incidents involving effluent limit violations or discharges, the written submission shall contain: a description of the event and its cause; the period of occurrence, including exact dates and times, and, if the event has not concluded, the anticipated time it is expected to continue; and steps taken or planned to reduce, mitigate and eliminate the event and steps taken or planned to prevent its recurrence. For sewer releases which do not meet the definition of a discharge, the written submission shall contain: a description of the event and its believed cause; the period of occurrence; and any steps taken or planned to mitigate the event and steps taken or planned to prevent its recurrence. The permittee may submit a "Bypass Overflow/Incident Report" or a "Noncompliance Notification Report", whichever is applicable, to IDEM at 317/232-8637 or 317/232-8406 or to wwreports@idem.IN.gov. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then that report will satisfy both the oral and written reporting requirements.

4. Other Noncompliance

Pursuant to 327 IAC 5-2-8(10)(D), the permittee shall report any instance of noncompliance not reported under the "Incident Reporting Requirements" in Part II.C.3 at the time the pertinent Discharge Monitoring Report is submitted. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance.

5. Other Information

Pursuant to 327 IAC 5-2-8(10)(E), where the permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the Commissioner, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(14):

a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:

(1) For a corporation: by a principal executive defined as a president, secretary, treasurer, any vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty (250) persons or having gross annual sales or expenditures exceeding twenty-five million dollars ($25,000,000) (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a federal, state, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.

b. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

(3) The authorization is submitted to the Commissioner.

c. Certification. Any person signing a document identified under paragraphs a and b of this section, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Availability of Reports

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

IC 13-30 and 327 IAC 5-2-8(14) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Progress Reports

In accordance with 327 IAC 5-2-8(10)(A), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

10. Advance Notice for Planned Changes

In accordance with 327 IAC 5-2-8(10)(B), the permittee shall give advance notice to IDEM of any planned changes in the permitted facility, any activity, or other

circumstances that the permittee has reason to believe may result in noncompliance with permit requirements.

11. Additional Requirements for POTWs and/or Treatment Works Treating Domestic Sewage

a. All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW which are subject to pretreatment standards under section 307(b) and 307 (c) of the CWA.

b. All POTWs must provide adequate notice to the Commissioner of the following:

(1) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants.

(2) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where such change would render the source subject to pretreatment standards under section 307(b) or 307(c) of the CWA or would result in a modified application of such standards.

As used in this clause, "adequate notice" includes information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the POTW.

c. This permit incorporates any conditions imposed in grants made by the U.S. EPA and/or IDEM to a POTW pursuant to Sections 201 and 204 of the Clean Water Act, that are reasonably necessary for the achievement of effluent limitations required by Section 301 of the Clean Water Act.

d. This permit incorporates any requirements of Section 405 of the Clean Water Act governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.

e. POTWs must develop and submit to the Commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-19-1, in order to assure compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the Clean Water Act. The pretreatment program shall meet the criteria of 327 IAC 5-19-3 and, once approved, shall be incorporated into the POTW's NPDES permit.

D. ADDRESSES

1. Cashiers Office

Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Cashiers Office:

a. NPDES permit applications (new, renewal or modifications) with fee

b. Construction permit applications with fee

2. Municipal NPDES Permits Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Municipal NPDES Permits Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Municipal NPDES Permits Section:

a. Preliminary Effluent Limits request letters

b. Comment letters pertaining to draft NPDES permits

c. NPDES permit transfer of ownership requests

d. NPDES permit termination requests

e. Notifications of substantial changes to a treatment facility, including new industrial sources

f. Combined Sewer Overflow (CSO) Operational Plans

g. CSO Long Term Control Plans (LTCP)

h. Stream Reach Characterization and Evaluation Reports (SRCER)

3. Compliance Data Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Compliance Data Section:

a. Discharge Monitoring Reports (DMRs)

b. Monthly Reports of Operation (MROs)

c. Monthly Monitoring Reports (MMRs)

d. CSO DMRs

e. Gauging station and flow meter calibration documentation

f. Compliance schedule progress reports

g. Completion of Construction notifications

h. Whole Effluent Toxicity Testing reports

i. Toxicity Reduction Evaluation (TRE) plans and progress reports

4. Pretreatment Group

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section – Pretreatment Group
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Pretreatment Group:

a. Organic Pollutant Monitoring Reports

b. Significant Industrial User (SIU) Quarterly Noncompliance Reports

c. Pretreatment Program Annual Reports

d. Sewer Use Ordinances

e. Enforcement Response Plans (ERP)

f. Sludge analytical results

5. Enforcement Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-40
Enforcement Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

a. Bypass/Overflow Reports

b. Anticipated Bypass/Overflow Reports

Fact Sheet
February 13, 2012

Town of Bargersville Wastewater Treatment Plant
located at 600 West Old South Street, Bargersville, Indiana in Johnson County

Outfall Location	Latitude:	39° 31' 16" N
	Longitude:	86° 10' 38" W

NPDES Permit No. IN0022314

Background

This is the proposed renewal of the NPDES permit for the Town of Bargersville Wastewater Treatment Plant which was issued on January 29, 2007 and has an expiration date of February 29, 2012. The permittee submitted an application for renewal which was received on August 25, 2011. The permittee currently operates a Class III, 1.5 MGD treatment facility consisting of a fine screen, grit removal system, a Biolac Treatment system, dual oxidation ditch system (Phased Isolation Ditch Technology), a secondary clarifier, UV disinfection, and an effluent flow meter. Sludge is treated by aerobic digestion and bio-solids are hauled off-site.

After the incoming wastewater passes through the Headworks Building where primary treatment occurs the flow splits. 0.5 MGD of wastewater is diverted to the Biolac Treatment system and continues to a secondary clarifier, and the remaining wastewater (1.0 MGD) is diverted to the dual oxidation ditch system in which clarification will occur. After secondary treatment occurs the wastewater is treated by ultraviolet disinfection.

