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CITY OF MONTICELLO

Wastewater Collection System Improvements Project
Preliminary Engineering Report
April 2020

A Wealth of Resources to Master a Common Goal.

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Executive Summary

ES 1. Need for Project

The City of Monticello, located in White County, Indiana, is required by NPDES Permit No. IN0020176 (**Appendix A**) and Agreed Order Case No. 2008-18083-W (**Appendix B**) to implement a Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) for the purposes of controlling discharges from its Combined Sewer System (CSS) and improving the water quality of Tippecanoe River / Lake Freeman. All of Monticello's CSOs discharge to Tippecanoe River / Lake Freeman from the water body's intersection with Beach Drive, south to the Carroll County Road 1250 North / Tioga Bridge Road. The entire receiving stream has been designated as a full-body contact recreational water and is considered a sensitive area since it is used year-round for recreational purposes such as swimming, boating, water skiing, and fishing.

Exposure to polluted water from CSOs presents a significant risk to human health and the environment. Microbial pathogens including types of bacteria, viruses, and parasites and other toxins in CSOs can be present at levels that pose a risk to human health. Exposure to these can result in waterborne diseases, which often involve gastrointestinal illnesses. CSOs can also contaminate drinking water sources, cause beach closures and harmful algal blooms, and have harmful effects on aquatic life.

The City submitted its original CSO LTCP to the Indiana Department of Environmental Management (IDEM) Office of Water Quality (OWQ) in May 2002. A revised CSO LTCP was submitted in November 2009, which was approved by IDEM OWQ via correspondence on April 1, 2010. The revised plan included the selected alternative that will be designed in accordance with IDEM's Nonrule Policy Document (NPD) Water-016: CSO Treatment Facilities, whereby CSO discharges are required to be controlled for rainfall events up to and including the single event 10-year, 1-hour design storm.

The April 2018 CSO LTCP Update presented an analysis of the sewer system utilizing an updated hydraulic model and outlined alternatives in accordance with IDEM's Nonrule Policy Document (NPD) Water-016: CSO Treatment Facilities. The April 2018 CSO LTCP Update recommended alternative will result in compliance with IDEM's NPD Water-016: CSO Treatment Facilities and will provide the capture and required CSO treatment of the target single event 10-year, 1-hour design storm. The LTCP alternative solution is divided into three (3) phases: Project 4a – Bluewater Drive Interceptor, Project 4b – Maple Street Interceptor, and Project 5 – Wet Weather Storage and Treatment.

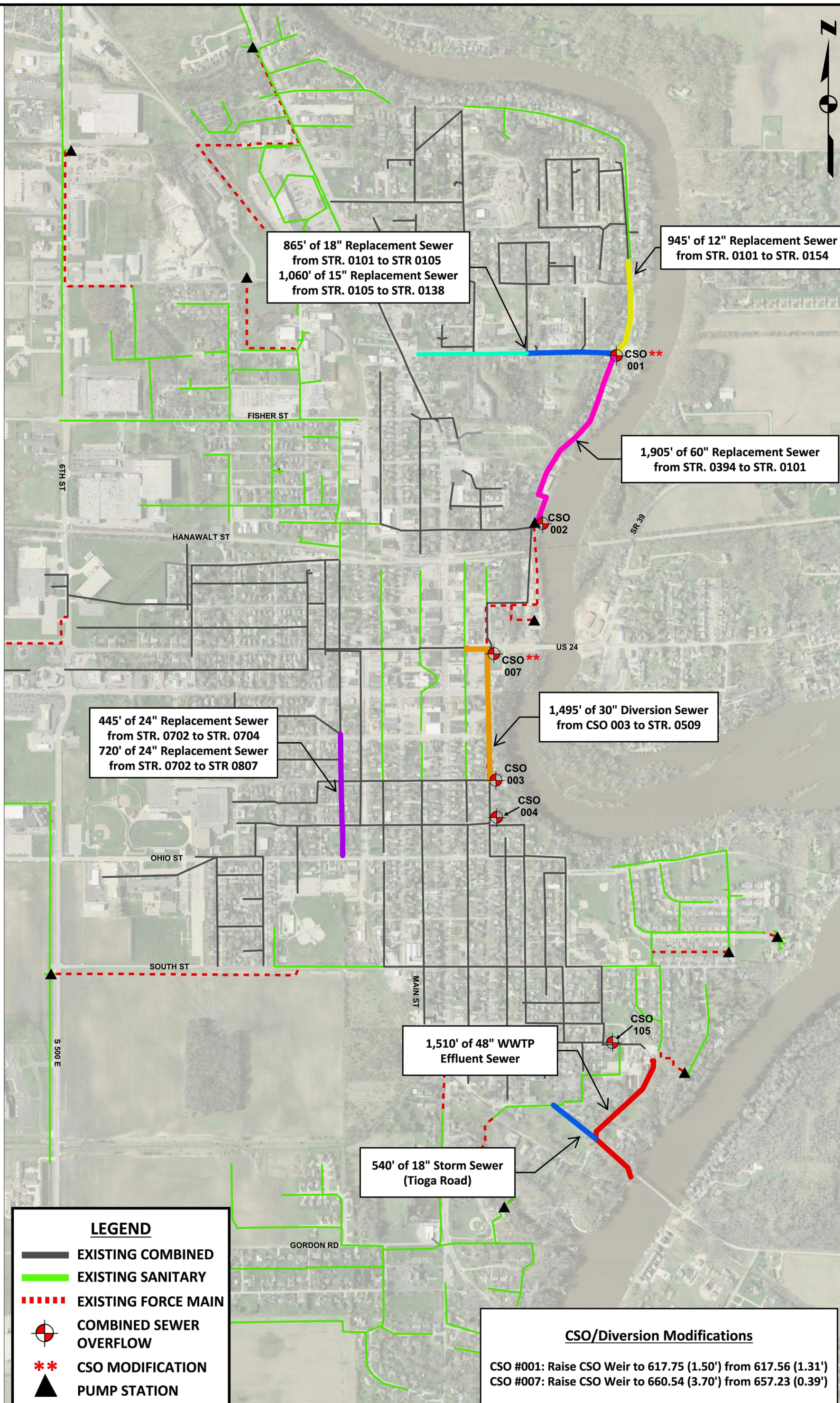
This report evaluates the potential alternatives to complete CSO LTCP Projects 4a – Bluewater Drive Interceptor, Project 4b – Maple Street Interceptor (**referred to as the Washington Street Diversion Sewer for the purposes of this Preliminary Engineering Report (PER)**) and Project 5 – Wastewater Treatment Plant (WWTP) Effluent Sewer Improvements. The remaining improvements included in Project 5 – Wet Weather Storage and Treatment will be evaluated at a future date after post construction monitoring for Projects 4a and 4b is complete.

ES 2. Proposed Project

The proposed improvements to the wastewater collection system are presented in **Table ES-1 and Figure ES-1**.

Table ES-1
Recommended Project Components

Item Description	LTCP Requirement
Project 4a – Bluewater Drive Interceptor: • Installation of 945-LF of 12" Dia. Sanitary Sewer • Installation of 1,060-LF of 15" Dia. Sanitary Sewer • Installation of 865-LF of 18" Dia. Sanitary Sewer • Installation of 1,905-LF of 60" Dia. Sanitary Sewer • CSO 001 Modifications	YES
Project 4b – Washington Street Diversion Sewer: • Installation of 1,165-LF of 24" Dia. Sanitary Sewer • Installation of 1,495-LF of 30" Dia. Sanitary Sewer • CSO 007 Modifications	YES
Project 5: • WWTP Effluent Sewer Improvements • Installation of 540-LF of 18" Dia. Sanitary Sewer	YES



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WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE ES-1: RECOMMENDED PROJECT

ES 3. Estimated Project Cost

Table ES-2 details the estimated costs associated with the recommended project. This preliminary estimate includes cost for construction, a 10% construction contingency, and an estimated 25% non-construction costs associated with engineering fees, legal fees, and administrative expenses. All construction costs are based on the 2020 dollars and reflect current market conditions within the construction industry.

Table ES-2
Estimate of Recommended Project Total Cost

Description	Total Cost ($)
Mobilization/Demobilization (5%)	380,000
Contractor Construction Engineering (2%)	149,000
Misc. Utility Relocation Allowance	75,000
Maintenance & Protection of Traffic	100,000
Temporary Erosion Control	100,000
Bypass Pumping	300,000
18-inch Storm Sewer	162,000
12-inch Combined Sewer	344,925
15-inch Combined Sewer	429,300
18-inch Combined Sewer	384,925
24-inch Combined Sewer	605,800
30-inch Combined Sewer	897,000
48-inch WWTP Effluent Sewer	1,359,000
60-inch Combined Sewer	2,047,875
CSO Modifications	240,000
Tioga Road Multi-Purpose Trail Improvements	400,000
Subtotal Construction Cost ($)	**7,974,825**
Contingency (10%) ($)	**797,483**
Total Estimated Construction Costs ($)	**8,772,308**
Non-Construction Costs (Estimated = 25%) ($)	**2,193,077**
Total Estimated Project Costs ($)	**10,965,385**

ES 4. Project Schedule

Table ES-3 shows the proposed schedule for the proposed improvements. For reference, **Table ES-4** presents the CSO LTCP Schedule Milestone Dates.

Table ES-3
Proposed Project Schedule

Item	Proposed Date
City Authorizes Preliminary Design	December 2018
City Authorizes Final Design	April 2019
Completion of Final Design	March 2020
PER Submittal	April 2020
City Applies for Construction Permit from IDEM	April 2020
City Obtains Construction Permit from IDEM	June 2020
Advertise for Bids	July 2020
Loan Closing	August 2020
Contract Award	August 2020
Initiation of Construction	September 2020
Substantial Completion	September 2022
Initiation of Operation	October 2022

Table ES-4
LTCP Milestone Dates

Activity	Completion Date*
Project 4a – Bluewater Drive Interceptor Design	2021
Project 4a – Bluewater Drive Interceptor Construction	2022
Project 4b – Washington Street Diversion Sewer Design	2023
Project 4b – Washington Street Diversion Sewer Construction	2024
Project 5 – WWTP Improvements	2029

**Note: Construction to begin on or before January 1st of corresponding year, and construction to be complete on or before December 31st of corresponding year.*

Section 1 – Project Planning

This section defines the project planning area and the planning period. Background information and current characteristics of the planning area are also provided. This information is important to the engineering analyses and the decision-making processes discussed in subsequent sections. The planning period for this study is twenty (20) years.

1.1 Location

The City of Monticello is located in White County approximately thirty (30) miles north of Lafayette, Indiana at the intersection of US-24 and US-421 along the Tippecanoe River/Freeman Lake. **Figure 1-1 – General Location Map** shows the location of the City of Monticello in the State of Indiana. **Figure 1-2 – Topographic Map** and **Figure 1-3 – Wastewater Planning Area – Aerial Map** illustrate the planning area for the proposed project. The wastewater utility service area generally coincides with the City's limits. The majority of the service area consists of residential and commercial properties.

1.2 Environmental Resources Present

A. Land Use

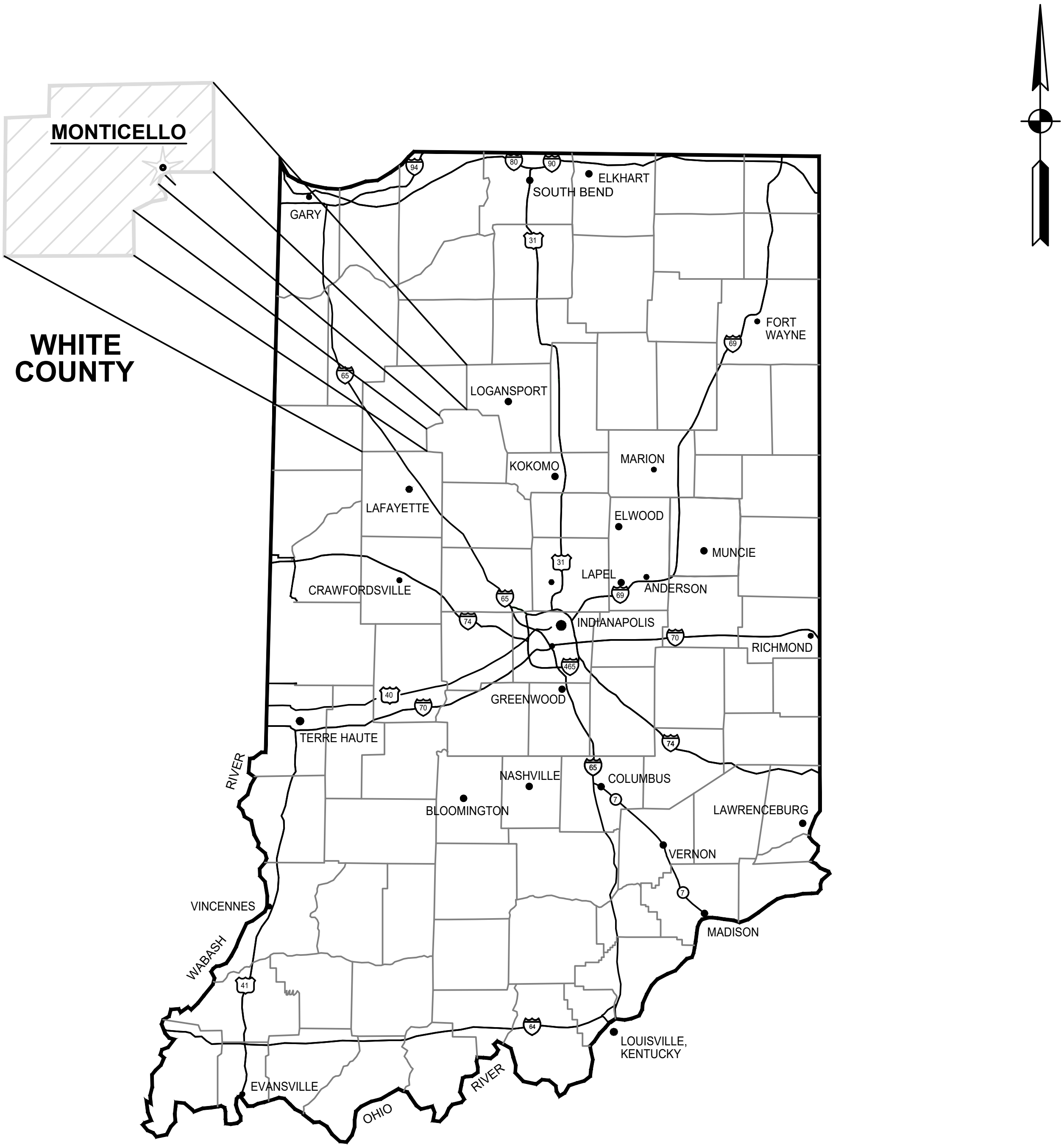
The majority of the land within the planning area is identified as developed, open space, low intensity, medium intensity and high intensity. Some additional land in the planning area is classified as being used for cultivated crops and deciduous forest. **Figure 1-4 – Land Use Map**, shows land use classification within the planning area. Projects proposed as part of this report will not impact established land use plans, policy, or regulations of any agency with jurisdiction over the project.

B. Disturbed/Undisturbed Land

Most of the City is on an elevation ranging from 620 to 700 feet above sea level. According to the 2010 U.S. Census, Monticello has a total land area of 3.47 square miles. **Figures 1-5A through 1-5D - Hydric Soils Map** depict the soils found within the planning area, which were determined using the USDA Natural Resources Conservation Services website.

The City of Monticello rests on many different soil types including, most prominently, Whitaker silt loam (Wh) and Martinsville silt loam (MaB2 & MaA). Detailed descriptions of the various soil types shown can be found in the online soil survey.

The construction projects proposed in this Preliminary Engineering Report (PER) are not expected to have any detrimental, long term impacts on the soils. Short-term impacts will relate only to excavation activities for the installation of the improvements made to the collection system. These impacts can be mitigated through the use of appropriate techniques for erosion control and surface restoration during and following construction. The proposed location of improvements is within previously disturbed land.



GENERAL LOCATION MAP

NO SCALE

SCALE: 1"=20'

20' 0 20'

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PRELIMINARY ENGINEERING REPORT
GENERAL LOCATION MAP FIGURE 1-1

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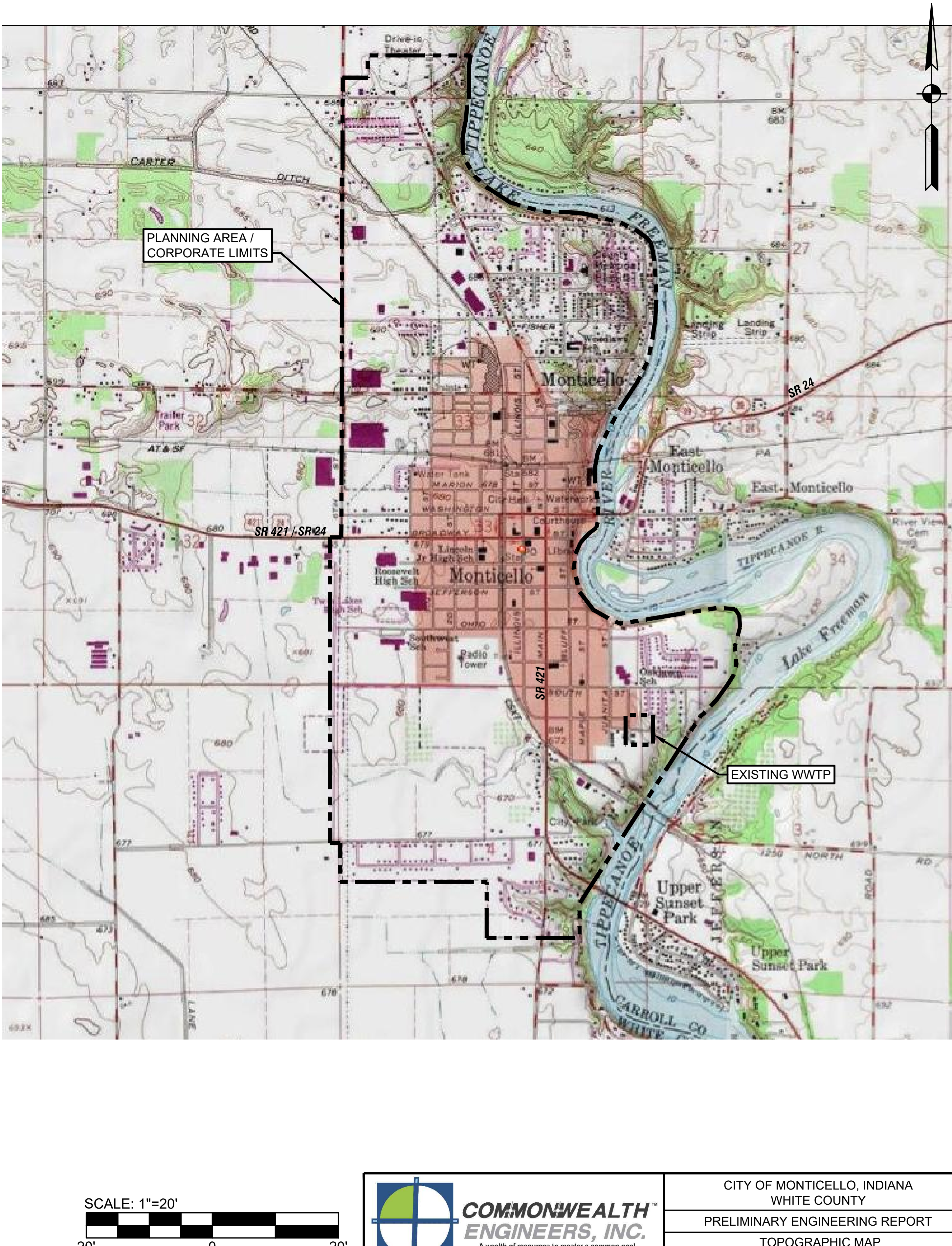

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TOPOGRAPHIC MAP
FIGURE 1-2

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SCALE: 1"=2800'

2800' 0 2800'

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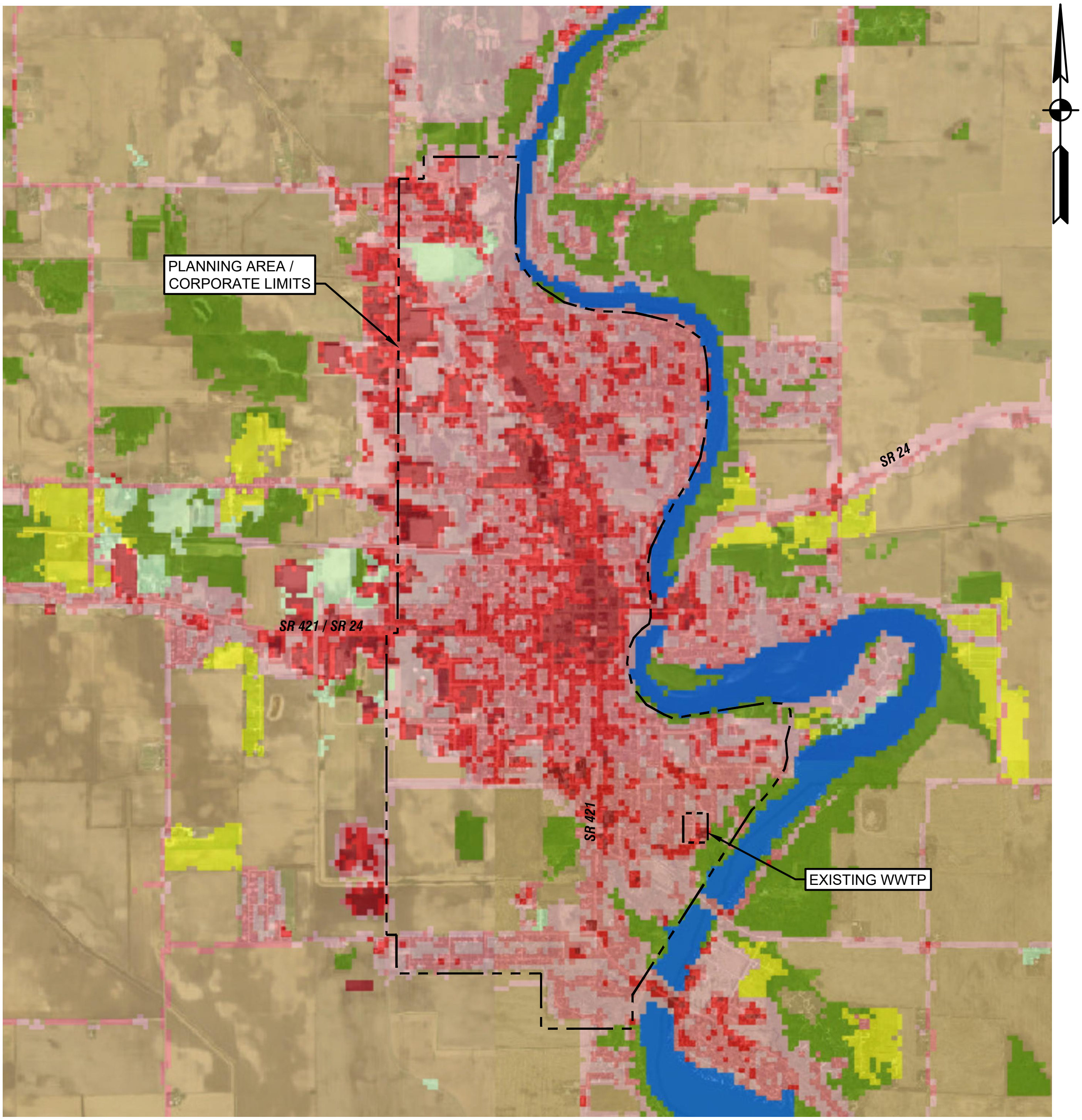
PRELIMINARY ENGINEERING REPORT

WASTEWATER PLANNING AREA - AERIAL MAP
FIGURE 1-3



Land Cover 2011 (USGS)

- 11 - Open Water
- 21 - Developed, Open Space
- 22 - Developed, Low Intensity
- 23 - Developed, Medium Intensity
- 24 - Developed, High Intensity
- 31 - Barren Land
- 41 - Deciduous Forest
- 42 - Evergreen Forest
- 43 - Mixed Forest
- 52 - Shrub/Scrub
- 71 - Grasslands/Herbaceous
- 81 - Pasture/Hay
- 82 - Cultivated Crops
- 90 - Woody Wetlands
- 95 - Emergent Herbaceous Wetlands

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LAND USE MAP
FIGURE 1-4

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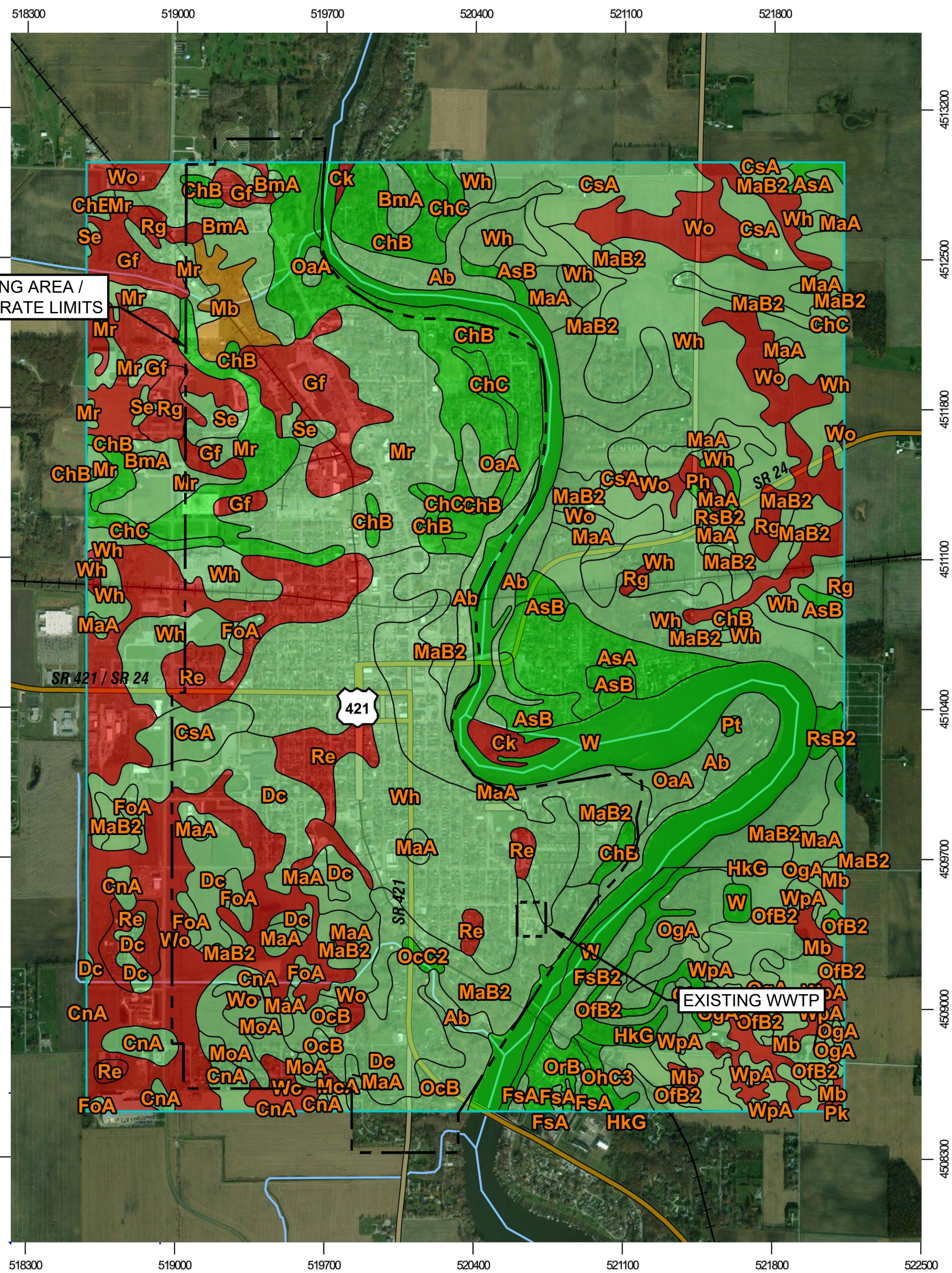