Collection System

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

Spill Reporting Requirements

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.c. and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedences that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedence to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

Solids Disposal

The permittee is required to dispose of its sludge in accordance with 329 IAC 10, 327 IAC 6.1, or 40 CFR Part 503.

Receiving Stream

The facility discharges to the North Prong of Stotts Creek via Outfall 001. The receiving water has a seven day, ten year low flow ($Q_{7,10}$) of 0.0 cubic feet per second at the outfall location.

The receiving stream is designated for full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community in accordance with 327 IAC 2-1.

The receiving stream is designated for limited use in accordance with 327 IAC 2-1-11(a).

Industrial Contributions

There is no industrial flow to the wastewater treatment plant. This NPDES permit does not authorize the facility to accept industrial contributions until the permittee has provided the Indiana Department of Environmental Management with a characterization of the waste, including volume amounts, and this Office has determined whether effluent limitations are needed to ensure the State water quality standards are met in the receiving stream.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, and a Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on April 4, 2005. These limits are in accordance with antibacksliding regulations specified in 327 IAC 5-2-10(11)(A). Monitoring frequencies are based upon facility size and type.

The final effluent limitations to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), Ammonia-nitrogen (NH_3-N), pH, Dissolved Oxygen (DO), *Escherichia coli (E. coli)*, and Mercury.

Final Effluent Limitations

The summer monitoring period runs from May 1 through November 30 of each year and the winter monitoring period runs from December 1 through April 30 of each year. The disinfection season runs from April 1 through October 31 of each year.

The mass limits for $CBOD_5$, TSS, and ammonia-nitrogen are calculated by multiplying the average design flow (in MGD) by the corresponding concentration value and by 8.345.

Flow

Flow is to be measured five (5) times weekly as a 24-hour total. Reporting of flow is required by 327 IAC 5-2-13.

$CBOD_5$

$CBOD_5$ is limited to 25 mg/l (312.9 lbs/day) as a monthly average and 40 mg/l (500.7 lbs/day) as a weekly average.

Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling. The $CBOD_5$ concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on April 4, 2005 and are the same as the concentration limitations found in the facility's previous permit.

TSS

TSS is limited to 30 mg/l (375.5 lbs/day) as a monthly average and 45 mg/l (563.3 lbs/day) as a weekly average.

Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling. The TSS concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on April 4, 2005 and are the same as the concentration limitations found in the facility's previous permit.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.26 mg/l (15.8 lbs/day) as a monthly average and 1.89 mg/l (23.7 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 1.82 mg/l (22.8 lbs/day) as a monthly average and 2.73 mg/l (34.2 lbs/day) as a weekly average.

Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling. The ammonia-nitrogen concentration limitations included in this permit are set in accordance with the antibacksliding regulations specified in 327 IAC 5-2-10(11)(A) and are the same as the concentration limitations found in the facility's previous permit.

pH

The pH limitations have been based on 40 CFR 133.102 which is cross-referenced in 327 IAC 5-5-3.

To ensure conditions necessary for the maintenance of a well-balanced aquatic community, the pH of the final effluent must be between 6.0 and 9.0 standard units in accordance with provisions in 327 IAC 2-1-6(b)(2).

pH must be measured five (5) times weekly by grab sampling. These pH limitations are the same as the limitations found in the facility's previous permit.

Dissolved Oxygen

Dissolved oxygen shall not fall below 6.0 mg/l as a daily minimum average during the summer monitoring period. During the winter monitoring period, dissolved oxygen shall not fall below 5.0 mg/l as a daily minimum average.

These dissolved oxygen limitations are based on the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on April 4, 2005. Dissolved oxygen measurements must be based on the average of four (4) grab samples taken within a 24-hr. period. This monitoring is to be conducted five (5) times weekly.

E. coli

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31, annually. *E. coli* is limited to 125 count/100 ml as a monthly average, and 235 count/100 ml as a daily maximum. The monthly average *E. coli* value shall be calculated as a geometric mean. This monitoring is to be conducted five (5) times weekly by grab sampling. These *E. coli* limitations are set in accordance with regulations specified in 327 IAC 5-10-6.

Mercury

The NPDES permit requires that mercury sampling be conducted bi-monthly (every other month) for the term of the permit (influent and effluent). The permittee may submit and request review of monitoring data after the first year of sampling. The permit may be modified to reduce monitoring requirements for mercury if it is found that it will not be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion (RPE) above a water quality criteria. Conversely, effluent limits and monitoring requirements shall be added to the permit if RPE exists. If RPE does not exist, any reduction of monitoring, will remain in effect only during the term of the renewal of the permit and as long as there are no modifications to the wastewater treatment facilities and/or significant changes to the influent flow characteristics of the wastewater treatment facility.

The previous permit contained bi-monthly monitoring for mercury, however, the sample was not analyzed by the correct test method as noted in the permit. The permittee is required to sample using Test Method 1631, Revision E, in order to obtain data that will allow this Office to determine if the permittee has a reasonable potential to exceed a water quality-based effluent limitation for mercury.

Whole Effluent Toxicity Testing

The permittee submitted a Whole Effluent Toxicity Tests (WETT) with the renewal application as required in 327 IAC 5-2-3(g).

The permittee shall conduct the whole effluent toxicity tests described in Part I.D. of the permit to monitor the toxicity of the discharge from Outfall 001. This toxicity testing is to be performed annually for the duration of this NPDES permit. Acute toxicity will be demonstrated if the effluent is observed to have exceeded 1.0 TU_a(acute toxic units) based on 100% effluent for the test organism in 48 and 96 hours for *Ceriodaphnia dubia* or *Pimephales promelas*, which ever is more sensitive. Chronic toxicity will be demonstrated if the effluent is observed to have exceeded 1.0 TU_c (chronic toxic units) for *Ceriodaphnia dubia* or *Pimephales promelas*. If acute or chronic toxicity is found in any of the tests specified above, another toxicity test using the specified methodology and same test species shall be conducted within two weeks. If any two tests indicate the presence of toxicity, the permittee must begin the implementation of a toxicity reduction evaluation (TRE) as is described in Part I.D.2. of the permit.