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CITY OF MONTICELLO, INDIANA WHITE COUNTY
PRELIMINARY ENGINEERING REPORT
HYDRIC SOILS MAP FIGURE 1-5A

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Lines

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Points

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:15,800 to 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Carroll County, Indiana
Survey Area Data: Version 22, Sep 19, 2017

Soil Survey Area: White County, Indiana
Survey Area Data: Version 22, Oct 2, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 7, 2010—Dec 26, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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HYDRIC SOILS MAP
FIGURE 1-5B

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Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
FsA	Fox sandy loam, 0 to 2 percent slopes	3	6.0	0.2%
FsB2	Fox sandy loam, 2 to 6 percent slopes, eroded	3	15.5	0.4%
HkG	Hennepin loam, 25 to 50 percent slopes	0	22.4	0.6%
Mb	Mahalasville silty clay loam, till substratum	100	37.3	1.0%
OfB2	Ockley loam, till substratum, 2 to 6 percent slopes, eroded	3	92.7	2.4%
OgA	Ockley-Rush silt loams, till substrata, 0 to 2 percent slopes	3	43.9	1.1%
OhC3	Ockley, till substratum-Kendallville clay loams, 6 to 12 percent slopes, severely eroded	0	17.3	0.4%
OrB	Ormas loamy sand, 2 to 6 percent slopes	0	21.4	0.5%
Pk	Pella silty clay loam	100	1.1	0.0%
W	Water	0	29.1	0.7%
WpA	Waynetown-Sleeth silt loams, till substrata, 0 to 1 percent slopes	6	85.6	2.2%
Subtotals for Soil Survey Area			**372.4**	**9.5%**
Totals for Area of Interest			**3,906.0**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ab	Abscota loamy fine sand, occasionally flooded	3	117.3	3.0%
AsA	Alvin fine sandy loam, 0 to 2 percent slopes	0	70.3	1.8%
AsB	Alvin fine sandy loam, 2 to 6 percent slopes	0	42.4	1.1%
BmA	Brems loamy fine sand, 0 to 2 percent slopes	9	66.4	1.7%
ChB	Chelsea fine sand, 2 to 6 percent slopes	0	255.4	6.5%

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CITY OF MONTICELLO, INDIANA
WHITE COUNTY

PRELIMINARY ENGINEERING REPORT

HYDRIC SOILS MAP
FIGURE 1-5C

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ChC	Chelsea fine sand, 6 to 15 percent slopes	0	46.5	1.2%
Ck	Cohoctah fine sandy loam, occasionally flooded	100	13.6	0.3%
CnA	Conover loam, 0 to 1 percent slopes	10	51.5	1.3%
CsA	Crosier silt loam, 0 to 2 percent slopes	6	119.0	3.0%
Dc	Darroch silt loam	6	184.3	4.7%
FoA	Foresman silt loam, 0 to 2 percent slopes	3	21.9	0.6%
Gf	Gilford fine sandy loam	100	156.3	4.0%
MaA	Martinsville silt loam, 0 to 2 percent slopes	3	201.9	5.2%
MaB2	Martinsville silt loam, 2 to 8 percent slopes, eroded	3	327.6	8.4%
Mb	Maumee loamy fine sand, 0 to 1 percent slopes	97	27.2	0.7%
MoA	Montmorenci loam, 0 to 2 percent slopes	3	25.7	0.7%
Mr	Morocco fine sand	3	213.1	5.5%
OaA	Oakville fine sand, wet substratum, 0 to 3 percent slopes	3	30.4	0.8%
OcB	Octagon silt loam, 2 to 6 percent slopes	3	33.1	0.8%
OcC2	Octagon silt loam, 6 to 12 percent slopes, eroded	0	3.7	0.1%
Ph	Pella silty clay loam, till substratum	100	7.7	0.2%
Pt	Pits, quarries	0	1.4	0.0%
Re	Rensselaer clay loam	100	186.0	4.8%
Rg	Rensselaer loam, sandy substratum	100	67.1	1.7%
RsB2	Riddles silt loam, 2 to 8 percent slopes, eroded	0	16.0	0.4%
Se	Seafield fine sandy loam	6	21.9	0.6%
W	Water	0	251.1	6.4%
Wh	Whitaker silt loam	3	668.4	17.1%
Wo	Wolcott clay loam	100	306.4	7.8%
Subtotals for Soil Survey Area			**3,533.6**	**90.5%**
Totals for Area of Interest			**3,906.0**	**100.0%**

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WHITE COUNTY

PRELIMINARY ENGINEERING REPORT

HYDRIC SOILS MAP
FIGURE 1-5D

C. Archaeological/Historic Sites

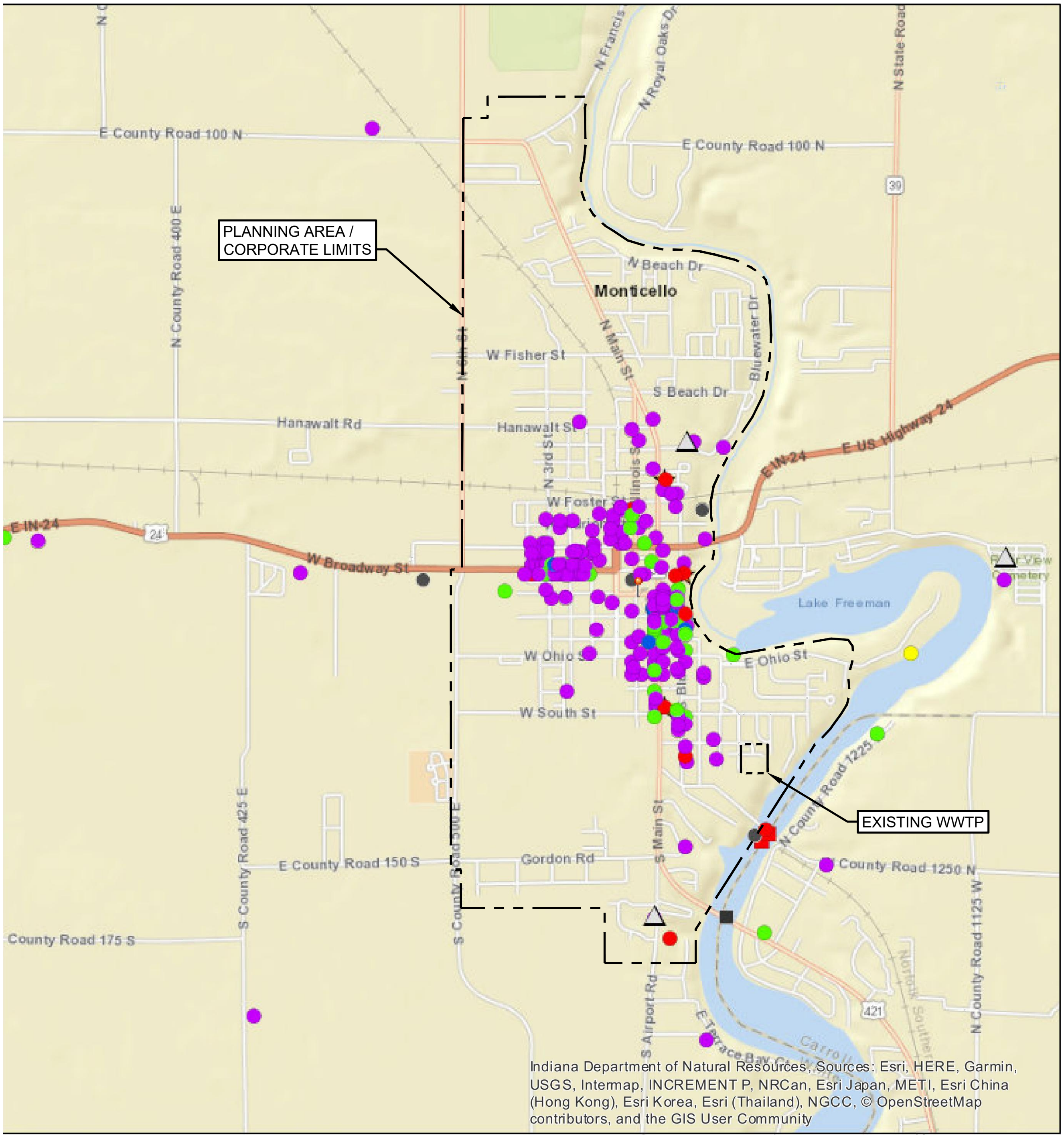
The State and National Registers were reviewed for archaeological and historical sites located within the project area. The National Register lists the Monticello Carnegie Library, James Culbertson Reynolds House, and the South Grade School Building. **Figure 1-6 – SHAARD Map** shows the location of all historic sites within the planning area. Several buildings are identified as outstanding, notable, and contributing.

All construction for this project would remain within existing or new right-of-way areas. None of the sites identified by the SHAARD database will be impacted by the proposed project.

D. Wetlands

The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency define wetlands as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturate soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Wetland areas are particularly important due to their ability to sustain a vast array of plant and animal life that depends solely on the hydrologic and physiographic conditions. Because of this, wetlands have higher potential to support certain endangered species habitat.

The National Wetlands Inventory online maps were examined to identify wetland areas located within the project area that may be affected by the proposed projects. **Figure 1-7 – Wetlands Map** shows wetlands in the project area from IndianaMap. There are several wetlands scattered throughout the City; however, the proposed project will not impact any wetland areas.



Author:

Map Coordinate System:
WGS_1984_Web_Mercator_Auxiliary_Sphere

1:40,154
Relative Scale

Indiana Dept. of Natural Resources
Geographic Information Systems

Addresses
Cemeteries
Outstanding
Notable
Contributing
Non-Contributing
Demolished
Unknown

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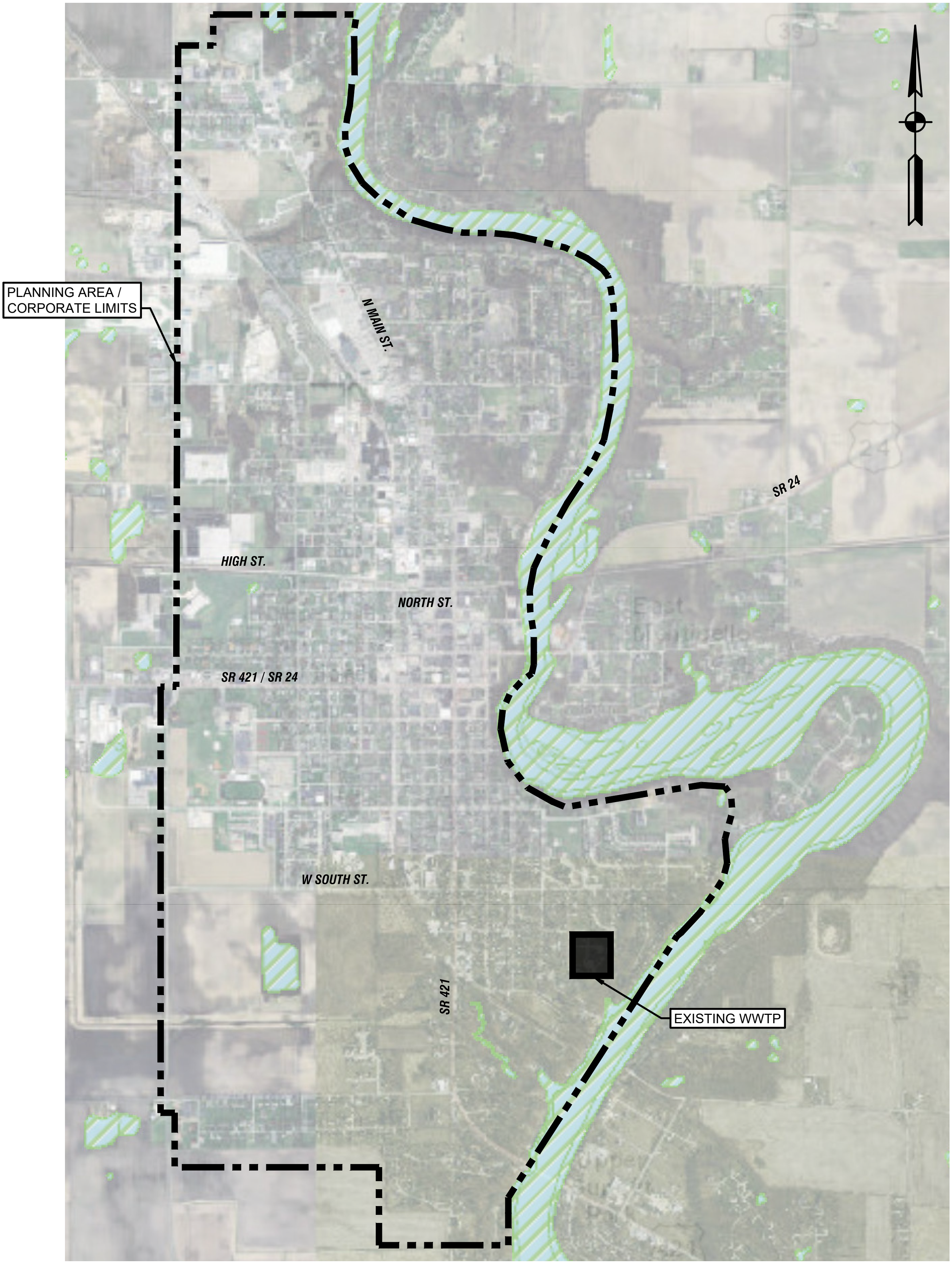
PRELIMINARY ENGINEERING REPORT

SHAARD MAP
FIGURE 1-6



WETLANDS NWI (USFWS)

SCALE: 1"=2800'

2800' 0 2800'

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WETLANDS MAP FIGURE 1-7

E. Surface Water Hydrology

The project is located within HUC-14 area 05120106140020 (Tippecanoe River-Lake Freeman), as depicted in **Figure 1-8 – Watershed Map**. The fourteen-digit code for the drainage basin is developed by the U.S. Geological Survey (USGS) and National Resources Conservation Service (NRCS). These HUC designations indicate that the City of Monticello drains to the Tippecanoe River/Lake Freeman.

The Indiana Department of Natural Resources' (IDNR) list of outstanding rivers and streams was examined to determine if any rivers, streams, or exceptional use streams would be impacted. The Tippecanoe River is included on the DNR's list; however, the project is being designed to improve water quality in the river and should cause no adverse impacts. Surface waters, including lakes, streams and rivers are shown on **Figure 1-9 – Surface Water Map**. No stream crossings will be required for the implementation of projects recommended in this report.

F. Groundwater

As shown in **Figure 1-10A through 1-10B – Depth to Water Table Map**, the depth to water table varies throughout the City. Where excavation is required, groundwater will be mitigated in a proper fashion. No aquifers will be affected by the proposed project.

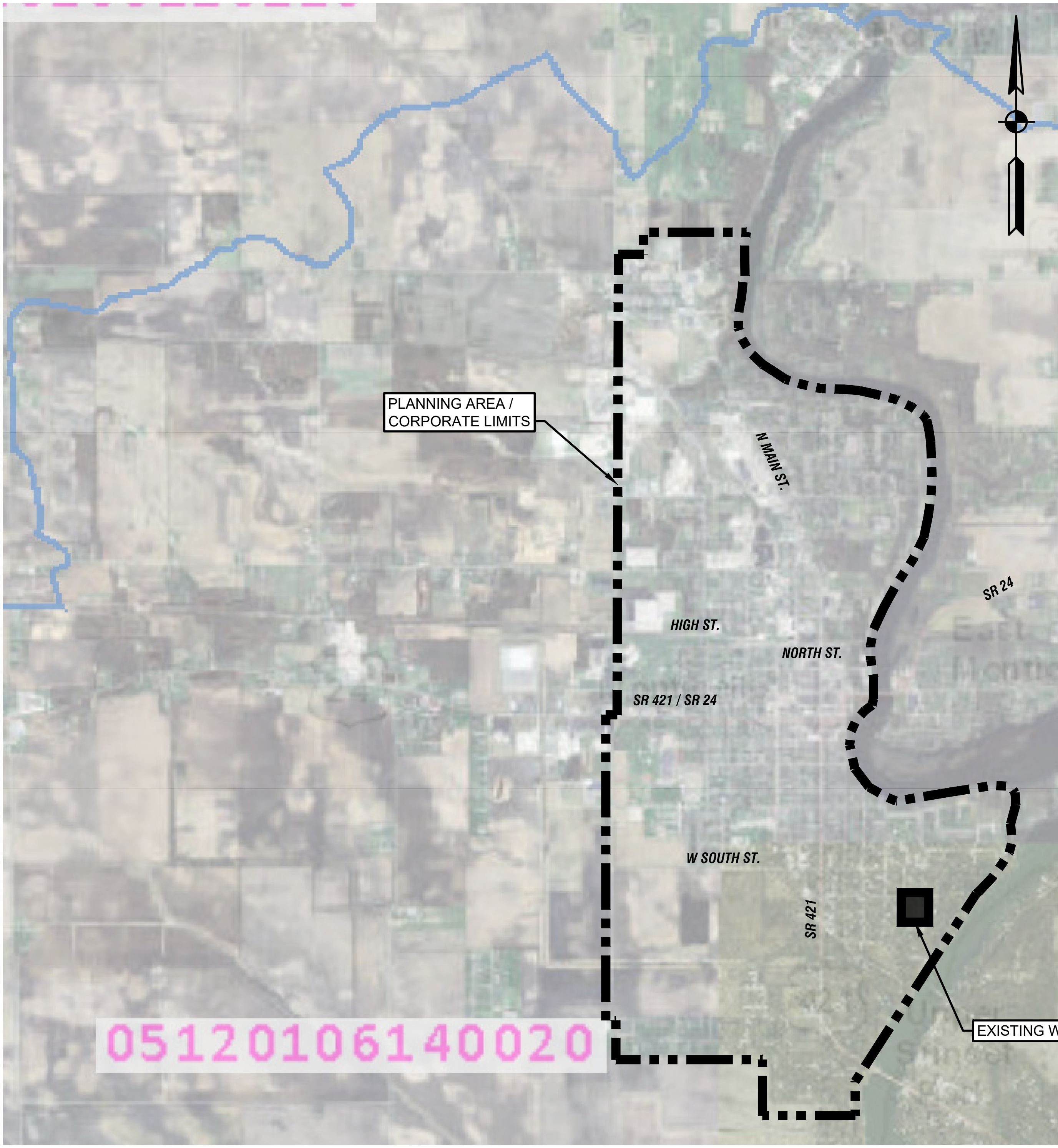
G. Floodways

The Federal Emergency Management Agency (FEMA) has created flood insurance rate maps which are used on a national level for guidance regarding building code requirements and flood plain management. **Figure 1-11 – Floodplain Map** presents the 1% annual chance flood or 100-year flood, which is the flood that has a 1% chance of being exceeded in any given year. Also shown is the floodway, which is the channel of the stream and any adjacent floodplain areas. The portion of the project is located in the floodplain and impacts to the floodplain will be minimized to the extent possible. Design of the project will comply with Federal Flood Risk Management Standards (FFRMS) requirements as required.

H. Plants and Animals

The U.S. Fish & Wildlife Service Information for Planning and Conservation (IPaC) report for the project was reviewed to identify endangered, threatened and rare species within the project area. Included in the list of endangered species is the Indiana Bat (*Myotis sodalis*), the Northern Long-eared Bat (*Myotis septentrionalis*), the threatened plant, Eastern Prairie Orchid (*Platanthera leucophaea*), several clams, and several birds, including the Bald Eagle (*Haliaeetus leucocephalus*). However, there are no critical habitats within the project area.

All construction activity performed as a result of recommendations of this PER will be completed on property presently owned by the City, on easements, or on property purchased by the City. Rare and endangered species habitats are not anticipated to be affected by this construction.



WATERSHED HUC14

SCALE: 1"=1400'

1400' 0 1400'

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WHITE COUNTY

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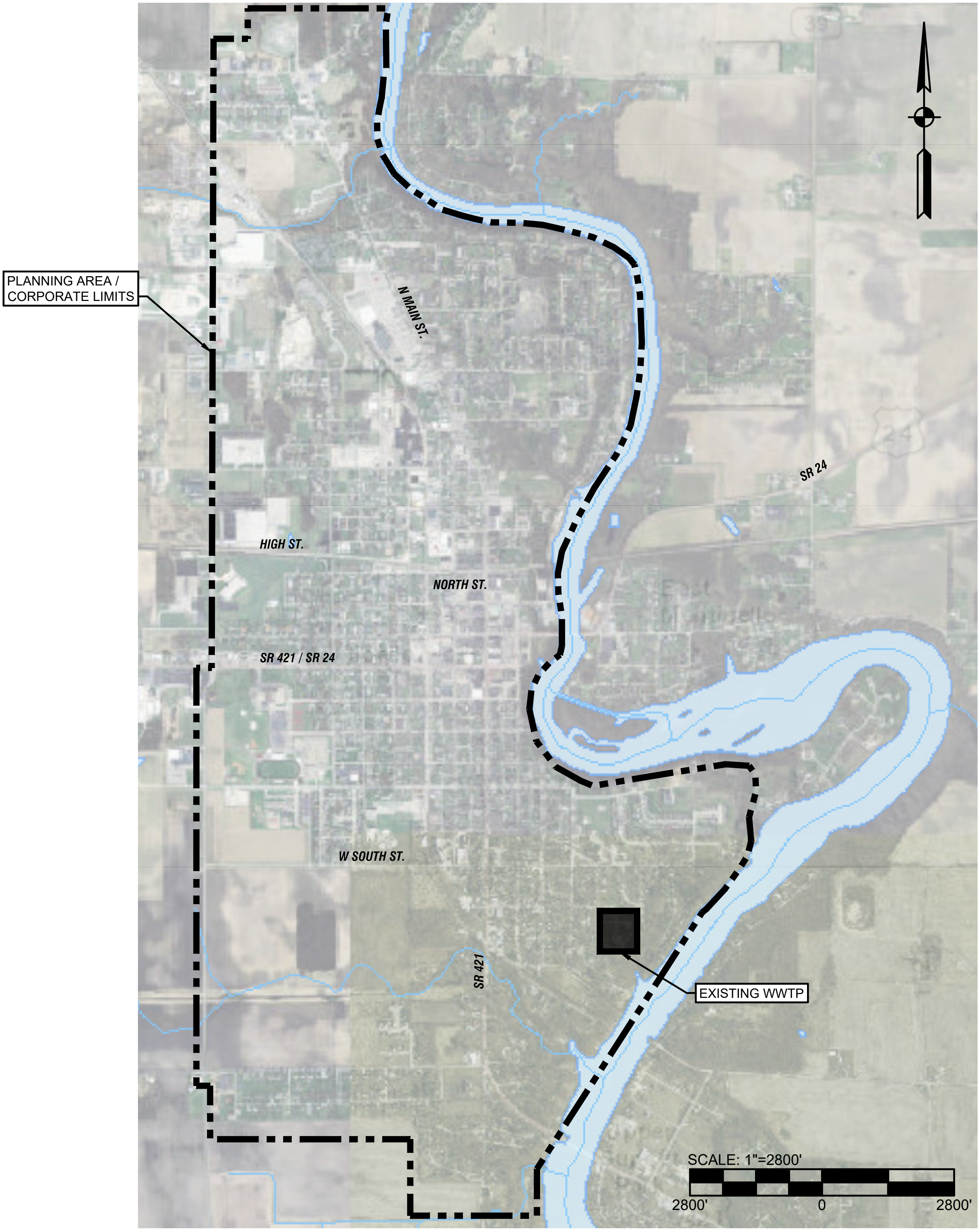
WATERSHED MAP
FIGURE 1-8



STREAMS (NHD)

LAKES (NHD)

RIVERS (NHD)

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WHITE COUNTY

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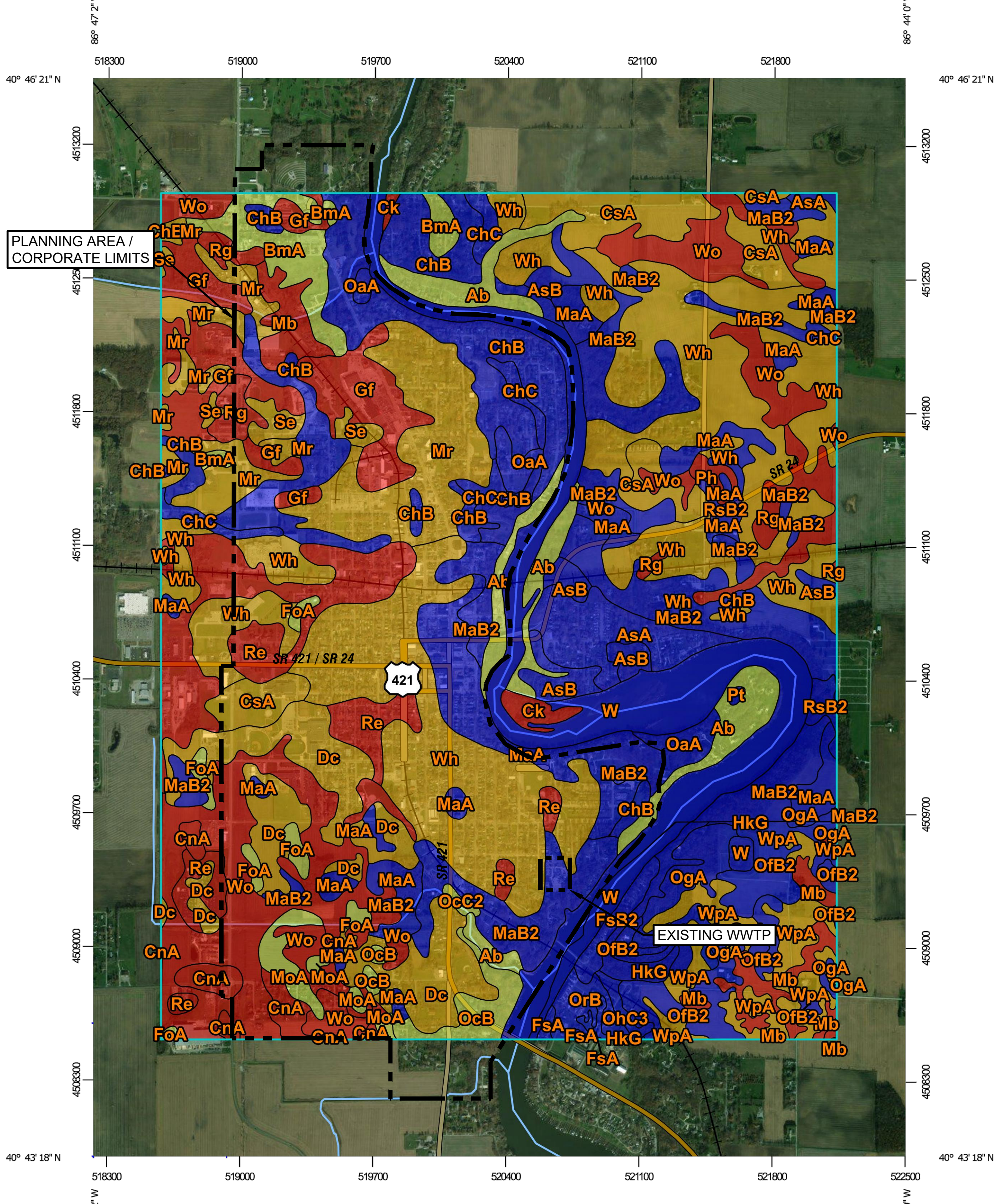
SURFACE WATER MAP
FIGURE 1-9

Depth to Water Table—Carroll County, Indiana, and White County, Indiana



Map Scale: 1:27,500 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 400, 800, 1600, 2400

Feet: 0, 1000, 2000, 4000, 6000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

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DEPTH TO WATER TABLE MAP FIGURE 1-10A

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Depth to Water Table—Carroll County, Indiana, and White County, Indiana

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:15,800 to 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Carroll County, Indiana
Survey Area Data: Version 22, Sep 19, 2017

Soil Survey Area: White County, Indiana
Survey Area Data: Version 22, Oct 2, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 7, 2010—Dec 26, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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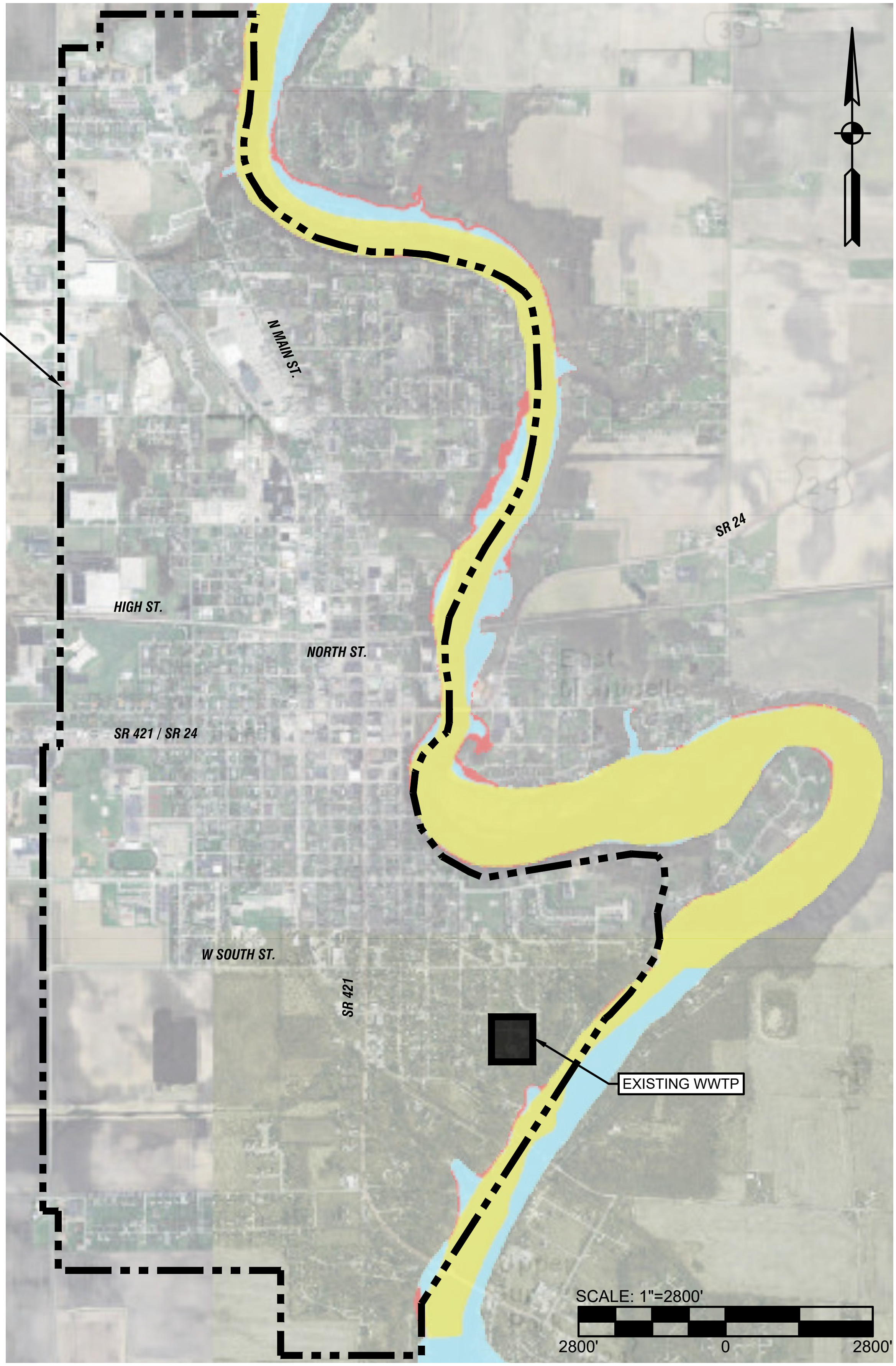
PRELIMINARY ENGINEERING REPORT

DEPTH TO WATER TABLE MAP
FIGURE 1-10B



FLOODPLAINS - FIRM

FLOODWAY

1% ANNUAL CHANCE FLOOD HAZARD

0.2% ANNUAL CHANCE, PROTECTED BY LEVEE

0.2% ANNUAL CHANCE FLOOD HAZARD

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CITY OF MONTICELLO, INDIANA WHITE COUNTY	
PRELIMINARY ENGINEERING REPORT	
FLOODPLAIN MAP FIGURE 1-11	

I. Prime Agricultural Land

Prime Agricultural Land or Prime Farmland is a designation assigned by the U.S. Department of Agriculture (USDA), and includes land that exhibits the best combination of physical and chemical characteristics for the production of food crops, feed, forage and fiber, and which is also readily available for these uses.

Prime farmland has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from regional precipitation, a favorable temperature and growing season, acceptable acidity and sodium content, and few or no rock outcroppings. They are permeable to water and air. Prime farmlands are not excessively susceptible to erosion or saturation for long periods of time, and they either do not flood frequently or are protected from flooding.

Prime farmland also tends to be well suited to residential and commercial development, and is therefore prone to conversion when in proximity to urban growth areas. The USDA "Prime Farmland" designation serves to promote growth management and resource conservation efforts in urban areas.

As shown in **Figures 1-12A through 1-12B – Prime Farmland Map**, the City of Monticello contains land identified as "prime farmland," "prime farmland if protected from flooding or not frequently flooded during growing season" and "Prime farmland if drained. However, the City has already been urbanized and the prime farmland previously disturbed. This project will take place on existing sewer lines and within the existing roads and disturbed areas. Therefore, there will be no disturbance to "prime farmland".

J. Air Quality

Air quality impacts from the proposed project were evaluated for conformance with applicable Rules under Title 326 Articles 1, 2, 6, 7, and 8 of the Federal 1990 Clean Air Act Amendments.

1. Construction Activity

To minimize non-conformance with 326 IAC 6-4, "Fugitive Dust Emissions", reasonable and proper construction techniques and clean up practices will be provided. In addition, surface wetting practices will be utilized to control dust emissions where required. Please note that 326 IAC 6-4-6(3) provides for an exemption to the rule "…from construction or demolition activity where every reasonable precaution has been taken in minimizing fugitive dust emissions". Exhausts of construction equipment will be required to have mufflers for noise and air pollution abatement.

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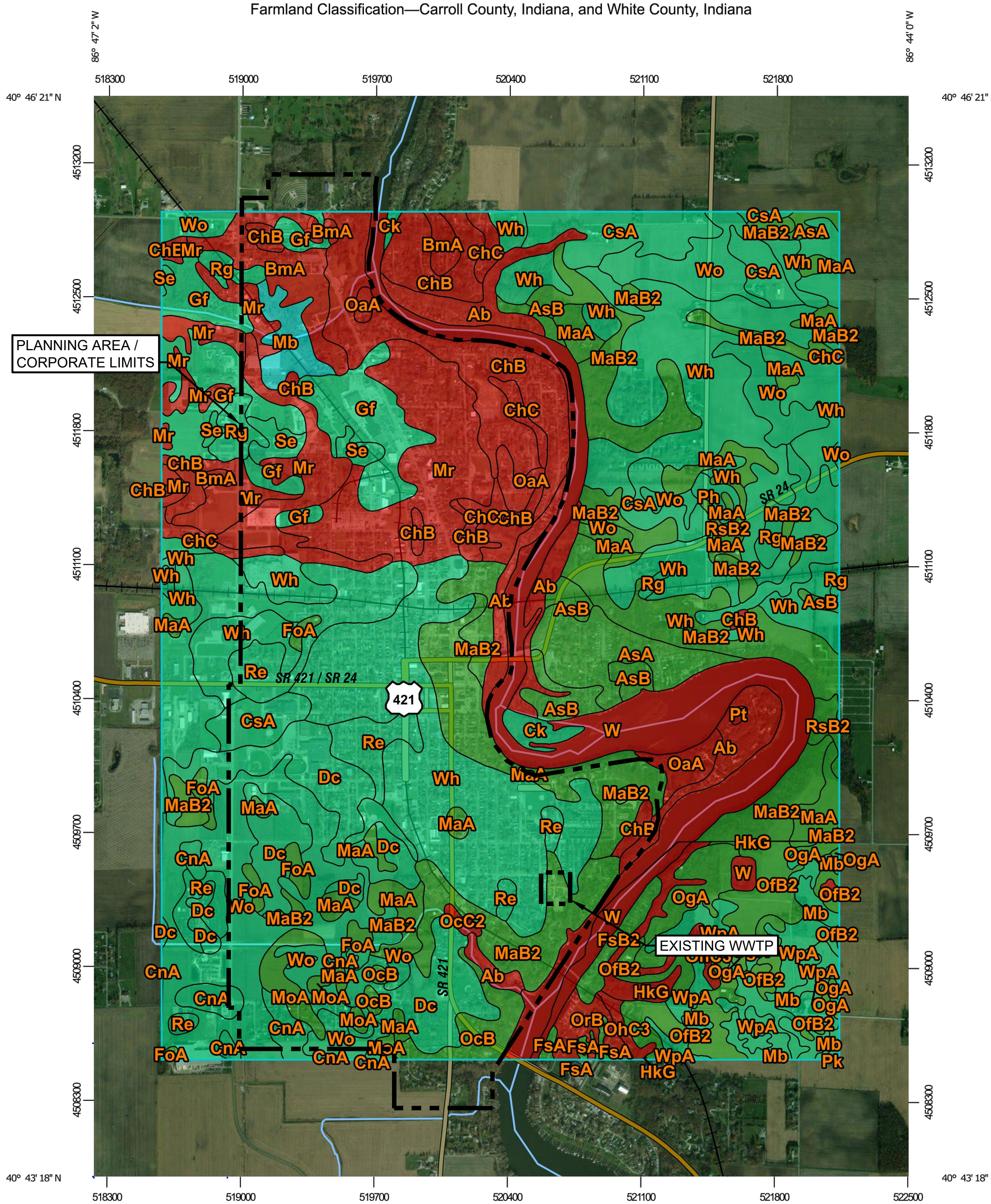
Farmland Classification—Carroll County, Indiana, and White County, Indiana



Map Scale: 1:27,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 400 800 1600 2400

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

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	PRELIMINARY ENGINEERING REPORT
	FARMLAND MAP FIGURE 1-12A

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

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FARMLAND MAP
FIGURE 1-12B

2. Clean Air Act Title III – Hazardous Air Pollutants

Title III calls for a program to prevent the accidental releases of hazardous air pollutants from facilities. The use of chemicals that may release hazardous air pollutants, which are defined by the EPA's Hazardous Air Pollutant List, is not anticipated for the recommended project. If potential hazardous air pollutants are used during the construction of the recommended project, monitoring, record keeping, reporting, and vapor recovery, secondary containment, design, equipment, work practices and operation will be required and in accordance with Federal Standards.

K. Open Space and Recreational Opportunities

The proposed project's construction and operation will neither create nor destroy open space and recreational opportunities.

L. Lake Michigan Costal Program

The proposed project will not affect the Lake Michigan Costal Zone.

M. National Natural Landmarks

The construction and operation of the proposed project will not affect National Natural Landmarks.

1.3 Growth Areas and Population Trends

A. Population Trends

The United States Census Bureau counts and tabulates the population of White County and the City of Monticello. **Table 1-1 – Historical Population by Census Count** shows the data from the year 1900 to the year 2018. These growth trends are valuable for estimating the City's future population.

Table 1-1
Historical Population by Census Count

Year	White County Population	City of Monticello Population
1900	19,138	2,107
1910	17,602	2,168
1920	17,351	2,536
1930	15,831	2,331
1940	17,037	3,153
1950	18,042	3,467
1960	19,709	4,035
1970	20,995	4,869
1980	23,867	5,162

Year	White County Population	City of Monticello Population
1990	23,265	5,237
2000	25,267	5,723
2010	24,643	5,378
2011*	24,595	5,373
2012*	24,469	5,348
2013*	24,404	5,331
2014*	24,436	5,336
2015*	24,278	5,302
2016*	24,075	5,255
2017*	24,165	5,272
2018*	24,133	5,260

**Population is calculated yearly rather than each decade.*
Source: STATS Indiana Online

Table 1-1 shows that the White County and City of Monticello populations have increased over the last century; however, the populations have decreased in the last twenty (20) years. The historical population trends of the City of Monticello are similar to that of White County. Since no projection was separately developed for the City, the City's growth has been projected to match that of White County. Additionally, the population has been projected assuming the City's growth plans are realized. The projected population of the City, based on the county projection, is presented in **Table 1-2 – Population Projection**. **Figure 1-13 – Historic and Projected Population** shows the historic and projected population trends for White County and the City of Monticello through 2040.

Table 1-2
Population Projection

Year	White County Population projection	Monticello Population projection based on County's projection	Monticello Population projection based on Estimated Planned Growth
2015	24,224	5,303	5,303
2020	23,810	5,212	5,575
2025	23,549	5,155	5,861
2030	23,105	5,058	6,161
2035	22,375	4,898	6,477
2040	21,501	4,707	6,809

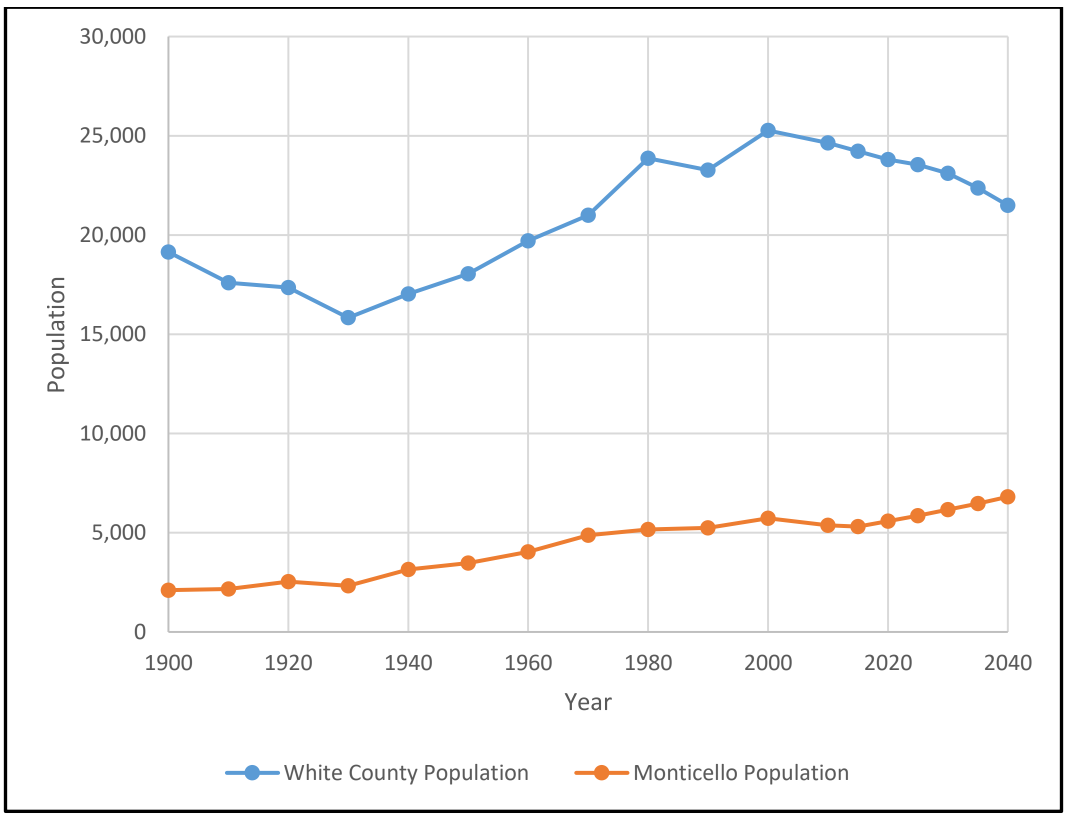
Source: STATS Indiana Online

While population projections for Monticello show a decrease in population for the twenty (20) year planning period, it is not prudent to consider declining populations when evaluating wastewater utilities, since improvements to local infrastructure tend to attract business and future growth.

For this reason, it has been assumed that the population for the City of Monticello will remain fairly constant over the twenty (20) year planning period with a minimal assumed growth of 0.1% per year. This minimal growth in population is a conservative amount to account for any additional development or new homes due to general growth. For a twenty (20) year planning period (design year 2040), the population of the City of Monticello is estimated to increase to approximately 6,800.

The assumed population projection, utilizing a growth rate of 0.1%, is included in **Table 1-2** and in **Figure 1-13**. Additionally, the City has identified potential growth areas for residential and commercial development, which are depicted in **Figure 1-14 – Projected Future Growth**. However, base wastewater flows to the WWTP are not expected to change as a result of the limited growth.

Figure 1-13
Historic and Projected Population



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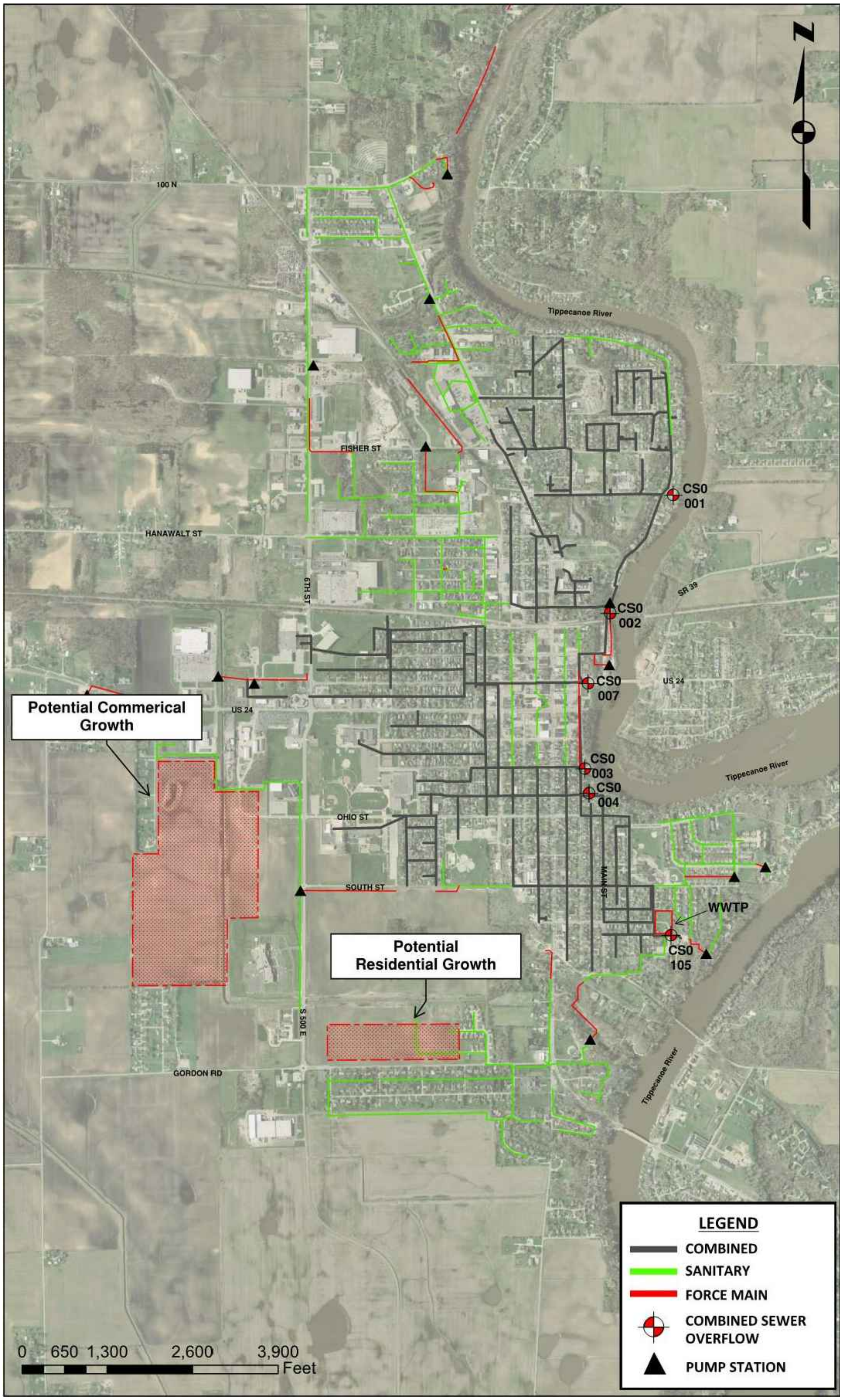

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PROJECTED FUTURE GROWTH
FIGURE 1-14

B. Existing Flows

The current average wastewater flows presented in **Table 1-3 - Existing Wastewater Flows** were calculated using the City's WWTP Monthly Reports of Operation (MROs) from January 2015 through December 2017.

Table 1-3
Current Wastewater Flows

Summary of Wastewater Flows	Flow (MGD)
Existing Average Daily Flow[1]	1.37
Permitted Average Capacity[2]	1.6
Permitted Peak Design Flow[2]	3.6

[1]*Calculated using WWTP MROs January 2015-December 2017*
[2]*From 2016 NPDES Permit IN0020176*

C. Local Economy

The local economy is an important demographic factor that must be considered when planning for any utility project. Since funding of projects is based on need, it is important to know the economic nature of the community. STATS Indiana maintains an extensive database of demographic information for cities, townships, and counties located in Indiana. However, because the City of Monticello is relatively small, not all economic data was available. Instead, economic data for White County will be utilized to determine the current economic situation of the planning area.

1. Area Employment

The latest data available for employment and average wage data for White County is from the year 2018. The data is shown in **Table 1-4 - White County 2017 Employment and Wage Data**.

Table 1-4
White County 2018 Employment and Wage Data

Employment Type	# of Establishments	# of Jobs	Average Yearly Wage
Total Employment	**651**	**9203**	**$ 37,863**
Agriculture, Forestry, Fishing, Hunt	37	0	$ 0
Mining	3	0	$ 0
Utilities	5	119	$ 101,123
Construction	72	476	$ 66,992
Manufacturing	40	2,653	$ 44,658
Wholesale Trade	36	335	$ 44,270
Retail Trade	84	1,062	$ 29,240
Transport. and Warehousing	57	273	$ 45,928
Information	15	106	$ 31,712
Finance and Insurance	39	195	$ 45,201
Real Estate, Rental, Leasing	24	54	$ 27,468
Professional and Tech. Services.	34	0	$ 0
Mgmt. of Companies	1	0	$ 0
Admin. and Waste Services	34	277	$ 32,398
Educational Services	10	833	$ 29,853
Health Care and Social Assistance	37	788	$ 31,950
Arts, Entertainment and Recreation	7	252	$ 19,658
Accommodation and Food Service	53	621	$ 12,653
Other Services	40	158	$ 23,912
Public Administration	23	496	$ 30, 894

Source: *STATS Indiana Online*

The unemployment rate in 2018 for the City of Monticello was estimated to be 3.1%, which was lowerr than the state average of 3.5%.

2. Area Income

The most recent income data available from STATS Indiana is year 2018. As of that year, White County had a poverty rate of 8.5%. According to the latest American Community Survey (ACS, 2010) the average median household income for the City of Monticello is $38,403.

1.4 Public Participation

The Wastewater Collection System Improvements Project is scheduled to be presented to the public at the City's Board of Public Works and Safety May meeting, which is scheduled to be held in May 2020. The City's Board of Public Works and Safety meeting minutes will be included in **Appendix H**.

Section 2 – Existing Facilities

2.1 Location Map

The City of Monticello collection system consists of a combination of sanitary and combined sewer lines that convey sanitary and storm flows to the Wastewater Treatment Plant (WWTP), located at 705 East Street. **Figure 2-1 – Existing Wastewater Facilities** presents an overview of the collection system, including the sanitary sewers, combined sewers, combined sewer overflow (CSO) outfalls and the Wastewater Treatment Plant (WWTP). **Figure 2-2 – WWTP Unit Process Flow Schematic** presents a schematic of the WWTP layout. The WWTP is currently operated under requirements of NPDES Permit No. IN0020176 (**Appendix A**) and discharges treated effluent via Outfall 005 to Tippecanoe River/Lake Freeman.

2.2 History

The City of Monticello maintains a collection system encompassing approximately 1,825 acres and is comprised of sanitary and combined sewers as well as six (6) combined sewer overflow (CSO locations) and a WWTP. The original WWTP began operation in 1951 and underwent improvements in 1976, 1978, 1998, and 2017. Currently, the WWTP is rated for an average daily flow of 1.6 MGD and a peak flow of 3.6 MGD. More details on the history of the City's WWTP and collection system can be found in the City of Monticello's CSO Long Term Control Plan (LTCP) Update completed by Commonwealth Engineers, Inc in April 2018.

The Indiana Department of Environmental Management (IDEM) issued a Non-rule Policy Document titled 'Combined Sewer Overflow (CSO) Long-Term Control Plan Use Attainability Analysis Guidance', effective December 14, 2001. This guidance document instructs permittees of the National Pollutant Discharge Elimination System (NPDES) with CSOs on how to develop a CSO LTCP to address the elimination of impacts to waters of the State from discharges of untreated sewage from CSOs. Under this document, two (2) phases outlined include: Phase I – Implementation and Documentation of the Nine Minimum Controls (Technology-Based Standards) and Phase II – LTCP Finalization and Implementation (Water Quality-Based).

The City of Monticello began Phase I of Indiana's CSO Strategy in December of 1995 with a contract with HNTB Corporation to develop a Combined Sewer Overflow Operational Plan (CSOOP). The City then prepared a Stream Reach Characterization and Evaluation Report (SRCER) in October 1999. Following the SRCER, the City Prepared a CSO LTCP to reduce the impacts of CSO's on Tippecanoe River/Lake Freeman. This LTCP was completed in May 2002, and IDEM completed a review of the plan in September 2008.

In 2008, the City entered into an Agreed Order (**Appendix B**) with IDEM to develop and implement a Revised CSO LTCP. The City submitted its Revised LTCP in 2009, and the plan was approved on December 23, 2009. In 2017, the City executed an agreement with Commonwealth Engineers, Inc. to assist with this process and complete a CSO LTCP

Update. The updated April 2018 CSO LTCP, submitted to IDEM in June 2018, presented five (5) projects, which are identified in **Table 2-1 – City of Monticello CSO Long Term Control Plan**. The revised plan included a selected alternative designed in accordance with IDEM's Nonrule Policy Document (NPD) Water-016: CSO Treatment Facilities, whereby CSO discharges are required to be controlled for rainfall events up to and including the single event 10-year, 1-hour design storm. Of the five (5) projects identified in the revised LTCP, Project 1 – National Homes Drainage Improvements was completed in November 2011, Project 2a – Bryans Lift Station (LS 02) Upgrade & Wet Weather Storage Facility was completed in July 2012 and Project 2b – Bryan's Lift Station Force Main & Maple St. Relief Sewer was completed in August 2015. As of 2018 the City has spent approximately $17,248,000 in CSO LTCP mitigation projects.