Backsliding

None of the concentration limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(11)(A), therefore, backsliding is not an issue.

Reopening Clauses

Six (6) reopening clauses were incorporated into the permit in Part I.C. One clause is to incorporate effluent limits from any further wasteload allocations performed, a second clause is to allow for changes in the sludge disposal standards, a third clause is to incorporate any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, a fourth clause is to include effluent limits for phosphorus, a fifth clause is to include whole effluent toxicity limitations or to include limitations for specific toxicants, and a sixth clause is to reduce the mercury monitoring frequency or include effluent limitations for mercury.

Compliance Status

The permittee has no enforcement actions at the time of this permit preparation.

The permittee received an Inspection Summary/Violation Letter dated August 3, 2007 citing the permittee for excessive grease accumulation found within the wet well and secondary clarifier, excessive biosolids found within treatment and storage tanks, improper sampling techniques, and effluent limitation violations.

The permittee received a Violation Letter dated September 8, 2008 citing the permittee for numerous effluent limitation violations, not properly submitting Discharge Monitoring Reports (DMRs) and Monthly Reports of Operation (MROs), not properly submitting written notification of completion of facility construction regarding an upgrade, and improperly verifying DMRs and MROs by individuals not deemed a signatory authority.

The permittee received an Inspection Summary/Violation Letter dated August 17, 2011 citing the permittee for not properly maintaining and operating all collection and treatment facilities and improperly reporting data on the DMRs and MROs.

IDEM received two (2) Bypass/Overflow Incident Repots from the permittee in 2007 and two (2) in 2008.

IDEM received one (1) Noncompliance 24-Hour Notification Fax Report from the permittee in 2007 and two (2) in 2008.

Expiration Date

A five-year NPDES permit is proposed.

Drafted by: Jessica Faust-Hamblin
February 13, 2011

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

PUBLIC NOTICE NO: 2012 – 4E - F

DATE OF NOTICE: APRIL 18, 2012

The Office of Water Quality issues the following NPDES FINAL PERMIT.

MAJOR – RENEWAL

BARGERSVILLE (town) WWTP, Permit No. IN0022314, JOHNSON COUNTY, 600 W Old South St, Bargersville, IN. This municipal facility discharges 1.5 million gallons daily of treated sanitary wastewater into North Prong of Stotts Creek. Permit Manager: Leigh Voss, 317/232-8698, lvoss@idem.in.gov.

APPEAL PROCEDURES FOR FINAL PERMITS

The Final Permits are available for review & copies at IDEM, Indiana Government Center, North Bldg, 100 N Senate Ave, Indianapolis, IN, Rm 1203, Office of Water Quality/NPDES Permit Section, from 9 – 4, M - F (copies 10¢ per page). Each Final Permit is available at the respective, local County Health Department. **Please tell others you think would be interested in this matter.** Regarding your rights and responsibilities pertaining to the Public Notice process and timeframes, please refer to IDEM websites: http://www.in.gov/idem/5474.htm and IDEM Permit Guide (Public Participation): http://www.in.gov/idem/4172.htm. **To view the Citizen Guide go to:** http://www.in.gov/idem/5803.htm.

Appeal Procedure: Any person affected by the issuance of the Final Permit may appeal by filing a Petition for Administrative Review with the Office of Environmental Adjudication **within** eighteen (18) days of the date of this Public Notice. Any appeal request must be filed in accordance with IC 4-21.5-3-7 and must include facts demonstrating that the party requesting appeal is the applicant; a person aggrieved or adversely affected or is otherwise entitled to review by law.
Timely filing: The Petition for Administrative Review must be received by the Office of Environmental Adjudication (OEA) **within** 18 days of the date of this Public Notice; either by U.S. Mail postmark or by private carrier with dated receipt. This Petition for Administrative Review represents a request for an Adjudicatory Hearing, therefore must:

- state the name and address of the person making the request;
- identify the interest of the person making the request;
- identify any persons represented by the person making the request;
- state specifically the reasons for the request;
- state specifically the issues proposed for consideration at the hearing;
- identify the Final Permit Rule terms and conditions which, in the judgment of the person making the request, would be appropriate to satisfy the requirements of the law governing this NPDES Permit rule.

If the person filing the Petition for Administrative Review desires any part of the NPDES Final Permit Rule to be stayed pending the outcome of the appeal, a Petition for Stay must be included in the appeal request, identifying those parts to be stayed. Both Petitions shall be mailed or delivered to the address here:
Phone: 317/232-8591.

Environmental Law Judge
Office of Environmental Adjudication
IGC – North Building- Rm 501
100 N. Senate Avenue
Indianapolis IN 46204

Stay Time frame: If the Petition (s) is filed **within** eighteen (18) days of the mailing of this Public Notice, the effective date of any part of the permit, within the scope of the Petition for Stay is suspended for fifteen (15) days. The Permit will become effective again upon expiration of the fifteen (15) days, unless or until an Environmental Law Judge stays the permit action in whole or in part.

Hearing Notification: Pursuant to Indiana Code, when a written request is submitted, the OEA will provide the petitioner or any person wanting notification, with the Notice of pre-hearing conferences, preliminary hearings, hearing stays or orders disposing of the Petition for Administrative Review. Petition for Administrative Review must be filed in compliance with the procedures and time frames outlined above. Procedural or scheduling questions should be directed to the OEA at the phone listed above.

WHITAKER ENGINEERING

Transmittal

To: Indiana Department of Environmental Manage...
Cashiers Office - Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

Date: 08/22/11
Project: Bargersville NPDES Permit
Project No.:
Re: Bargersville NPDES Permit Applicat...
From: Matthew Whitaker
Phone: 317-324-0174

We are sending you via:

- ☑ Mail
- ☐ Overnight
- ☐ Fax (pages)
- ☐ Courier
- ☑ As Requested
- ☐ For Your Information
- ☑ For Review & Comment
- ☐ For Approval

Copies	Date	Description
1	08/22/11	Bargersville NPDES Application
1	08/22/11	Potentially Affected Party Mailing Labels

Remarks:
Bargersville has already mailed in the $50 application fee. The whole effluent toxicity test will be performed and results sent to I... within the next month.