Table 2-1
City of Monticello CSO Long Term Control Plan

Project	Completion Date
Project 1/Phase I – National Homes Drainage Improvements	August 2010
Project 1/Phase II – National Homes Drainage Improvements	November 2011
Project 2a – Bryans Lift Station (LS 02) Upgrade & Wet Weather Storage Facility	July 2012
Project 2b – Bryan's Lift Station Force Main & Maple St. Relief Sewer	August 2015
Project 3 – Wastewater Treatment Plant Improvements	August 2017
Project 4a – Bluewater Drive Interceptor • 745-LF of 15" Dia. Sanitary Sewer • 1,600-LF of 60" Dia. Sanitary Sewer • 305-LF of 96" Dia. Sanitary Sewer • CSO 001 Modifications	2022
Project 4b – Maple Street Interceptor Extension • 2,140-LF of 24" Dia. Sanitary Sewer • 445-LF of 21" Dia. Sanitary Sewer • CSO 007 Modifications • STR 401 Modifications	2025
Project 5 – Wet Weather Storage and Treatment • 1.07 MG Storage at WWTP (0.62 MG Active Storage) • Wet Weather Treatment at WWTP • 30 MGD Mechanical Screen • WWTP & CSO 105 Effluent Sewer Improvements	2029

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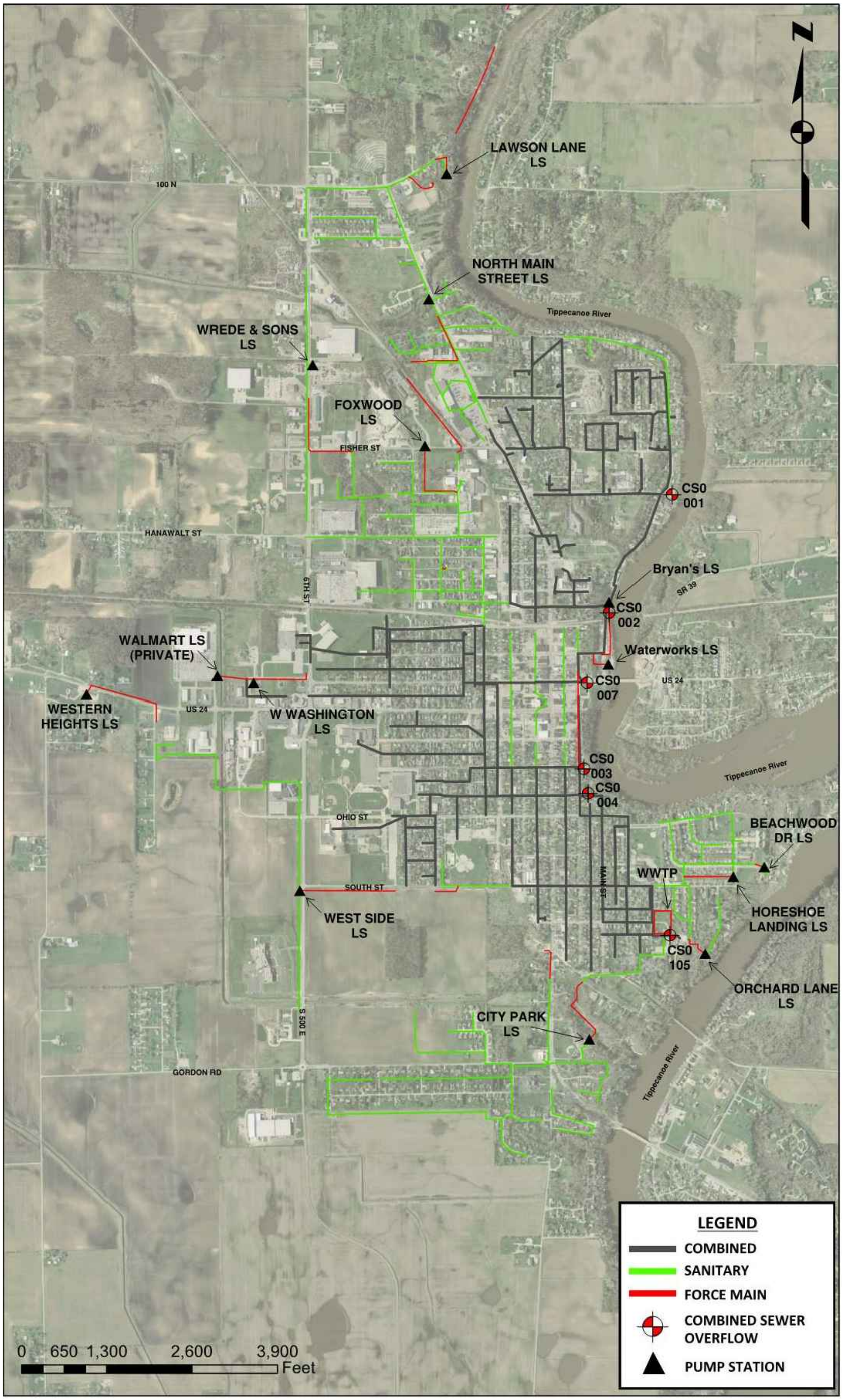

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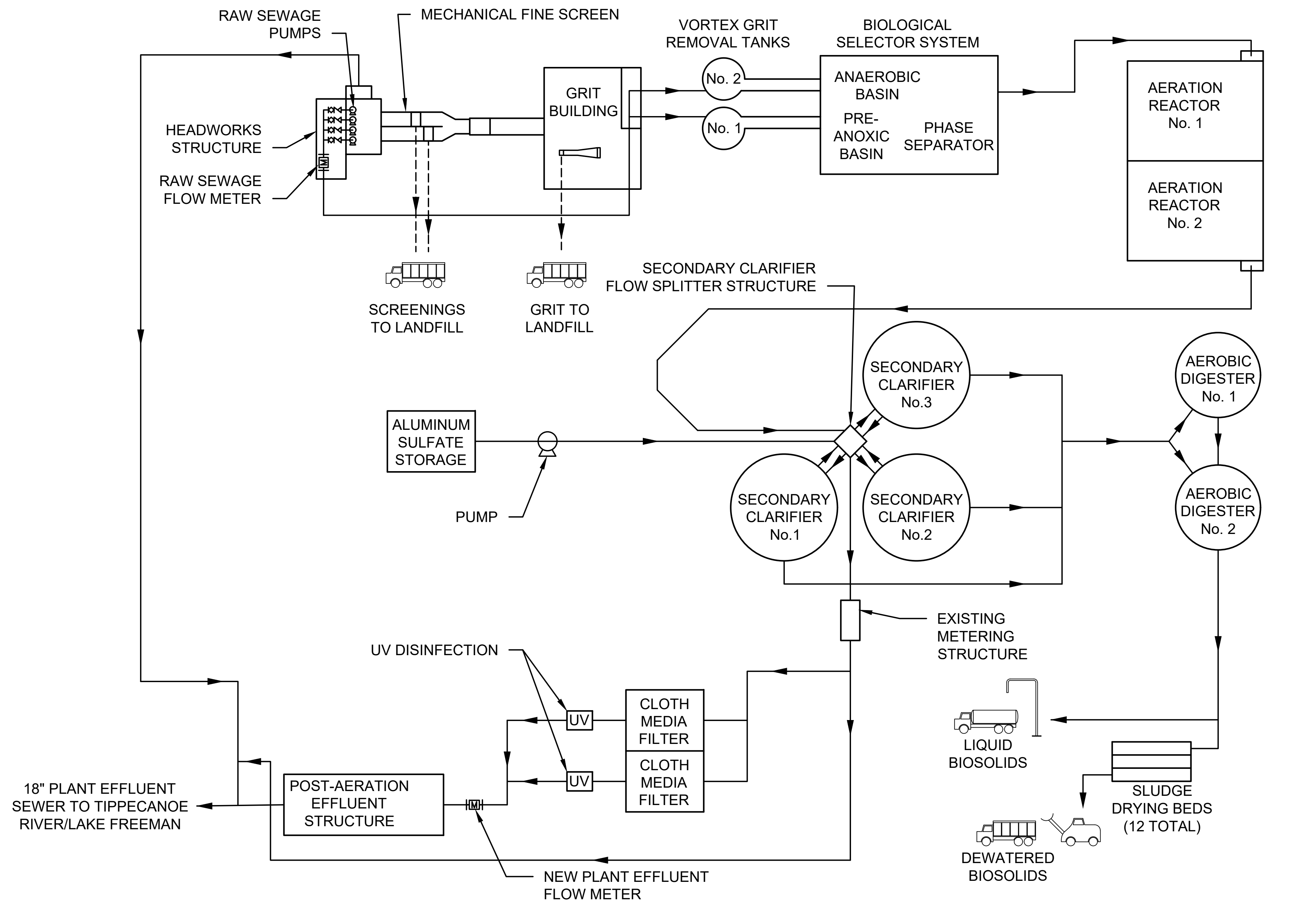
EXISTING WASTEWATER FACILITIES
FIGURE 2-1



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WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

WWTP UNIT PROCESS FLOW SCHEMATIC
FIGURE 2-2

2.3 Condition of Facilities

A. Collection System

The City's wastewater collection system is comprised of approximately 81,000 linear feet of sanitary sewer, 89,275 linear feet of combined sewer, and 18,135 linear feet of force main. Domestic sanitary flow is conveyed to the City's WWTP via combined and sanitary gravity interceptors and pump stations. The existing combined sewers range in size from 6-inches to 36-inches in diameter and date back to the 1950s when the original WWTP was constructed. **Figure 2-1** presents the City's existing collection system.

From mid-September 2017 to mid-November 2017, as part of the April 2018 CSO LTCP update, eleven (11) temporary area-velocity (AV) flow meters were installed throughout the City's collection system at key hydraulic locations to better understand dry and wet weather flows. During wet weather, the collection system experiences significant peak wet weather flows through the City's combined sewer basins resulting in CSOs. The City's hydraulic model indicates that portions of the system is undersized; the following specific concerns have been identified:

- The fifteen (15) inch combined sewer interceptor between CSOs 002 and 007 is undersized resulting in CSOs at CSO 007 during wet weather events.
- The fifteen (15) inch combined sewer interceptor along Bluewater Drive is relatively shallow and lacks the capacity to adequately convey peak flows during large wet weather events.
- The twelve (12) inch combined sewer interceptor that conveys flow from the west to CSO 001 on South Beach Drive is undersized and experiences significant flooding. Historically, homes serviced by this interceptor have experienced basement backups during wet weather events.
- Significant flooding occurs at Structure 712, which is located in the alley between Harrison and Jefferson Streets.
- The WWTP effluent sewer is aging and does not have enough capacity to convey peak flows generated by significant wet weather events, especially as higher flows reach the WWTP due to collection system improvement projects. Additionally, the effluent sewer runs under private property and buildings; therefore, properly evaluating and maintaining the pipe is challenging.

As part of a recent sewer assessment conducted by Commonwealth Engineers, Inc. (**Appendix C**), the City's collection system has been divided into six (6) areas. **Figure 2-3 – Collection System Divided Areas** shows the divided areas. Findings and recommendations for Area 1 have been summarized in **Appendix C**.

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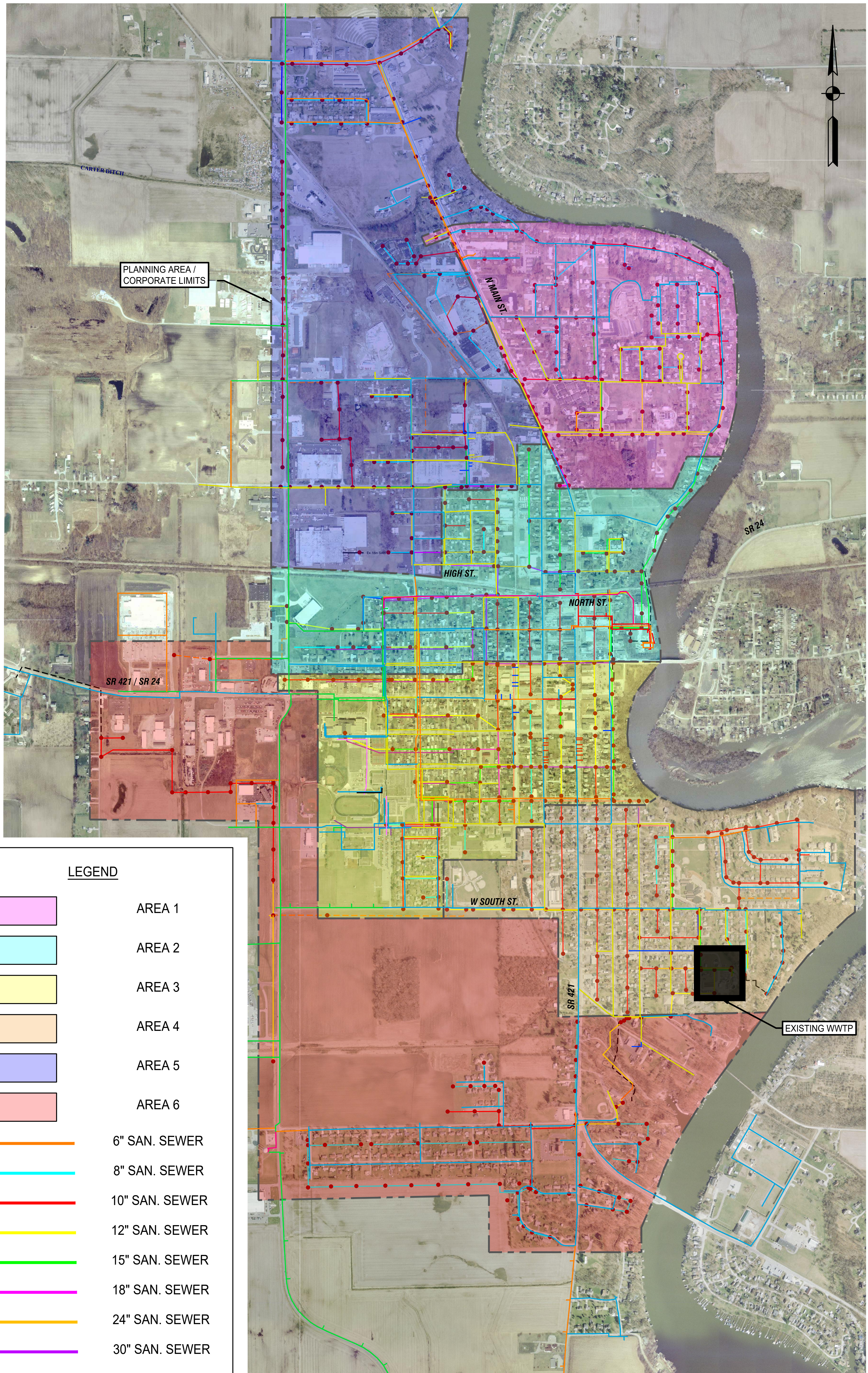

LEGEND

- AREA 1
- AREA 2
- AREA 3
- AREA 4
- AREA 5
- AREA 6
- 6" SAN. SEWER
- 8" SAN. SEWER
- 10" SAN. SEWER
- 12" SAN. SEWER
- 15" SAN. SEWER
- 18" SAN. SEWER
- 24" SAN. SEWER
- 30" SAN. SEWER
- 36" SAN. SEWER
- 4" FORCEMAIN
- 6" FORCE MAIN

SCALE: 1"=1200'

1200' 0 1200'

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WHITE COUNTY

PRELIMINARY ENGINEERING REPORT

COLLECTION SYSTEM - DIVIDED AREAS
FIGURE 2-3

B. Combined Sewer Overflows

The Monticello sewer system currently contains six (6) permitted combined sewer overflow (CSO) outfalls that discharge to Tippecanoe River/Lake Freeman. The location of the CSOs are listed in **Table 2-2 – Combined Sewer Overflow Outfalls Location** and shown in **Figure 2-1**. The City maintains five (5) permanent flow meters at the City's CSOs.

Table 2-2
Combined Sewer Overflow Outfalls Location

CSO	Location Description	NPDES Location	Discharge Location
001	At the corner of Beach Drive and Blue Water Street	40° 45' 14'' N 86° 45' 21'' W	Tippecanoe River/Lake Freeman
002	Bryan Mfg. Lift Station near Spencer Street	40° 44' 58'' N 86° 45' 32'' W	Tippecanoe River/Lake Freeman
003	At the corner of Jefferson Street and Bluff Street	40° 44' 33'' N 86° 45' 37'' W	Tippecanoe River/Lake Freeman
004	At the corner of Market Street and Bluff Street	40° 44' 29'' N 86° 45' 37'' W	Tippecanoe River/Lake Freeman
105	Before the headworks at the WWTP; shares the WWTP effluent pipe (005)	40° 44' 45'' N 86° 45' 16'' W	Tippecanoe River/Lake Freeman
007	Bluff Street and Washington Street	40° 44' 45'' N 86° 45' 30'' W	Tippecanoe River/Lake Freeman

C. Lift Stations

Monticello currently has fourteen (14) wastewater lift stations that are operated and maintained by the City. **Table 2-3 – City of Monticello Lift Stations** includes the name, location, and type of each lift station.

Table 2-3
City of Monticello Lift Stations

LS No.	Name or Location	Type
01	North Main Street Lift Station	Wet Well/Dry Well
02	Bryan's Lift Station*	Submersible
03	Wrede & Sons Lift Station (*formerly North Sixth Street*)	Wet Well/Dry Well

04	Horseshoe Landing Lift Station	Suction Lift
05	City Park Lift Station	Submersible
06	Lawson Lane Lift Station	Submersible
07	Beechwood Drive Lift Station	Submersible
08	Foxwood Court Lift Station	Submersible
09	Great Oaks Lift Station	Submersible
10	Orchard Lane Lift Station	Submersible
11	Waterworks Lift Station	Submersible
12	West Washington St. (Walmart) Lift Station	Submersible
13	West Side (Hospital) Lift Station	Submersible
14	Western Heights Lift Station	Submersible

Bryan's Lift Station is the only lift station known to be directly connected to a CSO structure. All the lift stations contain alarms and are connected via cellular data networks to the WWTP for 24-hour monitoring.

D. Bryan’s Lift Station & Wet Weather Storage Facility

In 2012, the Bryan’s Lift Station & Wet Weather Storage Facility project was completed as a part of LTCP Project 2A. The project included replacement of the existing vacuum primed pump system to a larger, submersible pump station connected to a 390,000 gallon storage facility constructed of 72-inch, 84-inch, and 96-inch Steel Reinforced Polyethylene (SRPE) pipe. The storage facility captures the initial wet weather flows and the ‘first flush’ of solids and debris from its tributary sewer area.

Typically, the storage facility remains dry as the lift station pumps maintain a wet well level below the entry point of the storage facility. Wet weather flows fill the storage pipes prior to allowing an overflow at CSO 002. As wet weather flows decline, the lift station pumps continue to convey wastewater to the WWTP until the storage facility has been drained. LTCP Project 2B consisted of the installation of a third pump and replacement of the lift station’s existing 6-inch force main with a larger diameter pipe, increasing the capacity of the station to approximately 2.5 million gallons per day (MGD).

E. Wastewater Treatment Plant (WWTP)

The Monticello Wastewater Treatment Plant began operation in 1951 and consisted of aerator-clarifier units and chlorination with a capacity of 0.50 MGD. Due to corrosion and hydraulic overloading, a major renovation of the facility was undertaken in 1976 that involved conversion of the original aerator-clarifier units to diffused-air aeration basins. Due to stringent discharge requirements, advanced waste treatment facilities were added in 1978, increasing the plant's capacity to 0.80 MGD. The facility was upgraded between 1997 and 2000 to a 1.1 MGD (2.4 MGD hydraulic peak) facility consisting of a mechanical fine screen, raw sewage pump station, aerated grit removal, primary clarification, fine-bubble diffused aeration, secondary clarification, tertiary sand filters, chlorination and dechlorination, phosphorus removal via ferrous chloride precipitation, two (2) aerobic digesters, and sludge drying beds. During wet weather events, the City was authorized to bypass the tertiary sand filters so that flow through the remaining unit processes could be maximized to the extent possible.

On April 14, 2015, the City of Monticello received Construction Permit Approval No. L-0469 to implement additional improvements to the WWTP. The updates were required as Project 3 of the City's approved CSO LTCP and increased the average daily design flow to 1.6 MGD and the peak design flow to 3.6 MGD. Construction activities commenced in September 2015, and full operation of the WWTP improvements was achieved in August 2017.

Solids processing was not modified as part of this work. This project did, however, address a major bottleneck through the removal of the tertiary sand filter bypass. Additionally, CSO 105 was relocated from adjacent to downstream of the new headworks screening structure so that solids and floatables controls are achieved during CSO discharge events. The treatment units currently functioning at the WWTP are listed in **Table 2-4 – WWTP Treatment Units**.

Table 2-4
WWTP Treatment Units

Treatment Units	Capacity
Raw Sewage Pump Station	Four (4) Submersible Non-Clog/Centrifugal Pumps @ 1.37 MGD each
Influent Flow Meter	One (1) Magnetic flow meter
Grit Chamber	Two (2) Grit Cyclone Units @ 20 MGD each
Mechanical Fine Screen plus Manual Bypass	One (1) Units @ 30 MGD per unit

Extended Aeration	Anaerobic Reactor – 21' x 18' x 22' SWD (62,200 gallons) Pre-Anoxic Basin – 21' x 18' x 23' SWD (65,000 gallons) Staged Aeration Reactors – 2 each at 80' x 60' x 21' SWD (1.5 MG total)
Secondary Clarifiers (Peripheral Feed Circular)	Three (3) units @ 45' Diameter (1.6 MGD each)
Tertiary Filters	Two (2) Cloth Media Disc Filters (3.6 MGD)
Phosphorus Removal Facilities	Chemical feed pumps: Two (2) pumps @ 15.85 gph each
UV Disinfection	2 Medium Pressure In-Pipe Units @ 3.6 MGD
Effluent Flow Meter	One (1) Sonic Effluent Flow Meter
Aerobic Digesters	One (1) 116,000 gallon tank One (1) 390,000 gallon tank
Sludge Drying Beds	Twelve (12) at 2,880 square feet each
Sludge Disposal	Wet or Dry Land Application per INLA000174

2.4 Financial Status of Existing Facilities

It is important that municipal water user fees and charges be examined periodically to ensure that the City can recover all direct and indirect costs of service. Rate structures should be reviewed with a rate consultant and financial advisor, and rate modifications should be formally approved by the City. Any unfavorable balances in cost recovery should be highlighted in the budget documents and addressed promptly.

Capital improvements projects that could affect related municipal operations should be reviewed and prioritized on a coordinated and inter-departmental basis (i.e. allowing the possibility of underground utility rehabilitation followed by surface improvements). According to a March 15, 2018 study, the City's total direct utility revenue debt is approximately twenty-two (22) million dollars (**Appendix D**).

A. Existing Rate Structure

The following **Table 2-5 – Current Schedule of Sewage Rates and Charges** presents the current schedule of rates and charges for the Monticello Sewage Works:

Table 2-5
Current Schedule of Sewage Rates and Charges

User Class	Monthly Rate per 100 cubic feet of flow
Class I- Residential	$ 6.91
Class II – Apartments, Institutional, Governmental and Commercial	$ 6.49
Class III – Industrial	$ 6.18
Meter Size	**Plus Base Rate per Month**
5/8-inch – 3/4-inch Meter	$ 23.57
1-inch Meter	$ 39.30
1-1/2-inch Meter	$ 82.76
2-inch Meter	$ 144.25
3-inch Meter	$ 316.95
4-inch Meter	$ 560.76
6-inch Meter	$1,254.24
8-inch Meter	$2,228.12
Compound Meters:	
2- ¾ -inch Meters	$ 42.12
2 - 1-inch meters	$ 73.68
2 - 1-1/2-inch meters	$ 160.63
2 - 2-inch meters	$ 283.09
1 -1/2 + 2-inch meters	$ 221.99
Other	**Monthly Charge**
Monthly Charge for Unmetered Users	$ 75.40
Multiple Units – For Each Dwelling Unit	$ 8.13
Meter Size	**Sewage Works Tap Charge**
5/8-inch – 3/4-inch Meter	$ 1,500
1-inch Meter	$ 2,000
1-1/2-inch Meter	$ 2,500
2-inch Meter	$ 3,000
3-inch Meter	$ 3,500
4-inch Meter	$ 4,000
6-inch Meter	$ 5,000

B. Annual Operating and Maintenance Expenses

The 2017 annual operating and maintenance (O&M) expenses for the Monticello Municipal Sewage Works are shown in **Table 2-6 – 2017 Annual Operating and Maintenance Expenses**. The costs were provided in the Umbaugh Calendar Year 2017 Financial Management Report.

Most of the WWTP treatment components were updated under Construction Permit Approval No. L-0469. Implementation of the new WWTP occurred in August 2017.

Table 2-6
2017 Annual Operating and Maintenance Expenses

Item Description	Amount
Salaries and wages	$ 280,521
Administrative salaries	$ 71,281
Employee benefits	$ 149,350
Purchased power	$ 299,401
Materials and supplies	$ 40,340
Chemicals	$ 19,751
Laboratory	$ 39,596
Contractual services	$ 58,170
Sludge hauling	$ 40,339
Maintenance agreement	$ 6,769
Repairs and maintenance	$ 121,412
Transportation	$ 7,093
Subscriptions	$ 549
Travel and education	$ 1,450
Telephone	$ 13,543
Postage	$ 6,618
Insurance	$ 28,059
Clothing	$ 1,612
Miscellaneous	$ 20,637
Total Operating Disbursements	**$ 1,206,491**

C. Customer Base

The total number of Wastewater Utility users is 2,313. They are classified into Residential, Commercial and Industrial Users.

Section 3 – Need for Project

This section summarizes and identifies the collection and treatment system's deficiencies. In accordance with the Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP), Project 4a - Bluewater Drive Interceptor, Project 4b – Washington Street Diversion Sewer, and WWTP Effluent Sewer Improvements (part of Project 5) must be completed in order to comply with the approved CSO LTCP schedule.

3.1 Health, Sanitation and Security

Monticello's Combined Sewer System (CSS) conveys sanitary wastewater from residential, commercial and industrial sources along with storm water to the City's Wastewater Treatment Plant (WWTP). While the collection system has enough capacity to convey dry weather flows, during wet weather events, flow regularly exceeds the system capacity and overflows are directly discharged to surface waters (Tippecanoe River/Lake Freeman) through CSO outfalls. CSOs are discharges from the CSS at any point prior to the WWTP and are subject to NPDES permits requirements. Monticello currently has six (6) active CSO outfalls authorized by their NPDES permit. Municipalities in Indiana are required to develop and implement a LTCP in order to address CSO discharges. Monticello's CSO LTCP was created in 2009 and subsequently approved by the City and the Indiana Department of Environmental Management (IDEM). The CSO LTCP will be further discussed in this section.

A. Human and Environmental Health Risk

Exposure to polluted water from CSOs presents a significant risk to human health and the environment. Microbial pathogens and toxins in CSOs can be present at levels that pose a risk to human health. Microbial pathogens include different types of bacteria, viruses, and parasites, some of which are commonly present in domestic and industrial wastewater. Exposure to these can result in waterborne diseases, which often involve gastrointestinal illnesses. Generally, waterborne diseases result from ingesting contaminated water; however, other exposure pathways include eating contaminated fish and swimming.

CSOs can also contaminate drinking water sources, cause beach closures, and have harmful effects on aquatic life. According to EPA reports, CSO discharges can result in the following:

- Adverse public health effects and aquatic habitat impairment due to microbial pathogens and toxic pollutants.
- Increased presence of floating debris or slicks, impairing the aesthetic quality of receiving waterways.
- Oxygen depletion and algal blooms due to an increased presence of nutrients in the receiving waters.

- Financial burdens for communities due to cleanup expenses, emergency repairs, and medical treatment.

B. Combined Sewer Overflow Long Term Control Plan

As previously discussed, the City of Monticello is required by NPDES Permit No. IN0020176 (**Appendix A**) and Agreed Order Case No. 2008-18083-W (**Appendix B**) to implement a Combined CSO LTCP for the purposes of controlling discharges from its collection system and improving the water quality of Lake Freeman and the Tippecanoe River. The City submitted its original CSO LTCP to the Indiana Department of Environmental Management (IDEM) Office of Water Quality (OWQ) in May 2002. A revised CSO LTCP was submitted in November 2009, which was approved by IDEM OWQ via correspondence on April 1, 2010. The revised plan included the selected alternative that will be designed in accordance with IDEM's Nonrule Policy Document (NPD) Water-016: CSO Treatment Facilities, whereby CSO discharges are required to be controlled for rainfall events up to and including the single event 10-year, 1-hour design storm. The City remains committed to the implementation of the CSO LTCP, and the following projects have been completed since the IDEM OWQ approval of the CSO LTCP:

- National Homes Drainage Improvements Project (Phase I & Phase II).
- Bryans Lift Station #2 Improvements.
- Maple Street Interceptor.
- Wastewater Treatment Plant Improvements.

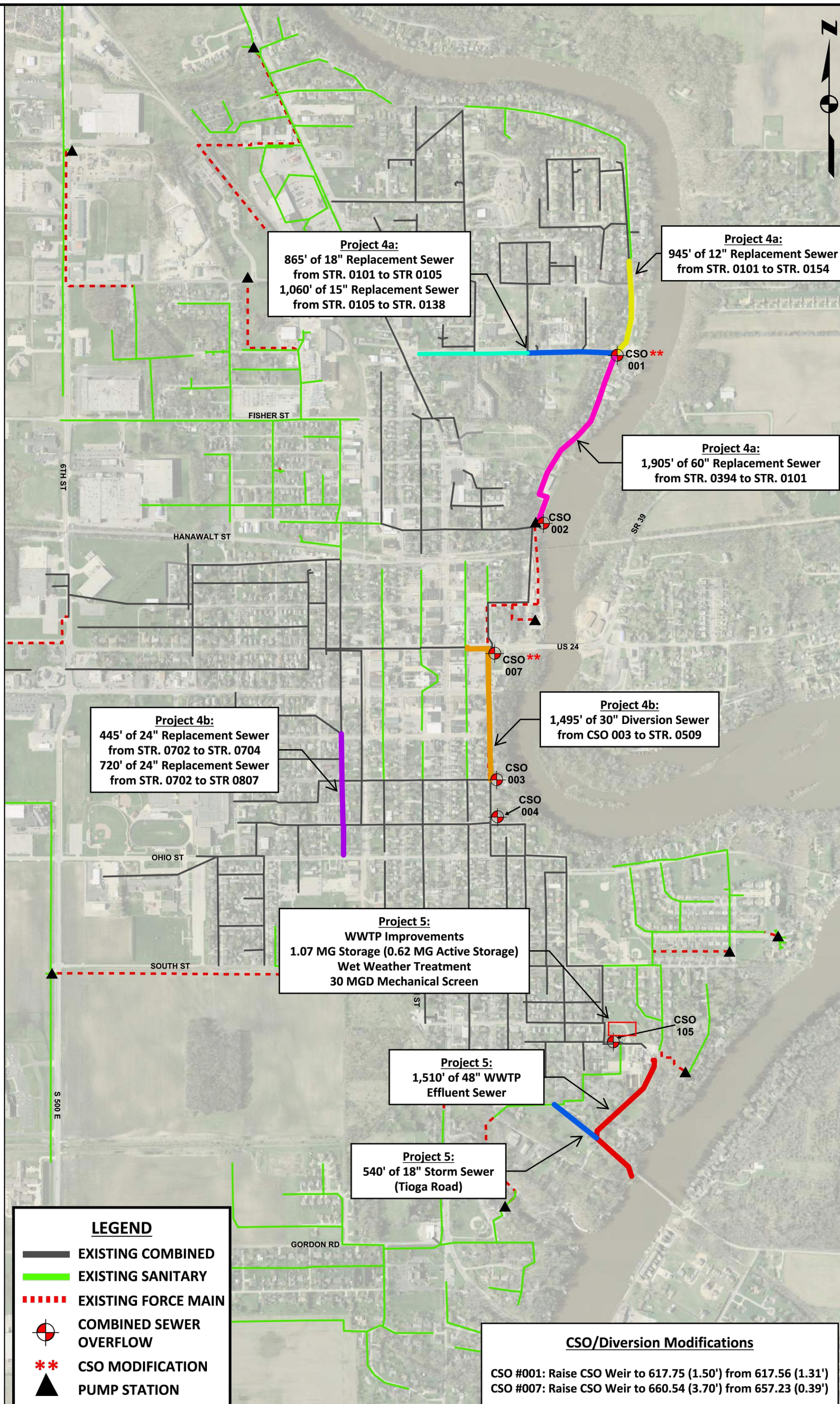
The April 2018 CSO LTCP Update presented an analysis of the sewer system utilizing an updated hydraulic model and outlined alternatives in accordance with IDEM's Nonrule Policy Document (NPD) Water-016: CSO Treatment Facilities. As presented in **Table 3-1 – City of Monticello CSO Long Term Control Plan**, the LTCP includes five (5) project phases. **Figure 3-1 – CSO LTCP Proposed Project** contains a summary of remaining LTCP projects.

This preliminary engineering report (PER) focuses on the implementation of the proposed collection system improvements described in Project 4a and 4b as well as WWTP Effluent Sewer Improvements (part of Project 5). As part of the CSO LTCP, post-construction monitoring should be implemented to confirm the efficiency of the implemented measures. Flow monitoring results can be used to re-calibrate the existing hydraulic model and aid in the evaluation of the remaining parts of Project 5 of the CSO LTCP.

Table 3-1
City of Monticello CSO Long Term Control Plan

Project	Completion Date
Project 1/Phase I – National Homes Drainage Improvements	August 2010
Project 1/Phase II – National Homes Drainage Improvements	November 2011
Project 2a – Bryans Lift Station (LS 02) Upgrade & Wet Weather Storage Facility	July 2012
Project 2b – Bryan's Lift Station Force Main & Maple St. Relief Sewer	August 2015
Project 3 – Wastewater Treatment Plant Improvements	August 2017
Project 4a – Bluewater Drive Interceptor • 745-LF of 15" Dia. Sanitary Sewer • 1,600-LF of 60" Dia. Sanitary Sewer • 305-LF of 96" Dia. Sanitary Sewer • CSO 001 Modifications	2022
Project 4b – Washington Street Diversion Sewer • 2,140-LF of 24" Dia. Sanitary Sewer • 445-LF of 21" Dia. Sanitary Sewer • CSO 007 Modifications • STR 401 Modifications	2025
Project 5 – Wet Weather Storage and Treatment • 1.07 MG Storage at WWTP (0.62 MG Active Storage) • Wet Weather Treatment at WWTP • 30 MGD Mechanical Screen • WWTP & CSO 105 Effluent Sewer Improvements	2029

.



COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO
WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE 3-1: CSO LTCP PROPOSED PROJECT

3.2 Areas of Concern

As part of the City's April 2018 CSO LTCP update, a hydraulic model that accurately represents the existing conditions of the collection system was developed to evaluate planning-level alternative solutions to mitigate CSOs and achieve compliance with the City's LTCP. The hydraulic model was developed and calibrated using the United States Environmental Agency's (USEPA) hydraulic modeling program Storm Water Management Model, Version 5 (SWMM5). Upon completing the dry and wet weather calibration and validation of the City's collection system model, the existing system was analyzed using several baseline design storms with the goal of identifying trouble spots in the existing collection system (See **Appendix E** for additional details on the hydraulic modeling effort). The model predicts areas of flooding throughout the system and the following concerns have been identified:

- The fifteen (15) inch combined sewer interceptor between CSOs 002 and 007 is undersized resulting in CSOs at CSO 007 during wet weather events.
- The fifteen (15) inch combined sewer interceptor along Bluewater Drive is shallow and lacks the capacity to adequately convey peak flows during large wet weather events.
- The twelve (12) inch combined sewer interceptor that conveys flow from the west to CSO 001 on S. Beach Drive is undersized and experiences significant flooding. Historically, during wet weather events homes serviced by this interceptor have experienced basement backups.
- Significant flooding occurs at Structure 712, which is located in the alley between Harrison and Jefferson Streets.
- The WWTP effluent sewer is aging and does not have enough capacity to convey peak flows for large wet weather events. Additionally, the effluent sewer runs under private property and buildings; therefore, properly evaluating and maintaining the pipe is challenging.

3.3 Aging Infrastructure

The City of Monticello's collection system, as described in **Section 2 – Existing Facilities**, consists of both combined and sanitary sewers. A large portion of the system was installed in the 1950s when the original wastewater treatment plant was constructed. Generally, the impact of infiltration and inflow tends to be greater in collection systems with aging infrastructure. The condition of the existing sewers in Area 1 is detailed in **Appendix C**.

3.4 Reasonable Growth

Due to the population trends, presented in **Section 1**, the increase in population is expected to be minimal. The average wastewater flows are not anticipated to significantly increase over the twenty (20) year planning period.

A. Projected Wastewater Flows and Pollutant Loadings

There are several components to wastewater flows including base wastewater flow, long-term infiltration, short-term infiltration, and short-term inflow. The base wastewater flow is the flow that occurs during dry weather periods when infiltration and inflow is minimal. Base flows are expected to increase proportionally to population growth during the planning period. Monticello's base flow was estimated to be equal to that of the lowest dry weather monthly average value (using 2015 - 2017 data). **Table 3-2** presents the projected wastewater flows at the end of the 20-year planning period.

Table 3-2
Monticello Wastewater Treatment Plant
Projected Year 2040 Flow Projections

Design Flows	Year 2015-2017 Flow (gpd)	Estimated Year 2040 Flows(1) (gpd)
Monthly Average Base Flow	806,000	1,042,300
Monthly Average Dry Weather Flow	1,233,900	1,597,900
Monthly Average Total Flow	1,369,200	1,747,200
Average Annual Infiltration / Inflow Rate	135,300	175,600
Maximum Monthly Average Flow	2,205,800	2,856,400
Maximum Monthly Infiltration/Inflow Rate	665,800	859,400
Maximum Day Flow	3,720,000	4,815,200

(1) Assumes no additional I/I removal through the duration of the planning period.

3.5 Summary of Needs

The following **Table 3-3** presents a summary of recommended infrastructure needs.

Table 3-3
City of Monticello's Wastewater System Needs

Description of Need
Address the capacity concerns at the following locations to reduce CSOs and alleviate flooding/basement backups:
• The sewer between CSO 002 and CSO 007 • The Bluewater Drive Interceptor • The twelve (12) inch interceptor that conveys flow from the west to CSO 001 on S. Beach Drive • Structure 712, which is located in the alley between Harrison and Jefferson Streets • The WWTP Effluent Sewer

Section 4 – Proposed Alternatives

In **Section 3**, the collection and treatment system deficiencies were identified as well as the requirements necessary to comply with the CSO LTCP schedule. The City's approved CSO LTCP schedule requires the implementation of Projects 4A – Bluewater Drive Interceptor, 4B – Maple Street Interceptor Extension, and the WWTP Effluent Sewer. For the purpose of this preliminary engineering report (PER), the Maple Street Interceptor Extension will be referred to as the Washington Street Diversion Sewer. No recommendations are provided in this section. Rather, the twenty (20) year life cycle present worth analyses of the considered alternatives are presented in **Section 5** of this PER and will facilitate the selection of a recommended project in **Section 6**.

4.1 Environmental Impacts

Construction and/or repairs will mostly occur on previously developed land owned by the City. No adverse environmental impacts will be generated as a result of this work. Existing wetlands will not be impacted, nor will exceptional use streams, state resource waters, or natural or scenic rivers.

As discussed in **Section 1** of this PER, no significant environmental impacts are anticipated. The purpose of the proposed projects is to mitigate untreated overflows from discharging from the collection system to Tippecanoe River/Lake Freeman, which will contribute to overall water quality improvement in the area.

4.2 Land Requirements

All land that will be impacted by the proposed projects has been previously disturbed. The collection system improvements involve existing sewer lines, manholes, and lift stations. Potentially affected property owners will be identified during design of the projects and notified prior to construction.

4.3 Potential Construction Problems

Minimal construction challenges are anticipated for the proposed projects. Temporary construction impacts include the potential for noise, dust, and requirements for erosion control. Erosion control measures will be addressed during the design phase of the proposed project by defining limitations on construction work within the contract documents.

The proposed collection system improvements parallel or replace existing wastewater infrastructure. Therefore, the proposed improvements are near existing houses, businesses, and other structures. If open cut construction is required, careful construction will be required in these areas. Bypass pumping or fluming will be necessary for all of the proposed improvements. A majority of the sanitary sewer lines are within the City's roads; therefore, pavement repair is anticipated.

The work associated with the proposed collection system improvements is expected to occur during normal working hours, which will restrict construction related nuisances during those times. Erosion control measures including seeding, drainage inlet protection, silt fencing, and dust control will also be specified in the contract documents and be required to be implemented in accordance with current practices. Project requirements will also include:

- A detailed traffic control plan to coordinate construction activity through the construction zone, including coordination with INDOT.
- Drainage, erosion, and dust control.
- Coordination with property owners and utility customers while laterals are being reconnected.

4.4 Sustainability Considerations - Water and Energy Efficiency

Reducing inflow and infiltration sources into the collection system reduces the volume of water that requires treatment. If inflow and infiltration is reduced, the wastewater treatment plant will operate less, which will save energy and extend the life of the mechanical equipment.

Opting to line existing sewers or install new pipes via trenchless techniques, rather than excavating and replacing the damaged pipes, reduces mechanical equipment on the construction site and eliminates waste from the project.

4.5 CSO LTCP Alternatives

In accordance with the approved CSO LTCP, the City is required to eliminate CSOs for a defined level of control, which is the 10-year 1-hour design storm. The proposed projects defined in the LTCP will maximize the hydraulic performance of the collection system for large wet weather events. Therefore, the total volume of wastewater discharged from the collection system will be reduced. This section discusses: CSO LTCP Project 4A – Bluewater Drive Interceptor, Project 4B – Washington Street Diversion Sewer, and Project 5 – WWTP Effluent Sewer Improvements.

As part of the City's April 2018 CSO LTCP update, a hydraulic model representing the existing conditions of the collection system was developed to evaluate planning-level alternative solutions to mitigate CSOs and achieve compliance with the LTCP. The hydraulic model was developed and calibrated using the United States Environmental Agency's (USEPA) hydraulic modeling program Storm Water Management Model, Version 5 (SWMM5). Upon completing the dry and wet weather calibration and validation of the City's collection system model, the existing system was analyzed using several baseline design storms with the goal of identifying trouble spots in the existing collection system (See **Appendix E** for additional details on the hydraulic modeling effort).

The following performance criteria were used when identifying and assessing alternative solutions for the City of Monticello's combined collection system:

- Eliminate CSOs for the 10-year, 1-hour design storm, which is consistent with the 2009 LTCP revision.
- Achieve eight (8) feet of freeboard between the ground elevation and maximum hydraulic grade line (HGL) in the collection system for the compliance storms. If eight (8) feet of freeboard was not available, the HGL must be lower than the crown of the pipe for the compliance event.
- Decrease the amount of CSO volume and maximize the hydraulic performance of the collection system for rainfall events larger than the compliance storms, making sure that the proposed improvements do not make upstream problems (such as surcharging) worse in the collection system during large wet weather events when CSOs are permissible.

Utilizing the hydraulic model, several alternatives were developed in addition to the No Action alternative: (1) Convey wet weather flows to the WWTP via gravity sewers with storage upgrades at the Bryan's Lift Station, (2) Convey wet weather flows to the WWTP via gravity sewers without upgrades to the Bryan's Lift Station, (3) Convey wet weather flows to the WWTP and Bryan's Lift Station via gravity sewers and (4) Convey wet weather flow to the WWTP via gravity sewers and pumping without upgrades at the Bryan's Lift Station. An overview of each of these alternatives is presented below.

All four (4) alternatives include replacing and upsizing the existing WWTP effluent sewer (part of LTCP Project 5). As discussed in **Section 3**, the effluent sewer is aging and does not have enough capacity to convey peak flows for large wet weather events. Additionally, the effluent sewer runs under private property and buildings; therefore, evaluating and maintaining the pipe is challenging. Furthermore, the existing effluent sewer does not have adequate capacity to handle the significant wet weather flows that will be reaching the WWTP after the implementation LTCP Projects 4A and 4B, which could potentially result in upstream surcharging or basement backups.

A. No Action

In accordance with the approved CSO LTCP implementation schedule, the City must complete the Bluewater Drive Interceptor improvements (Project 4A of the CSO LTCP) and the Washington Street Diversion Sewer (Project 4B of the CSO LTCP) by 2022 and the WWTP Effluent Sewer Improvements (part of Project 5 of the CSO LTCP) by 2029. If no action is taken, the City will be out of compliance with the CSO LTCP implementation schedule presented in **Appendix F**. The violation of the approved schedule will result in penalties, and undersized infrastructure will lead to continued CSOs that are damaging to human health and the environment. As a result, the "No Action" alternative will no longer be considered a feasible alternative.

B. Alternative 1

Alternative 1 involves conveying wet weather flows to the WWTP via gravity sewers with gravity passive storage upgrades at the Bryan's Lift Station. Increased storage capacity at the Bryan's Lift Station will capture peak wet weather flows, which can then be drained during dry weather periods to the WWTP for treatment. Alternative 1 includes:

- 540-LF of 18" Dia. Storm Sewer (Tioga Road)
- 945-LF of 12" Dia. Combined Sewer from STR 0101 to STR 0154
- 1,060-LF of 15" Dia. Combined Sewer from STR 0105 to STR 0138
- 865-LF of 18" Dia. Combined Sewer from STR 0101 to STR 0105
- 445-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0704
- 720-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0807
- 1,495-LF of 30" Dia. Combined Sewer from CSO 003 to STR 0509
- 1,905-LF of 60" Dia. Combined Sewer from STR 0394 to STR 0101
- 1,510-LF of 48" Dia. Effluent Sewer

The CSO 001 and CSO 007 weirs will be raised in order to maximize conveyance within the collection system and eliminate combined sewer overflows for the 10-year 1-hour design storm. Additionally, the WWTP Effluent Sewer will be replaced to alleviate capacity and aging issues. Alternative 1 improvements are illustrated in **Figure 4-1**. **Table 4-1** details the estimated construction and non-construction costs for this alternative. A detailed cost estimate is presented in **Appendix G**.

Table 4-1
Alternative 1 – Preliminary Estimate of Probable Costs

Description	Total Cost ($)
Mobilization/Demobilization (5%)	380,000
Contractor Construction Engineering (2%)	149,000
Misc. Utility Relocation Allowance	75,000
Maintenance & Protection of Traffic	100,000
Temporary Erosion Control	100,000
Bypass Pumping	300,000
18-inch Storm Sewer	162,000
12-inch Combined Sewer	344,925
15-inch Combined Sewer	429,300
18-inch Combined Sewer	384,925
24-inch Combined Sewer	605,800
30-inch Combined Sewer	897,000
48-inch WWTP Effluent Sewer	1,359,000
60-inch Combined Sewer	2,047,875
CSO Modifications	240,000
Tioga Road Multi-Purpose Trail Improvements	400,000
Subtotal Construction Cost ($)	**7,974,825**
Contingency (10%) ($)	**797,483**
Total Estimated Construction Costs ($)	**8,772,308**
Non-Construction Costs (Estimated = 25%) ($)	**2,193,077**
Total Estimated Project Costs ($)	**10,965,385**

C. Alternative 2

Alternative 2 involves conveying wet weather flows to the WWTP via gravity with no storage upgrades at Bryan's Lift Station. This alternative includes:

- 540-LF of 18" Dia. Storm Sewer (Tioga Road)
- 945-LF of 12" Dia. Combined Sewer from STR 0101 to STR 0154
- 1,060-LF of 15" Dia. Combined Sewer from STR 0105 to STR 0138
- 865-LF of 18" Dia. Combined Sewer from STR 0101 to STR 0105
- 445-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0704
- 720-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0807
- 1,330-LF of 30" Dia. Combined Sewer from STR 0514 to STR 0306
- 1,905-LF of 30" Dia. Combined Sewer from STR 0394 to STR 0101
- 2,140-LF of 36" Dia. Combined Sewer from CSO 003 to STR 0514
- 1,510-LF of 48" Dia. Effluent Sewer

Similar to Alternative 1, the CSO 001 and CSO 007weirs will be raised in order to maximize conveyance within the collection system and eliminate combined sewer overflows for the 10-year 1-hour design storm. Additionally, the WWTP Effluent Sewer will be replaced to alleviate capacity and aging issues. Alternative 2 improvements are illustrated in **Figure 4-2**. **Table 4-2** details the estimated construction and non-constructions costs for this alternative. A detailed cost estimate is presented in **Appendix G**.

Table 4-2
Alternative 2 – Preliminary Estimate of Probable Costs

Description	Total Cost ($)
Mobilization/Demobilization (5%)	409,000
Contractor Construction Engineering (2%)	161,000
Misc. Utility Relocation Allowance	100,000
Maintenance & Protection of Traffic	130,000
Temporary Erosion Control	115,000
Bypass Pumping	350,000
18-inch Storm Sewer	162,000
12-inch Combined Sewer	344,925
15-inch Combined Sewer	429,300
18-inch Combined Sewer	384,925
24-inch Combined Sewer	605,800
30-inch Combined Sewer	1,941,000
36-inch Combined Sewer	1,455,200
48-inch WWTP Effluent Sewer	1,359,000
CSO Modifications	240,000
Tioga Road Multi-Purpose Trail Improvements	400,000
Subtotal Construction Cost ($)	**8,587,150**
Contingency (10%) ($)	**858,715**
Total Estimated Construction Costs ($)	**9,445,865**
Non-Construction Costs (Estimated = 25%) ($)	**2,361,466**
Total Estimated Project Costs ($)	**11,807,331**

D. Alternative 3

Alternative 3 involves conveying wet weather flows to the WWTP via gravity sewers with upgrades at the Bryan's Lift Station. Upgrades at the Bryan's Lift Station would provide fifteen (15) million gallons per day of high rate treatment and 0.170 MG of additional storage to address peak wet weather flows and reduce CSO volume. This alternative includes:

- 540-LF of 18" Dia. Storm Sewer (Tioga Road)
- 945-LF of 12" Dia. Combined Sewer from STR 0101 to STR 0154
- 1,060-LF of 15" Dia. Combined Sewer from STR 0105 to STR 0138
- 865-LF of 18" Dia. Combined Sewer from STR 0101 to STR 0105
- 445-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0704
- 720-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0807
- 1,575-LF of 30" Dia. Combined Sewer from CSO 007 to STR 0301
- 1,905-LF of 30" Dia. Combined Sewer from STR 0394 to STR 0101
- 2,140-LF of 36" Dia. Combined Sewer from CSO 003 to STR 0514
- 1,510-LF of 48" Dia. Effluent Sewer
- Bryan's Lift Station 15 MGD High Rate Treatment
- Bryan's Lift Station 0.170 MG Additional Storage

As in previous alternatives, the CSO 001 and CSO 007 weirs will be raised in order to maximize conveyance within the collection system and eliminate combined sewer overflows for the 10-year 1-hour design storm. The WWTP Effluent Sewer will be replaced to alleviate capacity and aging issues. Alternative 3 improvements are illustrated in **Figure 4-3**. **Table 4-3** details the estimated construction and non-construction costs for this alternative. A detailed cost estimate breakdown is presented in **Appendix G**.

Table 4-3
Alternative 3 – Preliminary Estimate of Probable Costs

Description	Total Cost ($)
Mobilization/Demobilization (5%)	672,000
Contractor Construction Engineering (2%)	264,000
Misc. Utility Relocation Allowance	100,000
Maintenance & Protection of Traffic	125,000
Temporary Erosion Control	120,000
Bypass Pumping	300,000
18-inch Dia. Combined Sewer	162,000
12-inch Combined Sewer	344,925
15-inch Combined Sewer	429,300
18-inch Combined Sewer	384,925
24-inch Combined Sewer	605,800
30-inch Combined Sewer	2,088,000
48-inch WWTP Effluent Sewer	1,359,000
CSO Modifications	240,000
Bryan's LS 15 MGD High Rate Treatment	5,400,000
Bryan's LS 0.170 MG Additional Storage	1,100,000
Tioga Road Multi-Purpose Trail Improvements	400,000
Subtotal Construction Cost ($)	**14,094,950**
Contingency (10%) ($)	**1,409,495**
Total Estimated Construction Costs ($)	**15,504,445**
Non-Construction Costs (Estimated = 25%) ($)	**3,876,111**
Total Estimated Project Costs ($)	**19,380,556**

E. Alternative 4

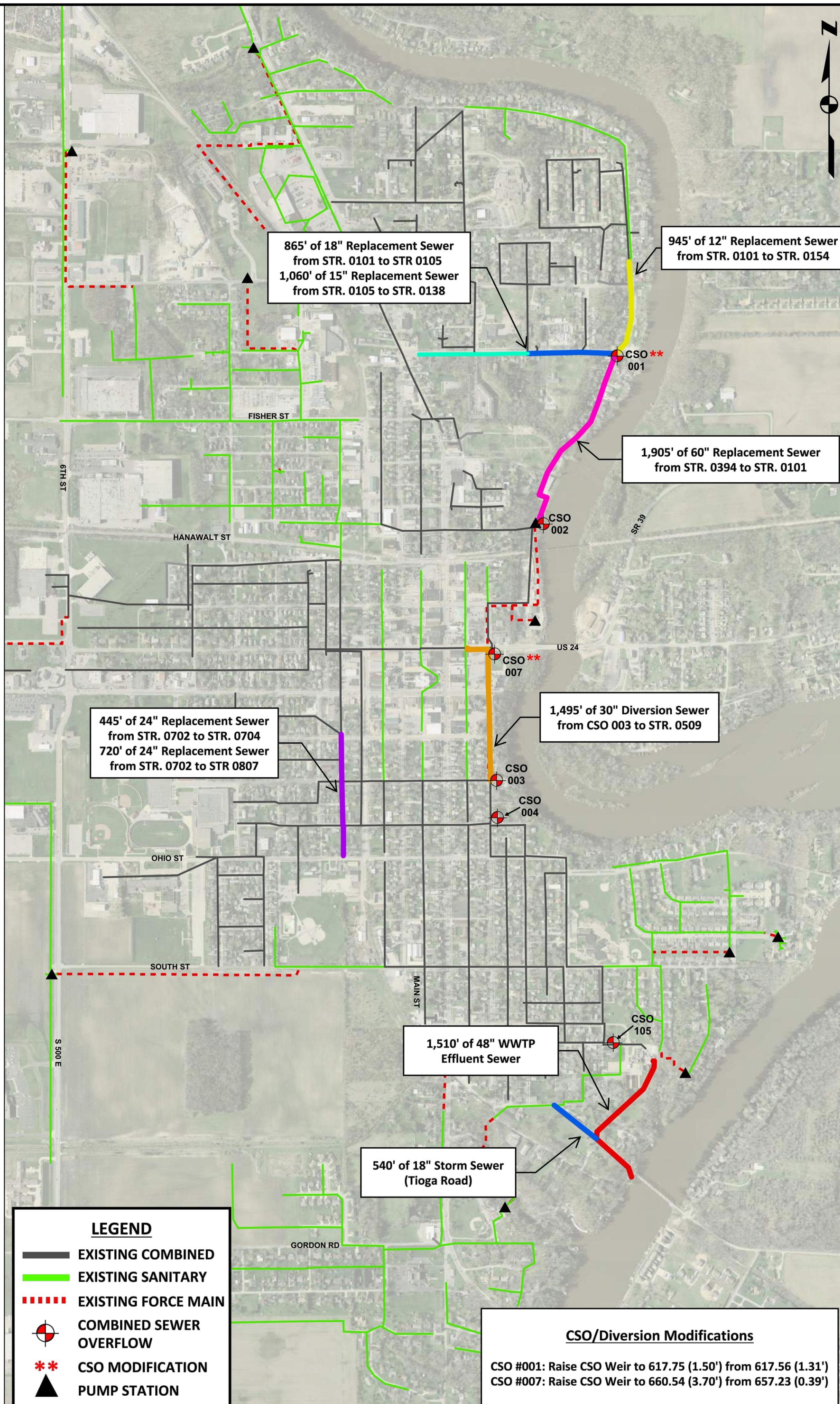
Alternative 4 involves conveying wet weather flows to the WWTP via gravity sewers without upgrades at the Bryan's Lift Station. Instead, a 10.5 MGD Lift Station would be installed near CSO 007 to transport peak wet weather flows to the WWTP during wet weather events. This alternative includes:

- 540-LF of 18" Dia. Storm Sewer (Tioga Road)
- 945-LF of 12" Dia. Combined Sewer from STR 0101 to STR 0154
- 1,060-LF of 15" Dia. Combined Sewer from STR 0105 to STR 0138
- 865-LF of 18" Dia. Combined Sewer from STR 0101 to STR 0105
- 1,330-LF of 18" Dia. Combined Sewer from STR 0514 to STR 0306
- 445-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0704
- 720-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0807
- 1,080-LF of 30" Dia. Combined Sewer from CSO 003 to STR 0605
- 1,905-LF of 48" Dia. Combined Sewer from STR 0394 to STR 0101
- 1,510-LF of 48" Dia. Effluent Sewer
- 10.5 MGD Wet Weather Lift Station

As in previous alternatives, the CSO 001 and CSO 007 weirs will be raised in order to maximize conveyance within the collection system and eliminate combined sewer overflows for the 10-year 1-hour design storm. The WWTP Effluent Sewer will be replaced to alleviate capacity and aging issues. Alternative 4 improvements are illustrated in **Figure 4-4**. **Table 4-4** details the estimated construction and non-construction costs for this alternative. A detailed cost estimate is presented in **Appendix G**.