Cc:

Trans:	Enclosure:
☐	☐
☐	☐
☐	☐

8145 Halyard Way • Indianapolis, IN 46236
317.324.1275 (business phone/fax)
www.whitakerengineering.com
Whitaker Engineering will provide innovative, practical solutions that are clearly communicated and professionally delivered to its clients and to the public.

IDEM - OEA
RECEIVABLES

2011 AUG 25 P 12:00

TO: **All NPDES Permit Applicants**

FROM: NPDES Permit Section
Office of Water Quality

SUBJECT: Request for Information

We request that you fill in the blanks on this form and return it along with your NPDES PERMIT application. The information provided will be helpful in our personal contact with officials of our municipality, industry or other facility in assuring prompt delivery of correspondence, etc. Thank you for your cooperation.

I. CURRENT NPDES PERMIT NO. IN0022314 (New applicants will be assigned a number later)

II. WASTEWATER TREATMENT PLANT FACILITY LOCATION ADDRESS (PHYSICAL LOCATION OF FACILITY)

Facility Name: Bargersville Utilities

Address: 600 West Old South Street

City: Bargersville State: IN Zip: 46106

III. MAILING ADDRESS IF DIFFERENT FROM FACILITY LOCATION

Address: 24 N Main St

City: Bargersville State: IN Zip: 46106

IV. OWNER OR LEGALLY RESPONSIBLE PARTY (TOWN BOARD/COUNCIL PRESIDENT, MAYOR, SUPERINTENDENT)

Name: Michael Davis Title: Utility Superintendent

Address: 24 N Main St

City: Bargersville State: IN Zip: 46106

Phone: (317)422-3121

V. WASTEWATER TREATMENT PLANT CERTIFIED OPERATOR

Name: Victoria Ditchley Certification #: WW011155

Address: 3460 Enclave Crossing

City: Greenwood State: IN Zip: 46143

Work Phone(317) 422-3145 Classification: IV

(Account No. & Revenue Code: 2830-411200-100600)

updated 2005 sc

NO $

MUNICIPAL NPDES PERMIT COMPLETENESS CHECKLIST & SUBMITTAL FORM

MAIL TO:
Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

NPDES PERMIT No. IN0022314

Facility Name Bargersville Utilities

Mailing Address 24 N Main St

Bargersville IN 46106

Facility Location 600 West Old South St

Bargersville IN 46106

Contact & Telephone Victoria Ditchley Phone: (317) 422-3145

REQUIRED INFORMATION

REQUIRED WITH ALL APPLICATIONS	TECHNICAL APPLICATIONS
X $50.00 Permit Application Fee	X Whole Effluent Toxicity Test
X Affected Parties Identification Form	X Major Municipal Application / EPA Form
X Request for Information Form	___ Semi Public / Minor Municipal

*** An issued Construction Approval is required with all applications for a *new* NPDES permitted facility.**

The Permit Fee, Affected Parties Form and Request for Information Forms are required with all applications. Whole Effluent Toxicity Testing is required for all major facility renewal applications in accordance with regulations specified in 327 IAC 5-2-3(g)(1) and (2). Please check the information that is included, and insure that all forms are completely filled out with date and signature.

(Account No. & Revenue Code: 2830-411200-100600)

Please provide on the following form the names of those persons affected by these statutes, and include mailing labels with your application. These mailing labels should have the names and addresses of the affected parties along with our mailing code (65-42PS) listed above each affected party listing.

Example: 65-42PS
John Doe
111 Circle Drive
City, State, Zip Code

I. Identification of Potentially Affected Persons

Please list here any and all persons whom you have reason to believe have a substantial or proprietary interest in this matter, or could otherwise be considered to be potentially affected under the law. Failure to notify any person who is later determined to be potentially affected could result in voiding our decision on procedural grounds. To ensure conformance with AOPA and to avoid reversal of a decision, please list all such parties. The letter attached to this form will further explain the requirements under the AOPA. Attach additional names and addresses on a separate sheet of paper, as needed. Please indicate below the type of action you are requesting.

Name: See attached Sheets	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:

II. Please complete this form by signing the following statement.

I certify to the best of my knowledge I have listed all potentially affected parties, as defined by IC 4-21.5.
Signature: Matt Whitaker Printed name: Matt Whitaker Date: 8-22-11
Facility Name: Bargersville Municipal WWTP
Facility Address: 600 West old South St Bargersville IN

III. Type of Action (check one)

- ☐ NPDES Permit-327 IAC 5
- ☐ Land Application Permit-327 IAC 6.1
- ☐ Confined Feeding Approval-IC 13-18-10
- ☐ Sewer Ban Waiver Request-327 IAC 4
- ☐ Operator Certification-327 IAC 5-22
- ☐ Pretreatment Permit -327 IAC 5
- ☐ Construction Permit-327 IAC 3

If Fee Is Required, Return To: (include NPDES permit No. on check)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, IN 46204-2251

If No Fee Is Required, Return To:
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Quality – Mail Code 65-42
Municipal Permit Section
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

65-42PS
Sawyer Family Limited Partnership
P O Box 873
Greencastle, IN 46135

65-42PS
Harris Joshua D & Amanda M
59 N Morris Blvd
Bargersville, IN 46106

65-42PS
Day Ryan A
17 Morris Blvd
Bargersville, IN 46106

65-42PS
Luxhart Corporation
200 Glick St
Lafayette, IN 47905

65-42PS
White Benjamin C & Andrhea N
53 MORRIS BLVD
Bargersville, IN 46106

65-42PS
Porter Reva J
698 Randall Ct
Bargersville, IN 46106

65-42PS
Hayes John P & Stephanie D
691 Randall Ct
Bargersville, IN 46106

65-42PS
Munchel Darrell W & Carroll A
515 W Old South St
Bargersville, IN 46106

65-42PS
SAWYER PAUL M
655 FOXMERE TE
GREENWOOD, IN 46142

65-42PS
Crowe Bobby J & Velma F
102 Westview Place
Bargersville, IN 46106

65-42PS
Gentry Patricia A
87 Morris Blvd
Bargersville, IN 46106

65-42PS
Harned David L & Mary T
47 N Morris Blvd
Bargersville, IN 46106

65-42PS
Ward Chris & Kiszka
7 N Morris Blvd
Bargersville, IN 46106

65-42PS
Darnell Stephen L & Young Jill R
19 Morris Blvd
Bargersville, IN 46106

65-42PS
Bell John A & Jean M
69 Morris Blvd
Bargersville, IN 46106

65-42PS
Patton Eugene H & Elizabeth M
680 Randall Ct
Bargersville, IN 46106

65-42PS
LUXHART CORPORATION
2500 GLICK ST
LAFAYETTE, IN 47905

65-42PS
SAWYER Paul M
655 FOXMERE TE
Greenwood, IN 46142

65-42PS
Armstrong Gambrielle Nicole
130 Westview Place
Bargersville, IN 46106

65-42PS
Montgomery Douglas A
88 Westview Place
Bargersville, IN 46106

65-42PS
Cummings David J & Barbara J
73 N Morris Blvd
Bargersville, IN 46106

65-42PS
Painter Michael S Jr & Ashley
29 W Morris Blvd
Bargersville, IN 46106

65-42PS
Wallace John
9 S. Morris Blvd.
Bargersville, IN 46106

65-42PS
Gayheart Edward E & Janice E
35 Morris Blvd
Bargersville, IN 46106

65-42PS
Arens Michael W
73 S Morris Blvd
Bargersville, IN 46106

65-42PS
GIFFORD ROGER D & ANN M
681 Randall Ct
Bargersville, IN 46106

65-42PS
Morris Katheryn L 1/2 & Morris Katheryn Louise 1/2
2750 N 400 W
Bargersville, IN 46106

65-42PS
Irwin Union Collateral Inc
1073 W JEFFERSON ST
FRANKLIN, IN 46131

65-42PS
Rucker Robert J & Brandi L
114 Westview Place
Bargersville, IN 46106

65-42PS
Hurley Robert M & Terri L
74 Westview Place
Bargersville, IN 46106

Easy Peel® Labels
Use Avery® Template 5160®

Feed Paper

Bend along line to expose Pop-Up Edge™

AVERY® 5160®

65-42PS
Dussia Dennis & Cindy
60 Westview Pl
Bargersville, IN 46106

65-42PS
Lash Donald F & Deronda D
14 Westview Pl
Bargersville, IN 46106

65-42PS
Edwards Sonya A & Rohn M
490 W Harriman Ave
Bargersville, IN 46106

65-42PS
Johnson County Board of Commissioners
86 W Court St
Franklin, IN 46131

65-42PS
Roy Elmer Adams & Carla Denise
433 Westview Dr
Bargersville, IN 46106

65-42PS
Brann Austin N & Barney Carla R
4 Westview Pl
Bargersville, IN 46106

65-42PS
Irwin Union Collaterial Inc
1073 W Jefferson St
Franklin IN 46131

65-42PS
Duncan Patrick D & Tammy L
34 Westview Pl
Bargersville, IN 46106

65-42PS
Patton Andrew J & Patricia A
500 W Harriman Ave
Bargersville, IN 46106

65-42PS
Town of Bargersville
PO Box 420
Bargersville, IN 46106

Form Approved OMB No. 2040-0086
Approval expires 7-31-88

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

STANDARD FORM A - MUNICIPAL

SECTION I APPLICANT AND FACILITY DESCRIPTION

Unless otherwise specified on this form all items are to be completed. If an item is not applicable indicate "NA"

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

Please Print or Type

1.	Legal Name of Applicant (See instructions)	101	Town of Bargersville
2.	Mailing Address of Applicant (See instructions) Number and Street	102a	24 N Main Street
	City	102b	Bargersville
	State	102c	Indiana
	Zip Code	102d	46106
3.	Applicant's Authorized Agent (See instructions) Name and Title	103a	Whitaker Engineering
	Number and Street	103b	8145 Halyard Way
	City	103c	~~Idnaianapolis~~ Indianapolis
	State	103d	Indiana
	Zip Code	103e	46236
	Telephone	103f	317-324-1275 (Area Code / Number)
4.	Previous Application If a previous application for a permit under the National Pollutant Discharge Elimination System has been made, give the date of application	104	2003 (YR) 3 (MO) 14 (DAY)

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete and accurate.

Michael Davis Printed Name of Person Signing	102e	Utility Superintendent Title
 Signature of Applicant or Authorized Agent	102f	2011 (YR) 8 (MO) 16 (DAY) Date Application Signed

18 U.S.C. Section 1001 provides that:
Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statement or representation, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

EPA Form 7550-22 (7-73)

This Section contains 4 pages.

5. Facility (see instructions)
Give the name, ownership, and physical location of the plant or other operating facility where discharge(s) presently occur(s) or will occur.