Table 4-4
Bluewater Drive Interceptor & Washington Street Diversion Sewer
Alternative 4 – Preliminary Estimate of Probable Costs

Description	Total Cost ($)
Mobilization/Demobilization (5%)	542,000
Contractor Construction Engineering (2%)	213,000
Misc. Utility Relocation Allowance	100,000
Maintenance & Protection of Traffic	125,000
Temporary Erosion Control	120,000
Bypass Pumping	300,000
18-inch Storm Sewer	162,000
12-inch Combined Sewer	344,925
15-inch Combined Sewer	429,300
18-inch Combined Sewer	976,775
24-inch Combined Sewer	605,800
30-inch Combined Sewer	648,000
48-inch Combined Sewer	1,666,875
48-inch WWTP Effluent Sewer	1,359,000
CSO Modifications	240,000
10.5 MGD Wet Weather Lift Station	3,530,000
Tioga Road Multi-Purpose Trail Improvements	400,000
Subtotal Construction Cost ($)	**11,362,675**
Contingency (10%) ($)	**1,136,268**
Total Estimated Construction Costs ($)	**12,498,943**
Non-Construction Costs (Estimated = 25%) ($)	**3,124,736**
Total Estimated Project Costs ($)	**15,623,679**



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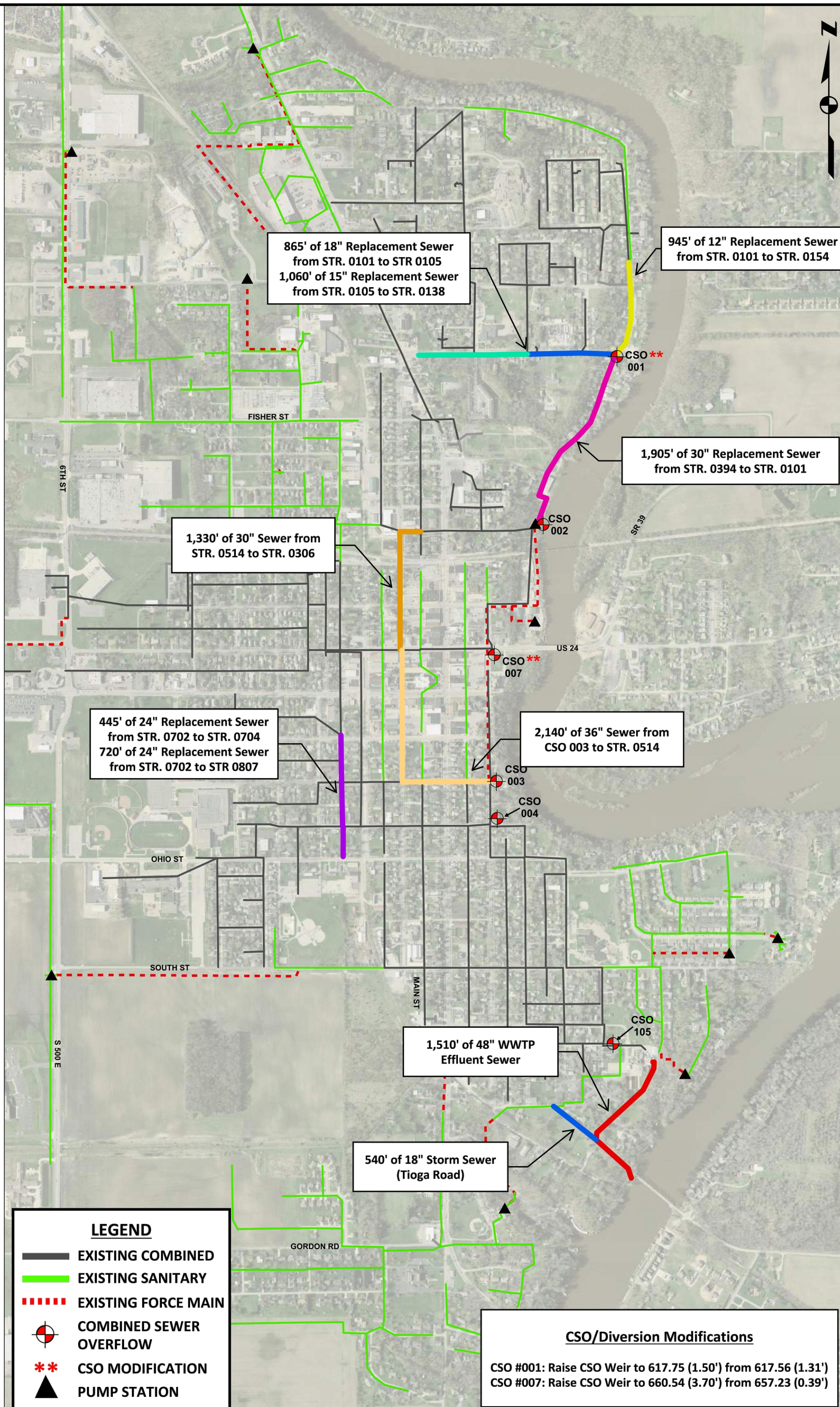
CITY OF MONTICELLO
WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE 4-1: CSO LTCP ALTERNATIVE 1



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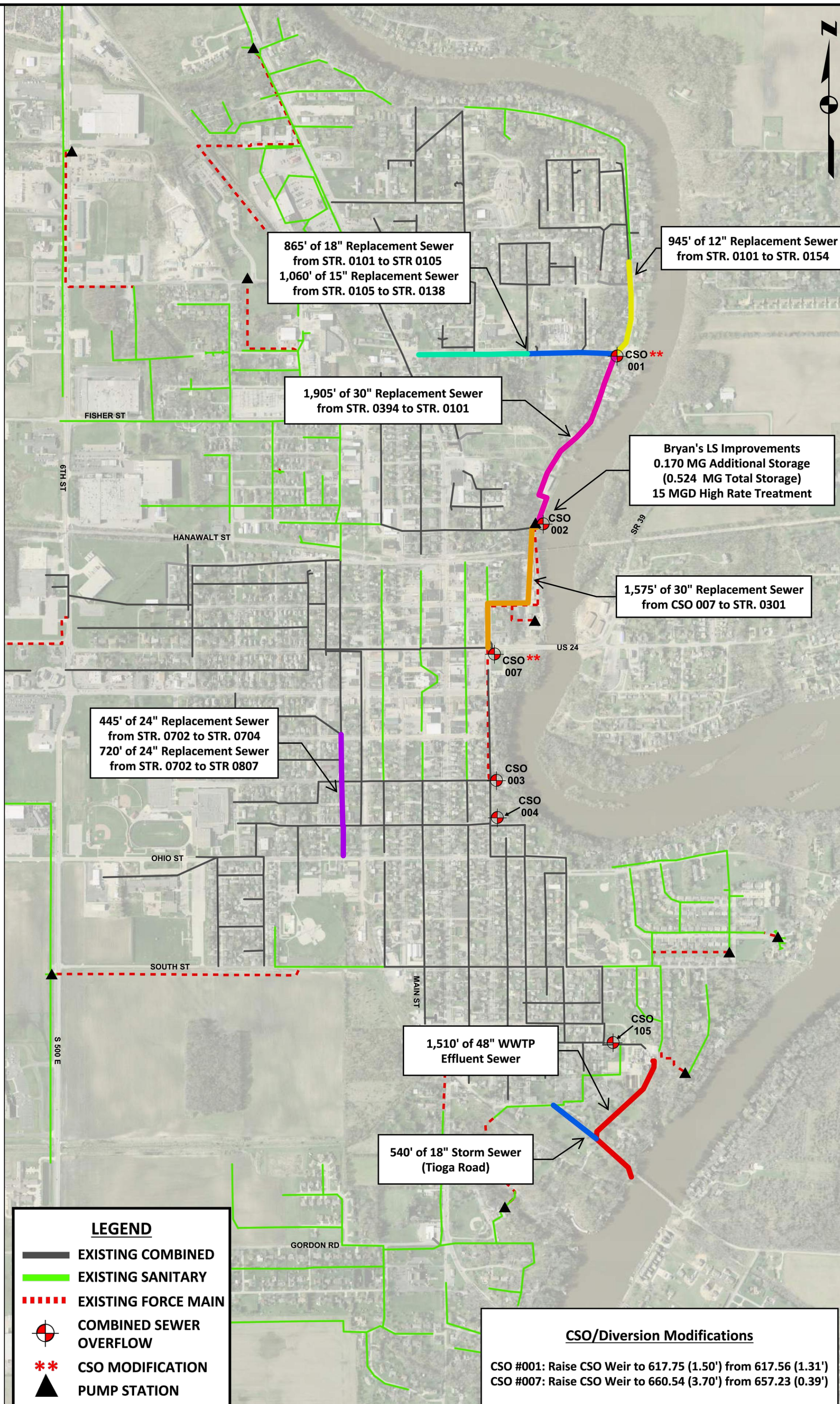
WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE 4-2: CSO LTCP ALTERNATIVE 2

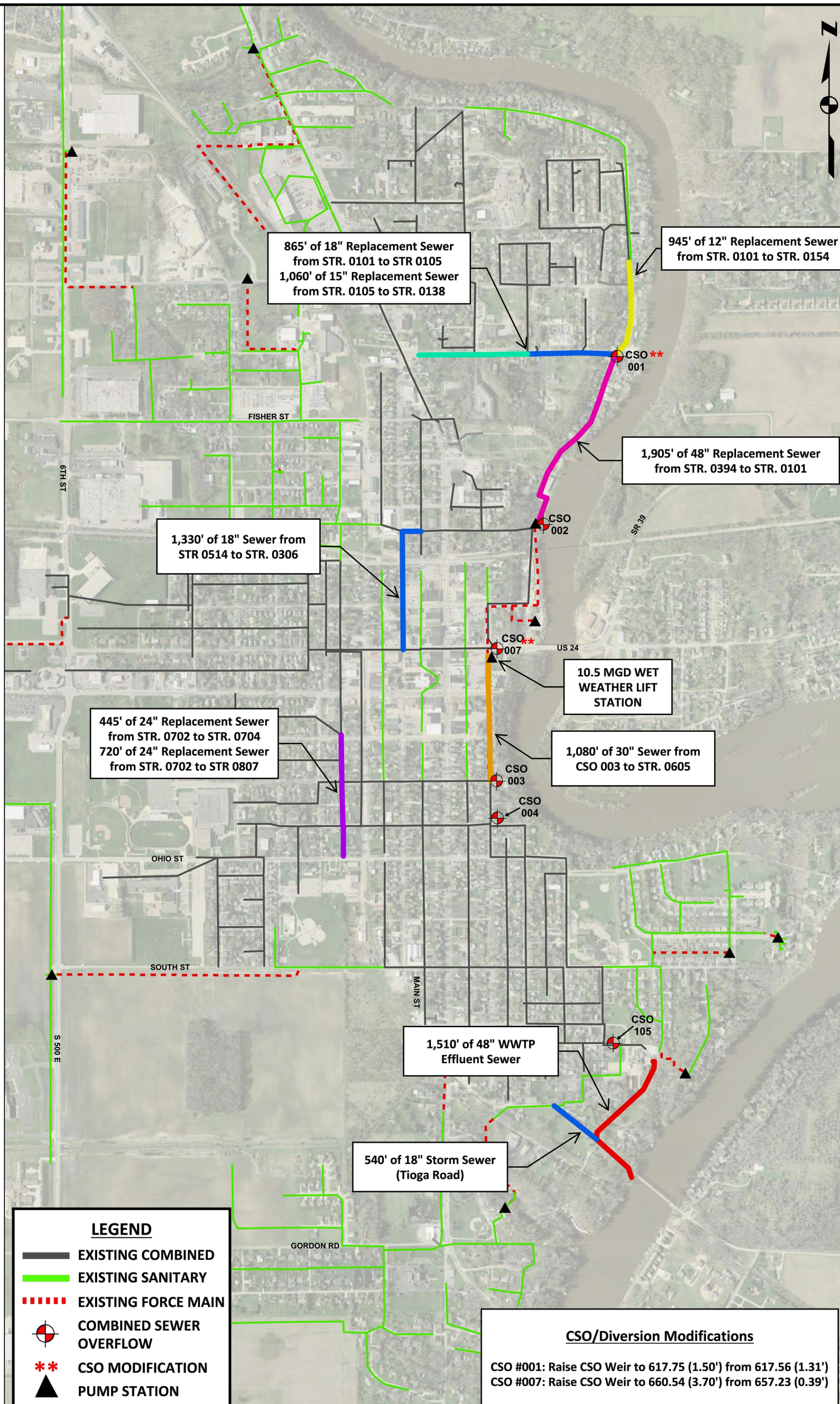


COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO
WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE 4-3: CSO LTCP ALTERNATIVE 3



COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO
WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE 4-4: CSO LTCP ALTERNATIVE 4

Section 5 – Selection of an Alternative

This section of the report contains an analysis of the alternatives considered in **Section 4**. The industry standard for assessing alternatives is a life cycle cost analysis, and a twenty (20) year planning period was selected for this study. This method compares each alternative side-by side by estimating a present worth cost. Factors such as inflation and depreciation of the dollar's value over time, operation and maintenance costs, salvage value, and replacement costs are accounted for in the life cycle cost analysis. The alternative with the lowest twenty (20) year life cycle present worth cost will be identified as the lowest cost alternative, which usually but not always coincides with the recommended project.

5.1 Life Cycle Cost Overview

The present worth analysis is dependent the discount interest rate. In planning work for municipalities, the federal discount rate is used. This is found in OMB Circular No. A-94. The last published value was from November 2019. The current rate is 0.3% for a planning of twenty (20) years. The various considerations for the present worth analysis are as follows:

A. Capital Costs

The capital cost of each alternative is equal to the sum of the construction costs and non-construction costs in 2020 dollars as summarized in **Section 4**. Construction costs include the initial investment required to purchase and install the facilities and all related equipment. Non-construction costs include items such as engineering fees, legal fees, administrative fees, easements, and construction inspection. For this study, non-construction costs are assumed to be 25% of the construction costs.

B. Operation and Maintenance Costs

Typical operation and maintenance costs for alternatives considered for this project are based on the following estimates.

- Labor costs are based upon a rate of $35.00 per hour, including benefits and overhead.
- Power costs are based upon a rate of $0.10 per kilowatt hour (KWH).
- Sewer cleaning was assumed to occur every five (5) years based on pipe diameter ranging from $15/LF for twelve (12) inch diameter pipes to $45/LF for sixty (60) inch diameter pipes.

C. Salvage Value

The salvage value is estimate using the anticipated life expectancy of the constructed items using straight line depreciation, calculated at the end of the twenty (20) year planning period and converted to present day 2020 dollars. The following are assumed useful life spans:

- Sanitary Gravity Sewers = 70 years
- Sanitary Force Mains = 50 years
- Sanitary Lift Stations = 40 years
- Pre-cast Concrete Structures = 50 years

D. Equipment Replacement Costs

Equipment Replacement Cost is the funding needed to replace equipment that has an estimated service life of about twenty (20) years or less. The replacement cost assigned is the purchase cost of the equipment divided by its estimated useful life.

- Lift station pump replacement every (15) years, assumed to be twenty-five (25) percent of the original capital construction cost.

E. Economic Analysis

The economic analysis determines the total present worth cost for each alternative. The lowest total present worth cost alternative usually coincides with the recommended project. However, multiple non-monetary factors must also be considered when selecting the recommended project.

F. Present Worth Analysis Method

The total present worth of an alternative is determined by summing the initial total project cost, present worth of the operation, maintenance and equipment, and replacement costs, then subtracting the present worth salvage value. The selected evaluation period for the project is twenty (20) years with a discount rate of 0.3%. The present worth of the salvage value of new sanitary sewer is calculated by multiplying its value by 0.94. The present worth of the annual operation, maintenance, and equipment replacement costs for (a) sewer cleaning at year five (5) is calculated by multiplying its value by 0.99; (b) annual lift station O&M is calculated by multiplying its annually value by 19.38. The various multiplication factors were determined by utilizing the (a) uniform series present worth formula and (b) the single payment present worth formula, as applicable.

5.2 Twenty Year Life Cycle Present Worth Cost Analysis

Table 5-1 contains a summary of the twenty (20) year life cycle present worth cost of each alternative. Detailed present worth analyses are provided in **Appendix G**.

Table 5-1
Twenty Year Life Cycle Present Worth Cost Analysis of Alternatives - CSO LTCP Alternatives

Item	Alternative 1	Alternative 2	Alternative 3	Alternative 4
a. Capital Cost[1] (i.e. Construction and Non-Construction Cost)	$10,965,385	$11,807,331	$19,380,556	$15,623,679
b. 20-Year Present Worth Cost of O&M&R[1]	$1,099,460	$1,299,160	$1,062,870	$2,759,660
c. 20-Year Present Worth of Salvage[1]	$4,050,300	$4,351,500	$3,478,500	$4,024,900
20-Year Life Cycle Present Worth Cost (a + b - c) (Rounded)	$8,015,000	$8,755,00	$16,965,000	$14,359,000
Percent Higher of 20-Year Life Cycle Present Worth Cost Compared to Alternative 1	**0%**	**9%**	**112%**	**75%**

1 Detailed capital costs, present worth operation, maintenance, and replacement (O&M7R) costs, and 20-year life cycle present worth costs are contained in **Appendix G**.

5.3 Non-Monetary Factors

Non-monetary factors are crucial to all infrastructure projects and are a critical component of the alternative analysis process. Several non-monetary factors that were considered during this study, which include permitting, environmental impacts, public health and safety, regulatory compliance, and constructability.

The City considers regulatory compliance the most critical non-monetary factor. By staying on schedule with the CSO LTCP, the City will achieve CSO compliance, which will have a direct benefit on public health and safety as well as the environment.

As shown in **Table 5-1**, Alternatives 1 is the most cost-effective solutions over a twenty (20) year planning period at **$8,015,000**. Therefore, Alternative 1 is considered the most cost-effective long-term solution to achieve CSO LTCP compliance.

The SRF Cost & Effectiveness Certification Form is located in **Appendix G.**

5.4 Recommended Solution

In summary, Alternative 1 is the recommended CSO LTCP solution, which includes the following:

The Recommended Alternative (Alternative 1) involves conveying wet weather flows to the WWTP via gravity sewers with in-line storage upgrades at the Bryan's Lift Station. Alternative 1 includes:

- 540-LF of 18" Dia. Storm Sewer (Tioga Road)
- 945-LF of 12" Dia. Combined Sewer from STR 0101 to STR 0154
- 1,060-LF of 15" Dia. Combined Sewer from STR 0105 to STR 0138
- 865-LF of 18" Dia. Combined Sewer from STR 0101 to STR 0105
- 445-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0704
- 720-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0807
- 1,495-LF of 30" Dia. Combined Sewer from CSO 003 to STR 0509
- 1,905-LF of 60" Dia. Combined Sewer from STR 0394 to STR 0101
- 1,510-LF of 48" Dia. Effluent Sewer

The CSO 001 and CSO 007 weirs will be raised in order to maximize conveyance within the collection system and eliminate combined sewer overflows for the 10-year 1-hour design storm. Additionally, the WWTP Effluent Sewer will be replaced to alleviate capacity and aging issues.

Section 6 – Proposed Alternative

As summarized in **Sections 3 through 5**, significant infrastructure is required to achieve CSO LTCP compliance. This section of the report contains a summary of the recommended project. Recommended project components include estimated costs, phasing considerations, and potential permits. The selection of the recommended project is based upon the best combination of life cycle cost analysis and non-monetary impacts.

6.1 Recommended Project

The proposed improvements to the wastewater collection system were selected based on the evaluation in **Section 5** and are presented in **Table 6-1.**

Table 6-1
Recommended Project Components

Item Description	LTCP Requirement
Project 4a – Bluewater Drive Interceptor: • Installation of 945-LF of 12” Dia. Sanitary Sewer • Installation of 1,060-LF of 15” Dia. Sanitary Sewer • Installation of 865-LF of 18” Dia. Sanitary Sewer • Installation of 1,905-LF of 60” Dia. Sanitary Sewer • CSO 001 Modifications	YES
Project 4b – Washington Street Diversion Sewer: • Installation of 1,165-LF of 24” Dia. Sanitary Sewer • Installation of 1,495-LF of 30” Dia. Sanitary Sewer • CSO 007 Modifications	YES
Project 5: • WWTP Effluent Sewer Improvements • Installation of 540-LF of 18” Dia. Storm Sewer	YES

6.2 Project Schedule

The following **Table 6-2** shows the proposed schedule for the recommended improvements. For reference, **Table 6-3** presents the LTCP Schedule Milestone Dates.

Table 6-2
Proposed Project Schedule

Item	Proposed Date
City Authorizes Preliminary Design	December 2018
City Authorizes Final Design	April 2019
Completion of Final Design	March 2020
PER Submittal	April 2020
City Applies for Construction Permit from IDEM	April 2020
City Obtains Construction Permit from IDEM	June 2020
Advertise for Bids	July 2020
Loan Closing	August 2020
Contract Award	August 2020
Initiation of Construction	September 2020
Substantial Completion	September 2022
Initiation of Operation	October 2022

Table 6-3
LTCP Milestone Dates

Activity	Completion Date*
Project 4a – Bluewater Drive Interceptor Design	2021
Project 4a – Bluewater Drive Interceptor Construction	2022
Project 4b – Washington Street Diversion Sewer Design	2023
Project 4b – Washington Street Diversion Sewer Construction	2024
Project 5 – WWTP Improvements	2029

**Note: Construction to begin on or before January 1st of corresponding year, and construction to be complete on or before December 31st of corresponding year.*

6.3 Permit Requirements

Prior to construction, permits are anticipated to be required from the following agencies:

- IDEM Construction Permit
- INDOT Right of Way
- Erosion Control - Rule 5 Permit
- IDNR - Construction in a Floodway

6.4 Sustainability Considerations

Reducing inflow and infiltration into the system reduces the volume of water in the system. Therefore, the treatment plant will operate less, which will save energy and extend the life of the mechanical equipment.

Opting to line the sewers via trenchless techniques when possible, instead of excavating and replacing the damaged pipes reduces mechanical equipment on the site and eliminates waste from the project (existing pipes remain in the ground).

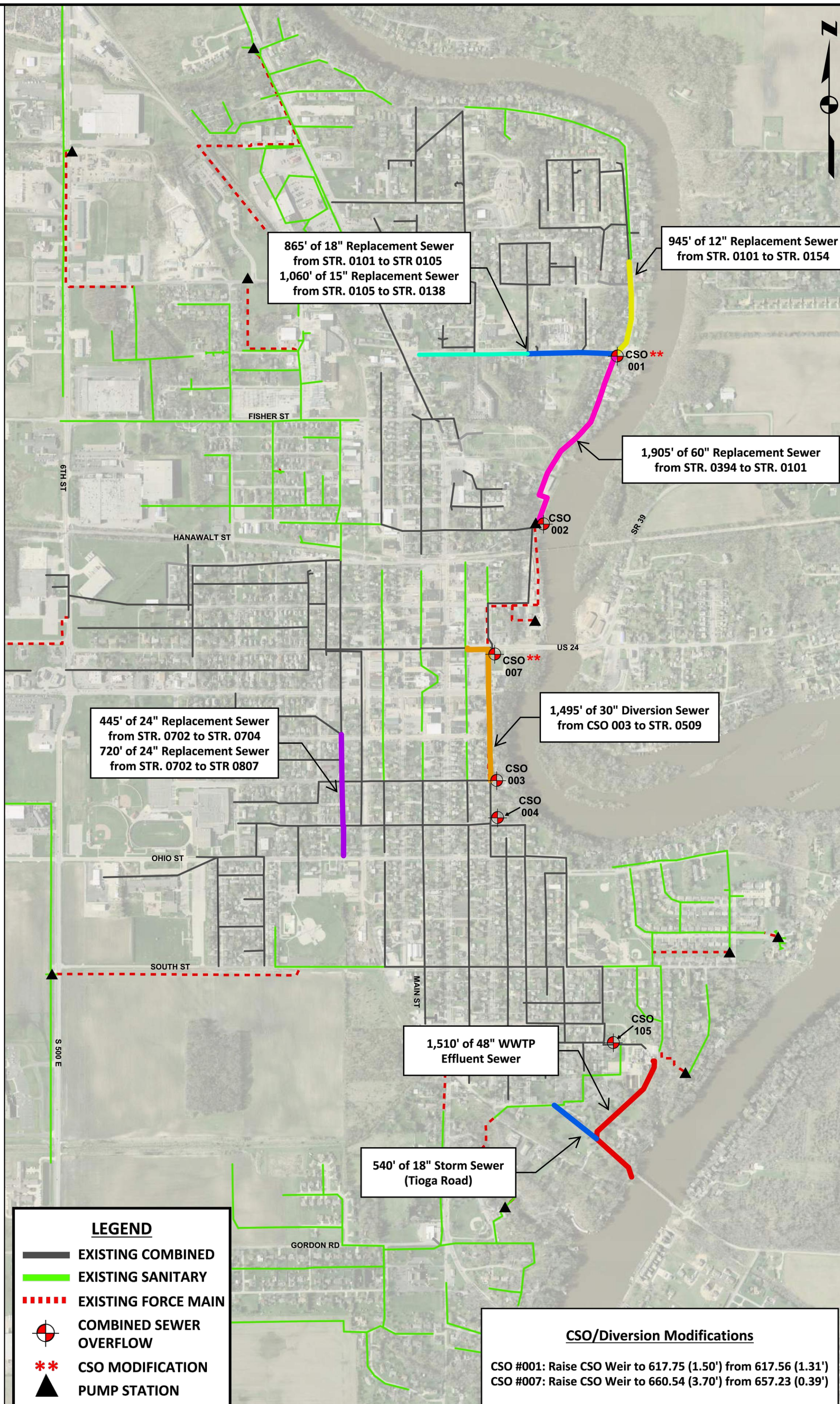
6.5 Total Project Cost Estimate

Table 6-4 provides a breakdown of the estimated costs associated with the recommended project. This preliminary estimate includes cost for construction, a 10% construction contingency, and estimated 25% non-construction costs associated with engineering fees, legal fees, and administrative expenses. All construction costs are based on 2020 dollars and reflect current market conditions within the construction industry.

Figures 6-1 shows the locations of work specifically associated with the proposed project. **Appendix G** provides additional details on costs related to the selected project.

Table 6-4
Recommended Project – Preliminary Estimate of Probable Costs

Description	Total Cost ($)
Mobilization/Demobilization (5%)	380,000
Contractor Construction Engineering (2%)	149,000
Misc. Utility Relocation Allowance	75,000
Maintenance & Protection of Traffic	100,000
Temporary Erosion Control	100,000
Bypass Pumping	300,000
18-inch Storm Sewer	162,000
12-inch Combined Sewer	344,925
15-inch Combined Sewer	429,300
18-inch Combined Sewer	384,925
24-inch Combined Sewer	605,800
30-inch Combined Sewer	897,000
48-inch WWTP Effluent Sewer	1,359,000
60-inch Combined Sewer	2,047,875
CSO Modifications	240,000
Tioga Road Multi-Purpose Trail Improvements	400,000
Subtotal Construction Cost ($)	**7,974,825**
Contingency (10%) ($)	**797,483**
Total Estimated Construction Costs ($)	**8,772,308**
Non-Construction Costs (Estimated = 25%) ($)	**2,193,077**
Total Estimated Project Costs ($)	**10,965,385**



COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO
WHITE COUNTY, INDIANA

PRELIMINARY ENGINEERING REPORT

FIGURE 6-1: RECOMMENDED PROJECT

6.6 Annual Operating Budget

In addition to the debt repayment associated to the loan used to finance the project, the City's Wastewater Utility budget must contemplate annual operation and maintenance expenses, replacement of short lived assets and reserve accounts for depreciation and debt. The budget components are detailed below.

A. Operation and Maintenance Expenses

The Operation and Maintenance (O&M) expenses are inclusive of the existing O&M costs and the proposed additional O&M costs detailed in **Table 6-5**.

Table 6-5
Total Operation and Maintenance Expenses

Item Description	Amount
Existing Annual Operation and Maintenance Expenses	
Salaries and wages	$ 280,521
Administrative salaries	$ 71,281
Employee benefits	$ 149,350
Purchased power	$ 299,401
Materials and supplies	$ 40,340
Chemicals	$ 19,751
Laboratory	$ 39,596
Contractual services	$ 58,170
Sludge hauling	$ 40,339
Maintenance agreement	$ 6,769
Repairs and maintenance	$ 121,412
Transportation	$ 7,093
Subscriptions	$ 549
Travel and education	$ 1,450
Telephone	$ 13,543
Postage	$ 6,618
Insurance	$ 28,059
Clothing	$ 1,612
Miscellaneous	$ 20,637
Total Existing Operating and Maintenance Expenses	**$ 1,206,491**
Additional Annual Operation and Maintenance Expenses*	$ 54,973
Total Operating and Maintenance Expenses	**$ 1,261,464**

** The additional O&M costs is the 20-Year Present Worth of O&M&R costs shown in Table 5-1 divided over twenty (20) years.*

Section 7 – Conclusions and Recommendations

The City of Monticello's wastewater collection system experiences wet weather flows from rain and groundwater induced inflow and infiltration. This situation has resulted in system overflows at the various NPDES authorized CSO outfalls, flooding, and basement backups. The continuous overflow of combined sewage into Tippecanoe River/Lake Freeman represents a risk for human and environmental health.

A Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) has been approved with the purpose to comply with IDEM's NPD Water-016: CSO Treatment Facilities and will provide the capture and required CSO treatment of the target single event 10-year, 1-hour design storm. The plan encompasses a total of five (5) project phases, of which Projects 1, 2 and 3 have been completed.

This report evaluates the potential alternatives to complete Project 4a, Project 4b, part of Project 5 of the LTCP. Projects 4a/4b and the effluent sewer proposed as part of Project 5 are sewer replacement options to address capacity issues in the collection system. Several alternatives were evaluated based on their capital cost, non-construction cost, life cycle cost analysis, and other non-monetary factors.

The recommended alternative involves conveying wet weather flows to the WWTP via gravity sewers with storage upgrades at the Bryan Lift Station. This alternative would involve the following sanitary sewer improvements:

- 945-LF of 12" Dia. Combined Sewer from STR 0101 to STR 0154
- 1,060-LF of 15" Dia. Combined Sewer from STR 0105 to STR 0138
- 865-LF of 18" Dia. Combined Sewer from STR 0101 to STR 0105
- 445-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0704
- 720-LF of 24" Dia. Combined Sewer from STR 0702 to STR 0807
- 1,495-LF of 30" Dia. Combined Sewer from CSO 003 to STR 0509
- 1,905-LF of 60" Dia. Combined Sewer from STR 0394 to STR 0101
- 1,510-LF of 48" Dia. Effluent Sewer

The CSO 001 and, CSO 007 weirs will be raised in order to maximize conveyance within the collection system and eliminate combined sewer overflows for the 10-year 1-hour design storm. Additionally, the WWTP Effluent Sewer will be replaced to alleviate capacity and aging issues.

Section 8 – Legal, Financial, and Managerial Responsibilities

The purpose of this section is provide tails regarding the legal, financial, and managerial information pertaining to the City of Monticello Wastewater Collection System Improvements Project.

8.1 Resolutions

The two (2) required resolutions, Authorized Representative and PER Acceptance resolutions, are located in **Appendix I**.

8.2 SRF Project Cost and Financing Information

The completed SRF Project Cost/ Financing Information Form is contained in **Appendix J**.

8.3 Property Acquisition

The City of Monticello has obtained temporary and permanent sewer easements to construct and maintain the Wastewater Collection System Improvements Project. The easements for the project are contained **Appendix K**.

8.4 Fiscal Sustainability Plan

A Fiscal Sustainability Plan that meets the minimum requirements listed in the Federal Water Pollution Control Act Section 603(d)(1)(E)(i) has been developed and the FSP Certification Form will be submitted prior to the request for final disbursement related to the primary project. **Appendix L** contains the Fiscal Sustainability Plan, Fiscal Sustainability Plan Certification Form, and the Fiscal Sustainability Plan Self Certification Form.

8.5 Asset Management Plan

The City will develop an Asset Management Program that meets the requirements defined by the State Revolving Fund's Asset Management Program Guidelines pursuant to Indiana Code 5-1.2-10-16 and will submit a completed Asset Management Plan Certification Form prior to request for final disbursement related to the primary project. The Asset Management Plan and Asset Management Form are located in **Appendix M**.

Appendix A

City of Monticello
NPDES Permit No. IN0020176

IDEM 30th ANNIVERSARY

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Carol S. Comer
Commissioner

VIA ELECTRONIC MAIL December 16, 2016

The Honorable Ken Houston, Mayor
City of Monticello
225 North Main Street
Monticello, Indiana 47960

Dear Mayor Houston:

Re: Final Modification: Permit No. IN0020176
City of Monticello Wastewater Treatment Plant
White County

Your request for modification of the above-referenced discharge permit has been processed in accordance with Section 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 (formerly IC 13-7).

The enclosed Pages 1-5, 18a, and 49 of 52 are intended to replace the corresponding pages of the existing permit. This modification, as requested in a letter dated September 26, 2016, is to reflect the significant changes to the facility due to the permittee's LTCP.

The enclosed NPDES permit amendment covers your existing NPDES Permit No. IN0020176. All discharges from the referenced facility shall be consistent with the terms and conditions of this permit, as amended.

One condition of your permit requires periodic reporting of several effluent parameters. You are required to submit both federal discharge monitoring reports (DMRs) and state Monthly Reports of Operation (MROs) on a routine basis. The MRO form can be found on IDEM's web site at http://www.in.gov/idem/cleanwater/2396.htm. Please note that IDEM will no longer accept paper DMR or MRO forms after December 28, 2016. After that date all NPDES permit holders are required to submit their monitoring data to IDEM using NetDMR. Please contact Rose McDaniel at (317) 233-2653 or Helen Demmings (317) 232-8815 if you would like more information on NetDMR. Information is also available on our website at http://IN.gov/idem/cleanwater/2422.htm.

Please note that this permit modification can be appealed. An appeal must be filed under procedures outlined in IC 13-15-7, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by filing a petition for administrative review with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the emailing of an electronic copy of this letter or within eighteen (18) days of the mailing of this letter by filing at the following addresses:

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

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

If you have any questions concerning this modification, please contact Jason House at 317/233-0470. Questions concerning appeal procedures should be directed to the Office of Environmental Adjudication at 317/232-8591.

Sincerely,

Paul Novak, Chief
Permits Branch
Office of Water Quality

Enclosures
cc: Joe Mowrer, Certified Operator
Adam Downey, Wessler Engineering
U.S. EPA, Region 5

STATE OF INDIANA

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AMENDED 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

CITY OF MONTICELLO

hereinafter referred to as “the permittee.” The permittee owns and/or operates the **City of Monticello Wastewater Treatment Plant**, a major municipal wastewater treatment plant located at 705 East Street, Monticello, Indiana, White County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters named Lake Freeman in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. The permittee is also authorized to discharge from combined sewer overflow outfalls listed in Attachment A of this permit, to receiving waters named Lake Freeman and the Tippecanoe River in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in this permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

The permit, as issued on August 22, 2014, is hereby amended as contained herein. The amended provisions shall become effective January 1, 2017 All terms and conditions of the permit not modified at this time remain in effect. Further, any existing condition or term affected by the modifications will remain in effect until the modified provisions become effective.

This permit and authorization to discharge, as amended, shall expire at midnight, November 30, 2019. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and forms as are required by the Indiana Department of Environmental Management no later than 180 days prior to the date of expiration.

Issued December 16, 2016, for the Indiana Department of Environmental Management.

Paul Novak, Chief
Permits Branch
Office of Water Quality

TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class II, 1.1 MGD conventional activated sludge treatment facility consisting of influent flow measurement, grit removal, three (3) primary settling tanks, four (4) aeration tanks, two (2) secondary clarifiers, rapid sand filters, chlorination and dechlorination facilities, and an effluent flow meter. Solids are handled through two (2) aerobic digesters and twelve (12) drying beds. The permittee is authorized to bypass the tertiary sand filters provided effluent limitations and requirements in this permit can be met. This bypassing of the tertiary sand filters will maximize the flow through the treatment facility and provide secondary treatment for higher flow volumes while minimizing Combined Sewer Overflow (CSO) discharges. The facility has one (1) bypass point (Bypass Outfall 101). The bypass point is identified in and is subject to provisions contained in Part II.B.2 of this permit. The peak design flow of the current facility is 2.4 MGD.

The permittee received a Construction Approval No. L-0469 on April 14, 2015, to upgrade the existing facility from a Class II, 1.1 MGD facility to a Class III, 1.6 MGD facility. The upgraded facility will consist of a biological nutrient removal system with (1) 30 MGD mechanical influent fine screen, one (1) bypass bar screen, two (2) vortex grit removal tanks, an anaerobic basin, two (2) staged aeration reactors, three (3) secondary clarifiers, a pre-anoxic basin for RAS denitrification, two (2) cloth media tertiary filters, two (2) ultraviolet light disinfection units, effluent flow metering, and a supplemental chemical feed system for phosphorus removal. Solids will be processed through two (2) aerobic digesters and land applied. The improvements will eliminate the existing permitted bypass of the tertiary sand filters and relocate Combined Sewer Overflow (CSO) Outfall 105 (currently located adjacent to existing screenings structure) to the new headworks facility, directly after fine screening.

The collection system is comprised of combined sanitary and storm sewers with six (6) CSO locations. The CSO locations have been identified and permitted with provisions in Attachment A of the permit.

The mass limits for the final $CBOD_5$, TSS and ammonia-nitrogen have been calculated utilizing the peak design flow of 3.6 MGD. This is to facilitate the maximization of flow through the treatment facility in accordance with this Office's CSO policy.

PART I

A.1. INTERIM 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. During the period beginning on the effective date of this permit, and lasting until thirty (30) days following completion of the proposed construction, the permittee is authorized to discharge from Outfall 005, which is located at Latitude: 40° 44' 06" N, Longitude: 86° 45' 16" W. The permittee shall take samples and measurements to meet the effluent limitations and monitoring requirements at a location representative of the wastewater treatment plant effluent before it combines with discharges from CSO Outfall 105 prior to being discharged via Outfall 005.The discharge is subject to the following requirements:

INTERIM TABLE 1 [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 [2]	Report	----	MGD	----	----	----	5 X Weekly	24-Hr. Total
$CBOD_5$	200.3	300.4	lbs/day	10	15	mg/l	5 X Weekly	24-Hr. Composite
TSS	240.3	360.5	lbs/day	12	18	mg/l	5 X Weekly	24-Hr. Composite
Ammonia-nitrogen								
Summer [3]	22.0	32.0	lbs/day	1.1	1.6	mg/l	5 X Weekly	24-Hr. Composite
Winter [4]	32.0	48.1	lbs/day	1.6	2.4	mg/l	5 X Weekly	24-Hr. Composite
Phosphorus	----	----	----	1.0	----	mg/l	5 X Weekly	24-Hr. Composite

INTERIM TABLE 2 [1]

	Quality or Concentration				**Monitoring Requirements**	
Parameter	Daily Minimum	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
pH [5]	6.0	----	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen [6]	6.0	----	----	mg/l	5 X Weekly	4 Grabs/24-Hrs.
Total Residual Chlorine						
Final Effluent [7, 8]	----	0.01	0.02	mg/l	5 X Weekly	Grab
E. coli [9]	----	125 [10]	235 [11]	cfu/100 ml	5 X Weekly	Grab

[1] Refer to the Notification Requirement in Part I.E. of the permit.

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

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

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

[5] 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 Monthly Report of Operation forms.

[6] 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.

[7] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (*E. coli*) do not occur from April 1 through October 31, annually. If the permittee uses chlorine for any reason, at any time including the period from November 1 through March 31, then the limits and monitoring requirements in Table 2 for Total Residual Chlorine (TRC) shall be in effect whenever chlorine is used.

[8] In accordance with 327 IAC 5-2-11.1(f), compliance with this permit will be demonstrated if the measured effluent concentrations are less than the limit of quantitation (0.06 mg/l). If the measured effluent concentrations are above the water quality-based permit limitations and above the Limit of Detection (LOD) specified by the permit in any of three (3) consecutive analyses or any five (5) out of nine (9) analyses, the permittee is required to reevaluate its chlorination/dechlorination practices to make any necessary changes to assure compliance with the permit limitation for TRC. These records must be retained in accordance with the record retention requirements of Part I.B.8 of this permit.

Effluent concentrations greater than or equal to the LOD but less than the Limit of Quantitation (LOQ), shall be reported on the discharge monitoring report forms as the measured value. A note must be included with the DMR indicating that the value is not quantifiable. Effluent concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected at a concentration of 0.01 mg/l, report the value as < 0.01 mg/l. At present, two methods are considered to be acceptable to IDEM, amperometric and DPD colorimetric methods, for chlorine concentrations at the level of 0.06 mg/l.

Parameter	LOD	LOQ
Chlorine	0.02 mg/l	0.06 mg/l

Case-Specific MDL

The permittee may determine a case-specific Method Detection Level (MDL) using one of the analytical methods specified above, or any other test method which is approved by IDEM prior to use. The MDL shall be derived by the procedure specified for MDLs contained in 40 CFR Part 136, Appendix B, and the limit of quantitation shall be set equal to 3.18 times the MDL. Other methods may be used if first approved by the U.S. EPA and IDEM.

[9] The *E. coli* limitations and monitoring requirements apply from April 1 through October 31 annually. The monthly average *E. coli* value shall be calculated as a geometric mean.

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 or Colilert-18® MPN Method

[10]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.

[11]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.

A.2. FINAL 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. During the period beginning thirty (30) days following completion of the proposed construction activities, the permittee is authorized to discharge from Outfall 005, which is located Latitude: 40° 44' 06" N, Longitude: 86° 45' 16" W. The permittee shall take samples and measurements to meet the effluent limitations and monitoring requirements at a location representative of the wastewater treatment plant effluent before it combines with discharges from CSO Outfall 105 prior to being discharged via Outfall 005.The discharge is subject to the following requirements:

FINAL TABLE 3 [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 [2]	Report	----	MGD	----	----	----	5 X Weekly	24-Hr. Total
$CBOD_5$	300	451	lbs/day	10	15	mg/l	5 X Weekly	24-Hr. Composite
TSS	361	541	lbs/day	12	18	mg/l	5 X Weekly	24-Hr. Composite
Ammonia-nitrogen								
Summer [3]	33.0	48.1	lbs/day	1.1	1.6	mg/l	5 X Weekly	24-Hr. Composite
Winter [4]	48.1	72.1	lbs/day	1.6	2.4	mg/l	5 X Weekly	24-Hr. Composite
Phosphorus	----	----	----	1.0	----	mg/l	5 X Weekly	24-Hr. Composite

FINAL TABLE 4 [1]

	Quality or Concentration				**Monitoring Requirements**	
Parameter	Daily Minimum	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
pH [5]	6.0	----	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen [6]	6.0	----	----	mg/l	5 X Weekly	4 Grabs/24-Hrs.
E. coli [7]	----	125 [8]	235 [9]	cfu/100 ml	5 X Weekly	Grab

[1] Refer to the Notification Requirement in Part I.E. of the permit.

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

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

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

[5] 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 Monthly Report of Operation forms.

[6] 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.

[7] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (*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 or Colilert-18® MPN Method

[8] 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.

[9] 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.

2. Minimum Narrative Limitations

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.

3. Additional Discharge Limitations and Monitoring Requirements

Beginning on the effective date of the permit, the effluent from Outfall 005 shall be limited and monitored by the permittee as follows:

TABLE 3

	Quality or Concentration			**Monitoring Requirements**	
Pollutant	Monthly Average	Daily Maximum	Unit	Measurement Frequency	Sample Type
Arsenic	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Cadmium [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Copper [1]	0.021	0.048	mg/l	1 X Weekly	24 Hr. Comp.
Lead [1]	0.010	0.020	mg/l	1 X Weekly	24 Hr. Comp.
Mercury [1][2]	12	20	ng/l	6 X Annually	Grab
Molybdenum [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Nickel [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Zinc [1]	0.215	0.430	mg/l	1 X Weekly	24 Hr. Comp.

E. NOTIFICATION REQUIREMENT

The permittee is proposing to upgrade the existing facility from a Class II, 1.1 MGD facility to a Class III, 1.6 MGD facility. The permittee received a Construction Approval No. L-0469 on April 14, 2015, for the aforementioned construction. The permittee shall submit a written notice to the Compliance Data Section of the Office of Water Quality at 100 N. Senate Avenue, Indianapolis, IN 46204-2251 which specifies the expected facility construction completion date. This notice shall be submitted a minimum of thirty (30) days **prior** to completion of facility construction. Any deviation from the completion date specified in this notice will require a revised notice to be submitted to the same office. Notification of the facility construction completion date is necessary to ensure that the final effluent limitations contained in this permit become effective at the correct time.

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ATTACHMENT A

Precipitation Related Combined Sewer Overflow Discharge Authorization Requirements

I. Discharge Authorization

A. Combined Sewer Overflows are point sources subject to both technology-based and water quality-based requirements of the Clean Water Act and state law. The permittee is authorized to have wet weather discharges from outfall(s) listed below subject to the requirements and provisions of this permit, including Attachment A.

Outfall	Location	Receiving Water
001	At the corner of Beach Drive and Blue Water Street 40°45'14" N 86°45'21" W	Tippecanoe River
002	Bryan Mfg. Lift Station near Spencer Street 40°44'58" N 86°45'32" W	Tippecanoe River
003	At the corner of Jefferson Street and Bluff Street 40°44'33" N 86°45'37" W	Tippecanoe River
004	At the corner of Market Street And Bluff Street 40°44'29" N 86°45'37" W	Tippecanoe River
105	At the headworks of the WWTP, after fine screening; shares the WWTP effluent pipe (005) 40°44'06" N 86°45'16" W	Lake Freeman
007	Bluff Street and Washington Street 40°44'45" N 86°45'30" W	Tippecanoe River

Fact Sheet
October 2016

City of Monticello Wastewater Treatment Plant
located at 705 East Street, Monticello, Indiana, White County

Outfall Location	Latitude:	40° 44' 6" N
	Longitude:	86° 45' 16" W

NPDES Permit No. IN0020176

Background

This is the modification of the NPDES permit for the City of Monticello Wastewater Treatment Plant. The facility's current permit was effective on December 1, 2014, and has an expiration date of November 30, 2019. A request for permit modification was received from the permittee on October 3, 2016. The permittee requests a permit modification to reflect a significant upgrade to the WWTP in accordance with the permittee's Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) as explained in the below facility description:

> The permittee currently operates a Class II, 1.1 MGD conventional activated sludge treatment facility consisting of influent flow measurement, grit removal, three (3) primary settling tanks, four (4) aeration tanks, two (2) secondary clarifiers, rapid sand filters, chlorination and dechlorination facilities, and an effluent flow meter. Solids are handled through two (2) aerobic digesters and twelve (12) drying beds. The permittee is authorized to bypass the tertiary sand filters provided effluent limitations and requirements in this permit can be met. This bypassing of the tertiary sand filters will maximize the flow through the treatment facility and provide secondary treatment for higher flow volumes while minimizing Combined Sewer Overflow (CSO) discharges. The facility has one (1) bypass point (Bypass Outfall 101). The bypass point is identified in and is subject to provisions contained in Part II.B.2 of this permit. The peak design flow of the current facility is 2.4 MGD.
>
> The permittee received a Construction Approval No. L-0469 on April 14, 2015, to upgrade the existing facility from a Class II~~I~~, 1.1 MGD facility to a Class III, 1.6 MGD facility. The upgraded facility will consist of a biological nutrient removal system with (1) 30 MGD mechanical influent fine screen, one (1) bypass bar screen, two (2) vortex grit removal tanks, an anaerobic basin, two (2) staged aeration reactors, three (3) secondary clarifiers, a pre-anoxic basin for RAS denitrification, two (2) cloth media tertiary filters, two (2) ultraviolet light disinfection units, effluent flow metering, and a supplemental chemical feed system for phosphorus removal. Solids will be processed through two (2) aerobic digesters and land applied. The improvements will eliminate the existing permitted bypass of the tertiary sand filters and relocate Combined Sewer Overflow (CSO) Outfall 105 (currently located adjacent to existing screenings structure) to the new headworks facility, directly after fine screening.

Modification

The following changes have been made for the modification of the NPDES permit:

Page 1 of 52	This page has been modified to reflect the modification effective date for the permit.
Pages 2 - 5 of 52	These pages have been modified to include effluent limitations applicable to existing 1.1 MGD facility and the future expanded 1.6 MGD facility.
Page 18a of 52	This page has been modified to include a notification requirement before the new 1.6 MGD facility is complete.
Page 49 of 52	This page has been modified to reflect the slight relocation of ~~Outfal~~Outfall 105 due to the construction of the new facility.

Expiration Date

The expiration date of the permit has not changed. The permit, as modified, will expire at midnight on November 30, 2019.

Drafted by: Jason House
October 2016

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 2016 – 12B – F
DATE OF NOTICE: DECEMBER 16, 2016

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

MAJOR - MODIFICATION

MONTICELLO (town) WWTP, Permit No. IN0020176, WHITE COUNTY, 705 East St, Monticello, IN. This major municipal permit modification reflects a significant upgrade to the facility. Permit Manager: Jason House, jahouse@idem.in.gov, 317/233-0470.

Notice of Right to Administrative Review [Permits]

If you wish to challenge this Permit, you must file a Petition for Administrative Review with the Office of Environmental Adjudication (OEA), and serve a copy of the Petition upon IDEM. The requirements for filing a Petition for Administrative Review are found in IC 4-21.5-3-7, IC 13-15-6-1 and 315 IAC 1-3-2. A summary of the requirements of these laws is provided below.

A Petition for Administrative Review must be filed with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the issuance of this notice (eighteen (18) days if you received this notice by U.S. Mail), and a copy must be served upon IDEM. Addresses are:

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

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

The Petition must contain the following information:

1. The name, address and telephone number of each petitioner.
2. A description of each petitioner's interest in the Permit.
3. A statement of facts demonstrating that each petitioner is:
    a. a person to whom the order is directed;
    b. aggrieved or adversely affected by the Permit; or
    c. entitled to administrative review under any law.
4. The reasons for the request for administrative review.
5. The particular legal issues proposed for review.
6. The alleged environmental concerns or technical deficiencies of the Permit.
7. The Permit terms and conditions that the petitioner believes would be appropriate and would comply with the law.
8. The identity of any persons represented by the petitioner.
9. The identity of the person against whom administrative review is sought.
10. A copy of the Permit that is the basis of the petition.
11. A statement identifying petitioner's attorney or other representative, if any.

Failure to meet the requirements of the law with respect to a Petition for Administrative Review may result in a waiver of your right to seek administrative review of the Permit. Examples are:

1. Failure to file a Petition by the applicable deadline;
2. Failure to serve a copy of the Petition upon IDEM when it is filed; or
3. Failure to include the information required by law.

If you seek to have a Permit stayed during the Administrative Review, you may need to file a Petition for a Stay of Effectiveness. The specific requirements for such a Petition can be found in 315 IAC 1-3-2 and 315 IAC 1-3-2.1.
Pursuant to IC 4-21.5-3-17, OEA will provide all parties with Notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action. If you are entitled to Notice under IC 4-21.5-3-5(b) and would like to obtain notices of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action without intervening in the proceeding you must submit a written request to OEA at the address above.
If you have procedural or scheduling questions regarding your Petition for Administrative Review you may contact the Office of Environmental Adjudication at (317) 232-8591 or see OEA's website at http://www.in.gov/oea.

VIA ELECTRONIC MAIL August 22, 2014

The Honorable Ken Houston, Mayor
City of Monticello
225 North Main Street
Monticello, Indiana 47960

Dear Mayor Houston:

Re: Final NPDES Permit No. IN0020176
City of Monticello Wastewater Treatment Plant
White 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 Lake Freeman. 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 Jason House at 317/233-0470. 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: Joe Mowrer, Certified Operator
D. Adam Downey, Wessler Engineering
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

CITY OF MONTICELLO

hereinafter referred to as “the permittee.” The permittee owns and/or operates the **City of Monticello Wastewater Treatment Plant,** a major municipal wastewater treatment plant located at 705 East Street, Monticello, Indiana, White County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters named Lake Freeman in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. The permittee is also authorized to discharge from combined sewer overflow outfalls listed in Attachment A of this permit, to receiving waters named Lake Freeman and Tippecanoe River in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in this permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: December 1, 2014.

Expiration Date: November 30, 2019.

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 August 22, 2014, 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 II, 1.1 MGD conventional activated sludge treatment facility consisting of influent flow measurement, grit removal, three (3) primary settling tanks, four (4) aeration tanks, two (2) secondary clarifiers, rapid sand filters, chlorination and dechlorination facilities, and an effluent flow meter. Solids are handled through two (2) aerobic digesters and twelve (12) drying beds. The permittee is authorized to bypass the tertiary sand filters provided effluent limitations and requirements in this permit can be met. This bypassing of the tertiary sand filters will maximize the flow through the treatment facility and provide secondary treatment for higher flow volumes while minimizing Combined Sewer Overflow (CSO) discharges. The facility has one (1) bypass point (Bypass Outfall 101). The bypass point is identified in and is subject to provisions contained in Part II.B.2 of this permit. The collection system is comprised of combined sanitary and storm sewers with six (6) CSO locations. The CSO locations have been identified and permitted with provisions in Attachment A of the permit.

The mass limits for $CBOD_5$, TSS and Ammonia-nitrogen have been calculated utilizing the peak design flow of 2.4 MGD. This is to facilitate the maximization of flow through the treatment facility in accordance with this Office's CSO policy.

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 005, which is located at Latitude: 40° 44' 06" N, Longitude: 86° 45' 16" W. The permittee shall take samples and measurements to meet the effluent limitations and monitoring requirements at a location representative of the wastewater treatment plant effluent before it combines with discharges from CSO Outfall 105 prior to being discharged via Outfall 005. 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
$CBOD_5$	200.3	300.4	lbs/day	10	15	mg/l	5 X Weekly	24-Hr. Composite
TSS	240.3	360.5	lbs/day	12	18	mg/l	5 X Weekly	24-Hr. Composite
Ammonia-nitrogen								
Summer [2]	22.0	32.0	lbs/day	1.1	1.6	mg/l	5 X Weekly	24-Hr. Composite
Winter [3]	32.0	48.1	lbs/day	1.6	2.4	mg/l	5 X Weekly	24-Hr. Composite
Phosphorus	----	----	----	1.0	----	mg/l	5 X Weekly	24-Hr. Composite

TABLE 2

	Quality or Concentration				Monitoring Requirements	
Parameter	Daily Minimum	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
pH [4]	6.0	----	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen [5]	6.0	----	----	mg/l	5 X Weekly	4 Grabs/24-Hrs.
Total Residual Chlorine						
Final Effluent [6,7]	----	0.01	0.02	mg/l	5 X Weekly	Grab
E. coli [8]	----	125 [9]	235 [10]	cfu/100 ml	5 X Weekly	Grab

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

[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 Monthly Report of Operation 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 (*E. coli*) do not occur from April 1 through October 31, annually. If the permittee uses chlorine for any reason, at any time including the period from November 1 through March 31, then the limits and monitoring requirements in Table 2 for Total Residual Chlorine (TRC) shall be in effect whenever chlorine is used.

[7] In accordance with 327 IAC 5-2-11.1(f), compliance with this permit will be demonstrated if the measured effluent concentrations are less than the limit of quantitation (0.06 mg/l). If the measured effluent concentrations are above the water quality-based permit limitations and above the Limit of Detection (LOD) specified by the permit in any of three (3) consecutive analyses or any five (5) out of nine (9) analyses, the permittee is required to reevaluate its chlorination/dechlorination practices to make any necessary changes to assure compliance with the permit limitation for TRC. These records must be retained in accordance with the record retention requirements of Part I.B.8 of this permit.

Effluent concentrations greater than or equal to the LOD but less than the Limit of Quantitation (LOQ), shall be reported on the discharge monitoring report forms as the measured value. A note must be included with the DMR indicating that the value is not quantifiable. Effluent concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected at a concentration of 0.01 mg/l, report the value as < 0.01 mg/l. At present, two methods are considered to be acceptable to IDEM, amperometric and DPD colorimetric methods, for chlorine concentrations at the level of 0.06 mg/l.

Parameter	LOD	LOQ
Chlorine	0.02 mg/l	0.06 mg/l

Case-Specific MDL

The permittee may determine a case-specific Method Detection Level (MDL) using one of the analytical methods specified above, or any other test method which is approved by IDEM prior to use. The MDL shall be derived by the procedure specified for MDLs contained in 40 CFR Part 136, Appendix B, and the limit of quantitation shall be set equal to 3.18 times the MDL. Other methods may be used if first approved by the U.S. EPA and IDEM.

[8] The *E. coli* limitations and monitoring requirements apply from April 1 through October 31 annually. The monthly average *E. coli* value shall be calculated as a geometric mean.

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 or Colilert-18® MPN Method

[9]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.

[10]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.

2. Minimum Narrative Limitations

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.