Name — 105a: Bargersville Municipal WWTP

Ownership — 105b: X Public ____ Private ____ Both Public and Private

Federal Facility — 105c: ____ Yes X No

GSA Inventory Control Number — 105d: ____

Location:

Number and Street — 105e: 600 West Old South Street

City — 105f: Bargersville

County — 105g: Johnson

State — 105h: Indiana

6. Discharge to Another Municipal Facility (See instructions)

a. Indicate if part of your discharge is into a municipal waste transport system under another responsible organization. If yes, complete the rest of this item and continue with item 7. If no, go directly to item 7. — 106a: ____ Yes X No

b. Responsible Organization Receiving Discharge

Name — 106b

Number and Street — 106c

City — 106d

State — 106e

Zip Code — 106f

c. Facility which Receives Discharge
Give the name of the facility (Waste treatment plant) which receives and is ultimately responsible for treatment of the discharge from your facility. — 106g

d. Average Daily Flow to Facility (mgd) Give your average daily flow into the receiving facility. — 106h ____ mgd

7. Facility Discharges, Number and Discharge Volume (see instructions)
Specify the number of discharges described in this application and the volume of water discharged or lost to each of the categories below. Estimate average volume per day in million gallons per day. Do not include intermittent or noncontinuous overflows, bypasses or seasonal discharges from lagoons, holding ponds, etc.

EPA Form 7750-22 (7-73)

Form Approved OMB No. 2040-0086
Approval expires 7-31-88

			Number of Discharge Points		Total Volume Discharged, Million Gallons Per Day
To:	Surface Water	107a1	1	107a2	1.5
	Surface Impoundment with no Effluent	107b1		107b2	
	Underground Percolation	107c1		107c2	
	Well (Injection)	107d1		107d2	
	Other	107e1		107e2	
Total Item 7		107f1	1	107f2	1.5
If "Other" is specified, describe		107g1			

If any of the discharges from this facility are intermittent, such as from overflow or bypass points, or are seasonal or periodic from lagoons, holding ponds, etc., complete Item 8.

8. Intermittent Discharges

a.	Facility bypass points indicate number of bypass points for the facility that are discharge points. (See instructions)	108a	0
B.	Facility Overflow Points Indicate the number of overflow points to a surface water for the facility. (See instructions)	108b	0
C.	Seasonal or Periodic Discharge Points Indicate the number of points where seasonal discharges occur from holding ponds, lagoons, etc.	108c	0

9. Collection System Type
Indicate the type and length (in miles) of the collection system used by this facility. (See instructions)

Approximate Lengths of Pipe

Separate Storm	109a	12	SST
Separate Sanitary		40	SAN
Combined Sanitary and Storm			CSS
Both Separate Sanitary and Combined Sewer Systems			BSC
Both Separate Storm and Combined Sewer Systems			SSC
Length	109b		Miles

10. Municipalities or Areas Served (See instructions)

	Name		Actual Population Served
	110a	Town of Bargersville	110b 3200
	110a		110b
	110a		110b
	110a		110b
	110a		110b
Total Population Served			110c

11. Average Daily Industrial Flow
Total estimated average daily waste flow from all industrial sources.

111 0 Mgd

Note: All major industries (as defined in Section IV) discharging to the municipal system must be listed in Section IV.

12. Permits, Licenses and Applications
List all existing, pending or denied permits, licenses and applications related to discharges from this facility. (See instructions)

	Issuing Agency	For Agency Use	Type of Permit or License	ID Number	Date Filed YR/MO/DA	Date Issued YR/MO/DA	Date Denied YR/MO/DA	Expiration Date YR/MO/DA
112	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	IDEM		NPDES	IN0022314		1/29/07		2/29/12
2.	IDEM		Class IV	WW011155		7/30/10		7/30/12
3.	IDEM		Class III	WW019261		11/7/10		11/7/12

13. Maps and Drawings
Attach all required maps and drawings to the back of this application. (See instructions)

14. Additional Information

114	Item Number	Information

* U.S. GOVERNMENT PRINTING OFFICE: 1975-628-068/448 3-1

STANDARD FORM A - MUNICIPAL

SECTION II BASIC DISCHARGE DESCRIPTION

Complete this section for each present or proposed discharge indicated in Section I, Items 7 and 8, that is to surface waters. This includes discharges to other municipal sewerage systems in which the waste water does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. Separate descriptions of each discharge are required even if several discharges originate in the same facility. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. And Name
   - a. Discharge Serial No. (See instructions) — 201a: 001
   - b. Discharge Name Give name of discharge, if any (See instructions) — 201b: N Prong Stotts Creek
   - c. Previous Discharge Serial No. If a previous NPDES permit Application was made for this discharge (Item 4 Section I) provide previous discharge serial number — 201c: 001

2. Discharge Operating Dates
   - a. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date the discharge will begin. — 202a: 2008 February (Year and Month)
   - b. Discharge to End Date If the discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end. Give reason for discontinuing this discharge in Item 17. — 202b: ____ (Year and Month)

3. Discharge Location
   Name the political boundaries within which the point of discharge is located

			Agency Use
State	203a: IN	203d	
County	203b: Johnson	203e	
City or Town (if applicable)	203c: Bargersville	203f	

4. Discharge Point Description (See instructions)
   Discharge is into (check one) — 204a

Stream (includes ditches, arroyos, and other watercourses)	X	STR
Estuary		EST
Lake		LKE
Ocean		OCE
Well (injection)		WEL
Other		OTH

If "other" is checked, specify type — 204b:

5. Discharge Point - Lat/Long
   State the precise location of the point of discharge to the nearest second. (See instructions)

Latitude	205a	39	DEG	31	MIN	16 SEC
Longitude	205b	86	DEG	10	MIN	38 SEC

DISCHARGE SERIAL NUMBER

001

6. Discharge Receiving Water Name
Name the waterway at the point of discharge. (See instructions)

206a N Prong Stotts Creek

For Agency Use

Major	Minor	Sub

For Agency Use

303e

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete in Item 7.

206b

7. Offshore Discharge

a. Discharge distance from shore 207a _____ Feet

b. Discharge depth below water surface 207b _____ Feet

If discharge is from a bypass or an overflow point or is a seasonal discharge from a lagoon, holding pond, etc., complete Items 8, 9 or 10, as applicable, and continue with Item 11.

8. Bypass Discharge (see instructions)

a. Bypass Occurrence
Check when bypass occurs

Wet weather	208a1	Yes	No
Dry weather	208a2	Yes	No

b. Bypass Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	Times per year
Dry weather	208b2	Times per year

c. Bypass Duration
Average bypass duration in hours

Wet weather	208c1	Hours
Dry weather	208c2	Hours

d. Bypass Volume
Average volume per bypass

Wet weather	208d1	Thousand gallons per incident
Dry weather	208d2	Thousand gallons per incident

e. Bypass Reasons
Give reasons why bypass occurs 308e

Proceed to Item 11

9. Overflow Discharge (see instructions)

a. Overflow Occurrence
Check when overflow occurs

Wet weather	209a1	Yes	X No
Dry weather	209a2	Yes	X No

b. Overflow Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	Times per year
Dry weather	208b2	Times per year

EPA Form 7550-22 (7-73)

c. Overflow Duration
Average duration in hours

Wet weather — 209c1 — Hours

Dry weather — 209c2 — Hours

d. Overflow Volume
Average volume per overflow incident in thousand gallons

Wet weather — 209d1 — Thousand gallons per incident

Dry weather — 209d2 — Thousand gallons per incident

Proceed to Item 11

10. Seasonal/Periodic Discharges

a. Seasonal/periodic Discharge Frequency. If discharge is intermittent from a holding pond, lagoon, etc., give the actual or approximate number of times this discharge occurs per year. — 210a — 0 — Times per year

b. Seasonal/Periodic Discharge Volume. Give the average volume per discharge occurrence in thousand gallons. — 210b — Thousand gallons per discharge occurrence

c. Seasonal/Periodic Discharge Duration. Give the average duration of each discharge occurrence in days. — 210c — Days

d. Seasonal/Periodic Discharge Occurrence - Months. Check the months during the year when the discharge normally occurs. — 210d

Jan	Feb	Mar
Apr	May	Jun
Jul	Aug	Sep
Oct	Nov	Dec

11. Discharge Treatment

a. Discharge Treatment Description
Describe waste abatement practices used on this discharge with a brief narrative.
(See instructions) — 211a

The wastewater plant is rated for 1.5 MGD of average daily flow. All flow is pumped to the Headworks Building where primary treatment occurs. Primary treatment consists of a fine screen and grit removal system after which the flow splits. Secondary treatment consists of the Biolac system, which treats 0.5 MGD, and the Phased Isolation Ditches (oxidation ditch operated as SBR's until clarifiers are constructed), which treats 1.0 MGD. Flow is biologically treated using the activated sludge process. Biolac effluent goes to a secondary clarifier. Phased Isolation Ditch effluent is clarified inside the ditch. Wastewater is disinfected using ultraviolet light. Sludge is digested, and hauled to a landfill.

DISCHARGE SERIAL NUMBER

001

b.	Discharge Treatment Codes Using the codes listed in Table I of the Instruction Booklet, describe the waste abatement processes applied to this discharge in the order in which they occur, if possible. Separate all codes with commas except where slashes are used to designate parallel operations.	211b	S,G/LA,APP/P,H		

If this discharge is from a municipal waste treatment plant (not an overflow or bypass) complete Items 12 and 13

12. Plant Design and Operation Manuals Check which of the following are currently available

a.	Engineering Design Report	212a	X	
b.	Operation & Maintenance Manual	212b	X	

13. Plant Design Data (see instructions)

a.	Plant Design Flow (mgd)	313a	15	mgd	1,500,000 gallons
CBOD b.	Plant Design BOD Removal (%)	213b	88	%	
c.	Plant Design N Removal (%)	213c		%	No design influent and effluent
d.	Plant Design P Removal (%)	213d		%	No design influent and effluent
TSS e.	Plant Design SS Removal (%)	213e	88	%	
f.	Plant Began Operation (year)	213f		year	1960's (Approximate Date)
g.	Plant Last Major Revision (year)	213g	2,007	year	

EPA Form 7550-22 (7-73)

Form Approved OMB No.156-R0100

DISCHARGE SERIAL NUMBER

001

14. Description of Influent and Effluent (see instructions)

Parameter and Code 214	Influent	Effluent					
	Annual Average Value (1)	Annual Average Value (2)	Lowest Monthly Average Value (3)	Highest Monthly Average Value (4)	Frequency of Analysis (5)	Number of Analyses (6)	Sample Type (7)
Flow Million gallons per day 50050	.69917	.55892	.28703	1.13687	CONT	NA	NA
pH Units 00400	7.8	8.3	8.1	8.5	5/7	260	Grab
Temperature (winter) °F 74026							
Temperature (summer) °F 74027							
Fecal Streptococci Bacteria Number/100 ml 74054 (Provide if available)							
Fecal Coliform Bacteria Number/100 ml 74055 (Provide if available)		66103	.1568	2.5451	5/7	260	Grab
Total Coliform Bacteria Number/100 ml 74056 (Provide if available)							
CBOD BOD 5-day mg/l 00310	139.918	5.00516	3.6591	5.685	5/7	260	24hr
Chemical Oxygen Demand (COD) mg/l 00340 (Provide if available **OR** Total Organic Carbon (TOC) mg/l 00680 (Provide if available) (Either analysis is acceptable)							
Chlorine-Total Residual mg/l 50060							

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

001

14. Description of Influent and Effluent (see instructions) (Continued)

	Influent	Effluent					
Parameter and Code 214	Annual Average Value (1)	Annual Average Value (2)	Lowest Monthly Average Value (3)	Highest Monthly Average Value (4)	Frequency of Analysis (5)	Number of Analyses (6)	Sample Type (7)
Total Solids mg/l 50500							
Total Dissolved Solids mg/l 70300							
Total Suspended Solids mg/l 00530	166.79	8.22874	3.2545	20.008	5/7	260	24hr
Settleable Matter (Residue) ml/l 00545							
Ammonia (as N) mg/l 00610 (Provide if available)	28.7275	.27875	.17218	.55019	5/7	260	24hr
Kjeldahl Nitrogen mg/l 00625 (Provide if available)							
Nitrite (as N) mg/l 00620 (Provide if available)							
Nitrite (as N) mg/l 00615 (Provide if available)							
Phosphorus Total (as P) mg/l 00665 (Provide if available							
Dissolved Oxygen (DO) mg/l 00300		9.27336	8.0273	11.038	5/7	260	Grab

EPA Form 7550-22 (7-73)

Form Approved OMB No 158-R0100

DISCHARGE SERIAL NUMBER

001

15 Additional Wastewater Characteristics

Check the box next to each parameter if it is present in the effluent. (See instructions)

Parameter (215)	Present	Parameter (215)	Present	Parameter (215)	Present
Bromide 71870		Cobalt 01037		Thallium 01059	
Chloride 00940		Chromium 01034		Titanium 01152	
Cyanide 00720		Copper 01042		Tin 01102	
Fluoride 00951		Iron 01045		Zinc 01092	
Sulfide 00745		Lead 01051		Algicides* 74051	
Aluminum 01105		Manganese 01055		Chlorinated organic compounds* 74052	
Antimony 01097		Mercury 71900		Oil and grease 00550	
Arsenic 01002		Molybdenum 01062		Pesticides* 74053	
Beryllium 01012		Nickel 01067		Phenols 32730	
Barium 01007		Selenium 01147		Surfactants 328260	
Boron 01022		Silver 01077		Radioactivity* 74050	
Cadmium 01027					

*Provide specific compound and/or element in Item 17, if known.

Pesticides (Insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels,* 2nd Edition, Environmental Protection Agency, Washington, DC 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, fungicide, and rodenticide Act.

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

001

16. Plant Controls
Check if the following plant controls are available for this discharge

316		
Alternate power source for major pumping facility including those for collection system lift stations	X	APS
Alarm for power or equipment failure	X	ALM

No alternate power source at lift stations.

17. Additional information

317 Item Number	Information

EPA Form 7550-22 (7-73)

U.S. GOVERNMENT PRINTING OFFICE: 1975-627-728/394 3-1

Form Approved OMB No. 158-R0100

STANDARD FORM A - MUNICIPAL

SECTION III SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

This Section requires information on any uncompleted implementation schedule which has been imposed for construction of waste treatment facilities. Requirement schedules may have been established by local, State, or Federal agencies or by court action. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (ITEM 1b) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATIONAL UNITS (ITEM 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

1. Improvements Required

a. **Discharge Serial Numbers Affected** List the discharge serial numbers, assigned in Section II, that are covered by This implementation Schedule — 300

FOR AGENCY USE
Schedule No.

b. **Authority Imposing Requirement** Check the appropriate item indicating the authority for the implementation schedule. If the identical implementation schedule has been ordered by more than one authority, check the appropriate items. (See Instructions) — 301a _____ _____ _____ _____ _____

Locally developed plan	301b	___ LOC
Areawide Plan		___ ARE
Basin Plan		___ BAS
State approved implementation schedule		___ SQS
Federal approved water quality standards implementation plan		___ WQS
Federal enforcement procedure or action		___ ENF
State court order		___ CRT
Federal court order		___ FED

c. **Improvement Description** Specify the 3 character code for the General Action Description in Table II that best describes the improvements required by the implementation schedule. If more than one schedule applies to the facility because of a staged construction schedule, state the stage of construction being described here with the appropriate general action code. Submit a separate Section III for each stage of construction planned. Also, list all the 3-character (Specific Action) codes which describe in more detail pollution abatement practices that the implementation schedule requires.

3-character general action description	301c	____
3-character specific action descriptions	301d	____/ ____/ ____/ ____/

2. Implementation Schedule and 3. Actual Completion Dates

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. Indicate dates as accurately as possible. (See instructions)

Implementation Steps		2. Schedule (Yr/ Mo/ Day)	3. Actual Completion (Yr/ Mo/ Day)
a.	Preliminary plan complete	302a ____/____/____	302a ____/____/____
b.	Final plan complete	302b ____/____/____	302b ____/____/____
c.	Financing complete and contract awarded	302c ____/____/____	302c ____/____/____
d.	Site acquired	302d ____/____/____	302d ____/____/____
e.	Begin construction	302e ____/____/____	302e ____/____/____
f.	End construction	302f ____/____/____	302f ____/____/____
g.	Begin discharge	302g ____/____/____	302g ____/____/____
h.	Operational level attained	302h ____/____/____	302h ____/____/____

STANDARD FORM A - MUNICIPAL

SECTION IV. INDUSTRIAL WASTE CONTRIBUTION TO MUNICIPAL SYSTEM

Submit a description of each major industrial facility discharging to the municipal system, using a separate Section IV for each facility description. Indicate the 4 digit Standard Industrial Classification (SIC) Code for the industry, the major product or raw material, the flow (in thousand gallons per day), and the characteristics of the wastewater discharged from the industrial facility into the municipal system. Consult Table III for standard measures of products or raw materials. (See instructions)

1. Major Contributing Facility (See instructions)
   Name — 401a: None
   Number & Street — 401b
   City — 401c
   County — 401d
   State — 401e
   Zip Code — 401f

2. Primary Standard Industrial Classification Code (See instructions) — 402

3. Principal Product or Raw Material (See instructions)

			Quanity		Units (see Table III)
Product	403a		403c	403e	
Raw Material	403b		403d	403f	

4. Flow — Indicate the volume of water discharged into the municipal system in thousand gallons per day and whether this discharge is intermittent or continuous
   404a: _____ Thousand gallons per day
   404b: _____ Intermittent (int) _____ Continuous (con)

5. Pretreatment Provided — Indicate if pretreatment is provided prior to entering the municipal system. — 405: _____ Yes _____ No

6. Characteristics of Wastewater (See instructions)

	Parameter Name							
406a	Parameter Number							
406b	Value							

For more location information
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Office Locations

Brenham, TX | 979.836.7937

Cincinnati, Ohio | 513.861.5600

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