3. Additional Discharge Limitations and Monitoring Requirements

Beginning on the effective date of the permit, the effluent from Outfall 005 shall be limited and monitored by the permittee as follows:

TABLE 3

	Quality or Concentration			**Monitoring Requirements**	
Pollutant	Monthly Average	Daily Maximum	Unit	Measurement Frequency	Sample Type
Arsenic	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Cadmium [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Copper [1]	0.021	0.048	mg/l	1 X Weekly	24 Hr. Comp.
Lead [1]	0.010	0.020	mg/l	1 X Weekly	24 Hr. Comp.
Mercury [1][2]	12	20	ng/l	6 X Annually	Grab
Molybdenum [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Nickel [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Zinc [1]	0.215	0.430	mg/l	1 X Weekly	24 Hr. Comp.

Note: For measurement frequencies less than once per month, the permittee shall report the result from the monitoring period on the Discharge Monitoring Report (DMR) for the final month of the reporting timeframe, beginning with January of each year. For example, for quarterly monitoring, the permittee may conduct sampling within the month of January, February <u>or</u> March. The result from this reporting timeframe shall be reported on the March DMR, regardless of which of the months within the quarter the sample was taken.

[1] The permittee shall measure and report this parameter as Total Recoverable Metal. Concentrations less than the Limit of Quantitation (LOQ) and greater than or equal to the Limit of Detection (LOD) shall be reported by the permittee on the discharge monitoring report forms as the actual measured value. Concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected and the LOD is 0.1 mg/l, report the value as < 0.1 mg/l.

The following EPA test methods and/or Standard Methods and associated LODs and LOQs are recommended for use in the analysis of the effluent samples. Alternative 40 CFR 136 approved methods may be used provided the LOD is less than the monthly average and/or daily maximum effluent limitations.

The permittee may determine a case-specific Method Detection Level (MDL) using one of the analytical methods specified below, or any other test method which is approved by IDEM prior to use. The MDL shall be derived by the procedure specified for MDLs contained in 40 CFR Part 136, Appendix B, and the limit of quantitation shall be set equal to 3.18 times the MDL. NOTE: The MDL for purposes of this document, is synonymous with the "limit of detection" or "LOD" as defined in 327 IAC 5-1.5-26: "the minimum concentration of a substance that can be measured and reported with ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix".

Parameter	EPA Method	LOD	LOQ
Arsenic	3113 B	1.0 ug/l	3.2 ug/l
Cadmium	3113 B	0.1 ug/l	0.32 ug/l
Copper	3113 B	1.0 ug/l	3.2 ug/l
Lead	3113 B	1.0 ug/l	3.2 ug/l
Mercury	1631, Revision E	0.2 ng/l	0.5 ng/l
Molybdenum	3113 B	1.0 ug/l	3.2 ug/l
Nickel	3113 B	1.0 ug/l	3.2 ug/l
Zinc	200.7, Revision 4.4 or 3120 B	2.0 ug/l	6.4 ug/l

[2] 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.

4. Additional Monitoring Requirements

Beginning on the effective date of this permit, the permittee shall conduct the following monitoring activities:

a. Influent Monitoring

In addition to the requirements contained in Part I.B.2 of the NPDES permit, the permittee shall monitor the influent to its wastewater treatment facility for the following pollutants. Samples shall be representative of the raw influent in accordance with 327 IAC 5-2-13(b).

TABLE 4

	Quality or Concentration			**Monitoring Requirements**	
Parameter	Monthly Average	Daily Maximum	Unit	Measurement Frequency	Sample Type
Arsenic	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Cadmium [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Copper [1]	Report	Report	mg/l	1 X Weekly	24 Hr. Comp.
Lead [1]	Report	Report	mg/l	1 X Weekly	24 Hr. Comp.
Mercury [1][2]	----	Report	ng/l	6 X Annually	Grab
Molybdenum [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Nickel [1]	Report	Report	mg/l	1 X Quarterly	24 Hr. Comp.
Zinc [1]	Report	Report	mg/l	1 X Weekly	24 Hr. Comp.

Note: For measurement frequencies less than once per month, the permittee shall report the result from the monitoring period on the Discharge Monitoring Report (DMR) for the final month of the reporting timeframe, beginning with January of each year. For example, for quarterly monitoring, the permittee may conduct sampling within the month of January, February or March. The result from this reporting timeframe shall be reported on the March DMR, regardless of which of the months within the quarter the sample was taken.

[1] The permittee shall measure and report this parameter as Total Recoverable Metal. Concentrations less than the Limit of Quantitation (LOQ) and greater than or equal to the Limit of Detection (LOD) shall be reported by the permittee on the discharge monitoring report forms as the actual measured value. Concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected and the LOD is 0.1 mg/l, report the value as < 0.1 mg/l.

[2] 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.

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 monitoring period 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 monitoring period 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. Permittees with combined sewer overflow discharges must also submit the CSO Monthly Report of Operation to IDEM by the 28th day of the month following each completed monitoring period. 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. In lieu of mailing paper reports the permittee may submit its reports to IDEM electronically by using the NetDMR application, upon registration and approval receipt. Electronically submitted reports (using NetDMR) have the same deadline as mailed reports. 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, 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.

Alternatively, a 24-hour composite sample may be obtained by an automatic sampler on an equal time interval basis over a twenty-four hour period provided that a minimum of 24 samples are taken and combined prior to analysis. The samples do not need to be flow-proportioned if the permittee collects samples in this manner.

(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
18th, 19th, or 20th 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 arsenic, cadmium, molybdenum, and/or nickel 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 include a case-specific Method Detection Level (MDL). The permittee must demonstrate that such action is warranted in accordance with the procedure specified under Appendix B, 40 CFR Part 136, or approved by the Indiana Department of Environmental Management.

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 005.

   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

      (1) 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.

(2) 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. Especially the sample taken for the repeat or confirmation test as outlined in paragraph f.3. 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. An electronic copy of the report may be submitted to wwreports@idem.IN.gov in lieu of the two copies to the Compliance Data Section.

(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. During the sampling for any confirmation tests the permittee shall also collect and preserve sufficient effluent samples for use in any Toxicity Identification Evaluation (TIE) and/or Toxicity Reduction Evaluation (TRE), if necessary. 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.

Milestone Dates: see sections a through e following for additional information on the TRE milestone dates.

Development and Submittal of TRE Plan	Within 90 days of two failed toxicity tests.
Initiate Effluent TRE	Within 30 days of TRE Plan submittal to 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 submittal of the TRE plan to 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 <u>no later than three years after the date of determination of toxicity</u>.

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 consecutive monthly tests demonstrate no toxicity, the permittee shall <u>conduct chronic tests every six months for the duration of the permit</u>. These 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. <u>Transfers</u>

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.

17. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.

b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

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 and Engineering SupportSection, 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. If a

complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the unanticipated bypass event, then that report will satisfy both the oral and written reporting requirement.

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.

g. The wastewater treatment facility has the following outfall which has been identified as a bypass, the use of which is prohibited except in compliance with the above provisions:

Outfall No.	Location	Receiving Stream
101	Prior to aeration basins recombines at secondary clarifiers Latitude: 40° 44’ 6” N Longitude: 85° 45’ 16” W	Lake Freeman via Outfall 005

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;

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;

e. Any discharge from any outfall from which discharge is explicitly prohibited by this permit as well as any discharge from any other outfall or point not listed in this permit; or

f. Violation of a maximum daily discharge limitation for any of the following toxic pollutants: copper, mercury, lead, and/or zinc.

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 MROs

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

j. Bypass/Overflow Reports

k. Anticipated Bypass/Overflow Reports

l. Streamlined Mercury Variance Annual 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

PART III

NON-DELEGATED PRETREATMENT PROGRAM REQUIREMENTS

A. DEFINITIONS

The definitions contained in 327 IAC 5-17 are incorporated herein. Such definitions include, but are not limited to, the following:

1. Control Authority ("CA")

   "Control authority" means the commissioner of the Indiana Department of Environmental Management.

2. Industrial User

   "Industrial user" means an indirect discharger.

3. Indirect Discharger

   "Indirect discharger" means a nondomestic discharger introducing pollutants into a POTW, regardless of whether the discharger is within the governmental jurisdiction of the permittee.

4. Interference

   "Interference" means a discharge that, alone or in conjunction with a discharge or discharges from other sources, does one (1) of the following:

   a. Inhibits or disrupts the POTW, its treatment processes or operations, its sludge processes, or its selected sludge use or disposal methods.

   b. Causes a violation of any requirement of the POTW's NPDES permit, including an increase in the magnitude or duration of a violation.

   c. Prevents the use of the POTW's sewage sludge or its sludge disposal method selected in compliance with the following statutory provisions, regulations, or permits issued thereunder or more stringent state or local regulations:

      (1) Section 405 of the Clean Water Act (33 U.S.C. 1345).

      (2) The Solid Waste Disposal Act (SWDA) (42 U.S.C. 6901), including:

         (A) Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA); and

(B) the rules contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA (42 U.S.C. 6941).

(3) The Clean Air Act (42 U.S.C. 7401).

(4) The Toxic Substances Control Act (15 U.S.C. 2601).

5. Pass-through

"Pass through" means a discharge proceeding through a POTW into waters of the state in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, are a cause of a violation of any requirement of the POTW's NPDES permit, including an increase in the magnitude or duration of a violation.

6. Pretreatment requirements

"Pretreatment requirements" means any substantive or procedural requirement related to pretreatment, other than a pretreatment standard, imposed on an industrial user, including applicable local limits.

7. Pretreatment standards

"Pretreatment standards" means:

a. state pretreatment standards as established in 327 IAC 5-18-8;

b. pretreatment standards for prohibited discharges, as established in 327 IAC 5-18-2; and

c. national categorical pretreatment standards incorporated by reference in 327 IAC 5-18-10.

8. Publicly Owned Treatment Works ("POTW")

"Publicly Owned Treatment Works" means a treatment works owned by the State or a municipality, except that it does not include pipes, sewers or other conveyances not connected to a facility providing treatment. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or compatible industrial wastes. The term also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW treatment plant. "POTW" also means the municipality that has jurisdiction over the indirect discharges to and the discharges from such treatment works.

9. Significant Industrial User ("SIU")

"Significant Industrial User" or "SIU" means the following:

a. Industrial users subject to categorical pretreatment standards under 327 IAC 5-18-10.

b. An industrial user that:

(1) discharges an average of twenty-five thousand (25,000) gallons per day or more of process wastewater (excluding sanitary, noncontact cooling and boiler blowdown wastewater) to the POTW;

(2) contributes a process wastestream that makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or

(3) is designated as a significant industrial user by the control authority on the basis that the industrial user has a reasonable potential to:

(A) adversely affect the POTW's operation;

(B) violate a pretreatment standard; or

(C) violate a requirement of 327 IAC 5-19-3.

c. The control authority may, on its own initiative or in response to a petition received from an industrial user or a POTW and in accordance with 327 IAC 5-19-3(6), determine that an industrial user is not a significant industrial user if it does not meet Part III.A.9.b.(3) of this permit.

B. PROGRAM DEVELOPMENT REQUIREMENTS

In accordance with 327 IAC 5-19-7, the permittee shall comply with the following pretreatment program requirements:

1. Within 30 days of the effective date of this permit, the permittee shall evaluate its sewer use ordinance to determine whether the following prohibitions, conditions, and requirements are included:

a. A user of the POTW, whether or not the user is subject to national categorical standards or state, local, or any other national pretreatment standard or requirement, shall not allow the introduction of the following into the POTW:

(1) A pollutant from any source of nondomestic wastewaters that could pass through or cause interference with the operation or performance of the POTW.

(2) A pollutant that could create a fire or explosion hazard in the POTW, including waste streams with a closed cup flashpoint of less than one hundred forty (140) degrees Fahrenheit (sixty (60) degrees Celsius) using the test methods in 40 CFR 261.21.

(3) A pollutant that could cause corrosive structural damage to the POTW, including a discharge with pH lower than five (5.0), unless the POTW is specifically designed to accommodate such a discharge.

(4) A solid or viscous pollutant in an amount that could cause obstruction to the flow in a sewer or other interference with the operation of the POTW.

(5) A pollutant, including an oxygen demanding pollutant (such as biochemical oxygen demand) released in a discharge at a flow rate or pollutant concentration that could cause interference in the POTW.

(6) Heat in an amount that could:

(A) inhibit biological activity in the POTW and result in interference or damage to the POTW; or

(B) exceed forty (40) degrees Celsius or one hundred four (104) degrees Fahrenheit at the POTW treatment plant unless the commissioner, upon request of the POTW, approves alternate temperature limits.

(7) Petroleum, oil, nonbiodegradable cutting oil, or products of mineral oil origin in an amount that could cause interference or pass through.

(8) A pollutant that could result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

(9) A trucked or hauled pollutant, except:

(A) with the permission of the POTW; and

(B) when introduced to the POTW at a discharge point designated by the POTW.

b. Specific limits on the prohibited substances listed in Part III.B.1.a above, such that the following are limited:

(1) a pollutant contributed by an industrial user that has caused or is likely to cause interference or pass through at the receiving POTW; and

(2) the recurrence of the contributed pollutant's affect on the POTW.

c. The legal authority to:

(1) develop and enforce specific limits on prohibited substances;

(2) enter the premises of any industrial user to conduct inspections, surveillance, record review, and/or monitoring, as necessary to determine compliance with the SUO and, if applicable, any effective industrial wastewater pretreatment permit;

(3) accept or deny any new or increased discharges from any indirect discharger;

(4) immediately halt or prevent any discharge of pollutants to the POTW which reasonably appears to present an imminent endangerment to the health or welfare of the public, the environment, and/or which threatens to interfere with the operation of the POTW;

(5) require compliance with all applicable pretreatment standards and requirements by indirect dischargers;

(6) Impose fees, if necessary, to offset the cost incurred by the permittee for administering the pretreatment program requirements established in Part III of this permit;

(7) Impose a fine of at least $1000 per day, per violation, in accordance with 40 CFR 403.8(f)(1)(vi)(A), but no more than $2,500 per day, per violation for a first violation nor more than $7,500 per day, per violation for subsequent violations, in accordance with IC 36-1-3-8(a)(10)(B).

2. Within 90 days of the effective date of this permit, the permittee shall submit to the IDEM Office of Water Quality Pretreatment Group, either:

a. A copy of the existing SUO, highlighting where the requirements listed in Part III.B.1 are located, and a statement certifying that the evaluation required pursuant to Part III.B.1 was conducted and that the SUO contains the requirements listed in Part III.B.1; or

b. A copy of the existing SUO, a statement certifying that the evaluation required pursuant to Part III.B.1 was conducted, a description of the requirements listed in Part III.B.1 that are not contained in the existing SUO, and proposed modifications to the SUO that will ensure that all requirements listed in Part III.B.1 are contained in the SUO.

3. In the event that proposed modifications to the SUO submitted pursuant to Part III.B.2.b of this permit are determined to be deficient by IDEM, the permittee shall, within 30 days of receipt of written notice of the deficiencies, correct the deficiencies and resubmit the proposed modifications to the SUO to IDEM.

4. The permittee shall adopt the proposed modifications to the SUO, as approved by IDEM, within 120 days of receipt of written approval by IDEM.

5. In accordance with 327 IAC 5-18-2(b), the permittee shall, in the event that proposed modifications to the SUO pertain to the development and enforcement of specific effluent limits, provide individual notice, in writing, to persons or groups that have requested to be notified and given an opportunity to comment about the development and enforcement of specific effluent limits.

6. The permittee shall provide sufficient resources and qualified personnel to implement the pretreatment program requirements contained in Part III of this permit.

7. The permittee shall submit any significant proposed program modifications to IDEM for approval. A significant modification shall include, but not be limited to, a change in the local limitations contained in the SUO or a change in the industrial survey.

C. PROGRAM IMPLEMENTATION REQUIREMENTS

1. The permittee shall implement and enforce its SUO.

2. Upon the effective date of this permit, the permittee shall implement a program of monitoring the discharge from all SIU's, in accordance with the following minimum requirements:

   a The permittee shall, no less than twice per calendar year, measure the volume of flow and sample and analyze the discharge from each SIU for all parameters contained in the industrial wastewater pretreatment (IWP) permit issued to the SIU by the CA, with the exception of Total Toxic Organics (TTOs), which shall be sampled and analyzed no less than once per calendar year.

   b. The permittee shall, for each parameter, including flow, utilize the sample type (e.g. 24- hour composite or grab) specified in the IWP permit issued by the CA.

   c. The permittee shall collect samples at the sample location specified in the IWP Permit issued by the CA.

   d. The permittee shall utilize the analytical methods contained in the IWP Permit issued by the CA.

   e. The permittee shall sample and analyze the discharge from any IU, including an SIU with an IWP permit issued by the CA, for any parameter, as necessary to:

      (1) achieve and/or maintain compliance with the requirements of this NPDES permit; and/or

      (2) determine compliance with the requirements of the permittee's SUO.

f. The permittee shall, in accordance with Part III.C.4 of this permit, record and maintain all sampling and analytical data at the permitted facility.

3. Upon the effective date of this permit, the permittee shall implement a program of inspecting all SIU's, in accordance with the following minimum requirements:

   a. The permittee shall, no less than once annually, inspect each SIU.

   b. The permittee shall, during each inspection conducted pursuant to Part III.C.3.a, evaluate areas including, but not limited to, the following:

      (1) pretreatment system(s);

      (2) spill reporting and response procedures;

      (3) sampling location; and

      (4) disposal of sludge and other wastestreams not regulated by the IWP permit issued by the CA.

   c. The permittee shall inspect any IU, including an IU with an IWP permit issued by the CA, as necessary to:

      (1) achieve and/or maintain compliance with the requirements of this NPDES permit; and/or

      (2) determine compliance with the requirements of the permittee's SUO.

   d. The permittee shall, for each inspection conducted pursuant to Part III.C.3.a, complete a report, utilizing an inspection report form that is at least equivalent to the form that is available from the IDEM Pretreatment Group.

   e. The permittee shall, in accordance with Part III.C.4 of this permit, maintain at the permitted facility, copies of all inspection reports.

4. The permittee shall establish a file for each SIU that includes, but is not necessarily limited to:

   a. A copy of the IWP permit issued by the CA;

   b. Information and data pertaining to and resulting from the sampling and analysis required pursuant to Part III.C.2 of this permit. Such information and data shall, for each sample or measurement taken, include, but not necessarily be limited to:

      (1) the date, exact place and time of sampling or measurement;

      (2) the name of the person(s) who performed the sampling or measurement;

(3) the sample type utilized;

(4) the date(s) and time(s) analyses were performed;

(5) the analytical techniques or methods used; and

(6) the results of such measurements and analyses.

c. Copies of all inspection reports required pursuant to Part III.C.3 of this permit and;

d. Copies of all documents (including correspondence and discharge monitoring reports) relating to the SIU and/or the IWP permit issued by the CA.

5. The permittee shall retain, at the wastewater treatment plant, all records required pursuant to Part III.C.4 of this permit, for a minimum of three (3) years and shall make such records available for inspection and copying by IDEM or the U.S. EPA in accordance with 327 IAC 5-16-5(d). This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the industrial user or the operation of the pretreatment program or when requested by IDEM or the U.S. EPA.

For permittee's with an existing IDEM approved, ERP, the permittee shall submit a statement certifying that the ERP contains the requirements in a-d below and the permittee is implementing the ERP as approved to the IDEM Office of Water Quality Pretreatment Group within 90 days of the effective date of this permit.

The ERP shall contain, at the minimum, the following:

a. Categories of noncompliance, including a category for noncompliance considered to be "significant noncompliance" pursuant to 327 IAC 5-17-24;

b. A description of the types of violations included within each identified category of noncompliance;

c. A narrative description of each enforcement response;

d. An enforcement response guide which discusses the policies and criteria for evaluating violations and deciding the appropriate enforcement response.

An ERP guidance document may be obtained from the IDEM Pretreatment Group.

7. In the event that the permittee is or should be aware of any activity or other circumstances, including wastewater treatment plant operational conditions, that the permittee has reason to believe may result in noncompliance with permit requirements, the permittee shall:

a. Immediately upon becoming aware of the activity or other circumstances, take all reasonable steps to cease or eliminate the activity or other circumstances;

b. Immediately upon becoming aware of the activity or other circumstances and continuing until such time as such activity or other circumstances cease or are eliminated, sample and analyze the wastewater entering the wastewater treatment plant, the wastewater from intermediate unit treatment processes, and the discharge from Outfall 001 for the pollutants identified in this NPDES permit as well as any pollutants suspected of interfering with WWTP operation;

c. Immediately upon becoming aware of the activity or other circumstances, notify the Compliance Data Section of the Office of Water Quality.

d. Immediately upon becoming aware of the activity or other circumstances, notify industrial users;

e. Immediately upon becoming aware of the activity or other circumstances, halt or prevent any trucked or hauled pollutants from being introduced into the POTW; and

f. Immediately upon becoming aware of the activity or other circumstances, halt or prevent the discharge from any indirect discharger, including any SIU, that the permittee has reason to believe may cause or contribute to interference with POTW operations or noncompliance with permit requirements.

8. The permittee shall notify the Office of Water Quality's Compliance Data Section of any violation by any indirect discharger that constitutes "significant noncompliance" pursuant to 327 IAC 5-17-24, within ten days of becoming aware of the significant noncompliance. The permittee shall provide a copy of all correspondence between any indirect discharger and the permittee to the IDEM Pretreatment Group regarding the significant noncompliance.

9. The permittee shall conduct an industrial survey at a minimum frequency of once every two (2) years. The industrial survey shall consist of, but not be limited to, requiring all industrial users (IU's), discharging wastewater other than sanitary, non-contact cooling water, boiler blowdown, or compressor condensate, to complete and return the survey form attached to this permit. The permittee shall utilize the completed survey forms to identify changes in operations and/or volume and nature of the discharge from each IU. The permittee shall include copies of the completed survey forms, along with a written description of the identified changes in operations and/or volume and nature of the discharge from each IU, with the Annual Report required pursuant to Part III.C.12.

10. The permittee shall notify the IDEM Pretreatment Group of any IU proposing a new discharge of process wastewater to the POTW that meets any of the following conditions:

a. The industrial user is subject to categorical pretreatment standards under 327 IAC 5-18-10.

b. The industrial user:

(1) proposes to discharge an average of twenty-five thousand (25,000) gallons per day or more of process wastewater (excluding sanitary, noncontact cooling and boiler blowdown wastewater) to the POTW;

(2) would contribute a process wastestream that makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or,

(3) would have a reasonable potential to:

(A) adversely affect the POTW's operation;

(B) violate a pretreatment standard; or

(C) violate a requirement of 327 IAC 5-19-3.

The permittee shall not allow the proposed discharge until the industrial user obtains authorization from IDEM, and in the event that IDEM determines that a pretreatment permit or a pretreatment permit modification is necessary, the effective date of a pretreatment permit or pretreatment permit modification issued by IDEM.

11. The permittee shall sample and analyze the POTW's final sludge during the first and third calendar quarter or the second and fourth calendar quarter of each year for the following parameters: cadmium, copper, lead, mercury, molybdenum, nickel, and zinc. The permittee shall analyze the samples using one of the following methods.

    a. EPA/600/4-91/010, "Methods for the Determination of Metals in Environmental Samples"; or

    b. SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"

    The permittee shall report the analytical results in mg/kg on a dry weight basis. The permittee shall within 30 days of obtaining the analytical results, submit a copy of the analytical results to the IDEM Pretreatment Group.

12. The permittee shall submit an annual report to the IDEM Pretreatment Group by April 1 of each year that includes:

    a A summary of the results of the industrial user survey conducted by the permittee, including a description of changes in operations of and/or discharges from each IU.

    b A copy of the completed industrial user survey forms.

    c. A summary of the compliance status of each IU for the prior calendar year;

d. A summary of the IU inspections conducted by the permittee during the prior calendar year, including a description of any deficiencies or violations found during the inspections;

e. A summary of the IU discharge monitoring conducted by the permittee during the prior calendar year, including analytical results that indicate a violation of an applicable IWP permit or the SUO;

f. A summary of enforcement activities conducted by the permittee during the prior calendar year;

g. An evaluation of the pretreatment program, including:

(1) Program effectiveness as measured by the impact of discharges from IUs on the operation/ performance of the POTW.

(2) The adequacy of the local SUO and local limits;

(3) The adequacy of resources, including personnel, training, equipment, and laboratory;

(4) The need for program modifications to improve program effectiveness.

13. The permittee shall prohibit the introduction of trucked or hauled pollutants into the POTW, except under the following conditions:

a. The permittee has provided prior written permission to the person seeking to discharge the hauled or trucked pollutants into the POTW;

b. The person seeking to discharge the hauled or trucked pollutants into the POTW possesses a valid wastewater management permit and valid vehicle licenses, as required by IDEM;

c. The pollutants are introduced into the POTW via a discharge point designated by the permittee.

14. In the event that the permittee allows the introduction of trucked or hauled pollutants under the conditions specified in item 13 above, the permittee shall:

a. Obtain and retain, for a minimum of forty-eight hours, samples that are representative of the hauled or trucked pollutants;

b. Analyze the samples obtained pursuant to item “a” above in the event that the permittee believes or has reason to believe that the hauled or trucked pollutants may be causing and/or contributing to pass-through and/or interference;

c. Maintain records, for each discharge of trucked or hauled pollutants into the POTW, of the following:

(1) Name of the person discharging the trucked or hauled pollutants;

(2) Wastewater management permit number (if applicable) and vehicle license number and expiration date;

(3) Origination, volume, and nature of the trucked or hauled pollutants;

(4) Date and time of the discharge;

(5) Any sampling conducted;

(6) Analytical Results, if any.

NOTE: A summary of the revisions to the General Pretreatment Regulations (40 CFR 403), along with other pretreatment regulations, are available at the EPA website. http://www.epa.gov/lawsregs/search/40cfr.html

ATTACHMENT A

Precipitation Related Combined Sewer Overflow Discharge Authorization Requirements

I. Discharge Authorization

A. Combined Sewer Overflows are point sources subject to both technology-based and water quality-based requirements of the Clean Water Act and state law. The permittee is authorized to have wet weather discharges from outfall(s) listed below subject to the requirements and provisions of this permit, including Attachment A.

Outfall	Location	Receiving Water
001	At the corner of Beach Drive and Blue Water Street 40°45'14" N 86°45'21" W	Tippecanoe River
002	Bryan Mfg. Lift Station near Spencer Street 40°44'58" N 86°45'32" W	Tippecanoe River
003	At the corner of Jefferson Street and Bluff Street 40°44'33" N 86°45'37" W	Tippecanoe River
004	At the corner of Market Street And Bluff Street 40°44'29" N 86°45'37" W	Tippecanoe River
105	Before the headworks at the WWTP; shares the WWTP Effluent pipe (005) 40°44'06" N 86°45'16" W	Lake Freeman
007	Bluff Street and Washington Street 40°44'45" N 86°45'30" W	Tippecanoe River

B. At all times the discharge from any and all CSO outfalls herein shall not cause receiving waters:

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

   a. that will settle to form putrescent or otherwise objectionable deposits;
   b. that are in amounts sufficient to be unsightly or deleterious;
   c. that produce color, visible oil sheen, odor, or other conditions in such a degree as to create a nuisance;
   d. which are in amounts sufficient to be acutely toxic to, or otherwise severely injure or kill aquatic life, other animals, plants, or humans;
   e. 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.

2. 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.

C. Dry weather discharges from any portion of the sewer collection system, except WWTP outfall No. 005, are prohibited. If such a prohibited discharge should occur, the permittee is required to report the discharge in accordance with the provisions in Part II.C.3 of this permit.

II. Monitoring and Reporting Requirements

The permittee shall complete and submit accurate monitoring reports to the Indiana Department of Environmental Management. The permittee shall submit data specified on the CSO Monthly Report of Operation (MRO) for untreated CSO events (State Form 50546 (R3/7-13)), including but not limited to, WWTP data, precipitation data, and performance data for all discharges from untreated CSO Outfalls identified in Part I of this Attachment A. Submitted CSO MROs shall contain results obtained during each month (a monitoring period) and shall be postmarked no later than 28 days following each completed monitoring period.

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. In lieu of mailing paper reports the permittee may submit its reports to IDEM electronically by using the NetDMR application, upon registration and approval receipt. Electronically submitted reports (using NetDMR) have the same deadline as mailed reports.

III. CSO Operational Plan

A. The permittee shall comply with the following minimum technology-based controls, in accordance with EPA's National CSO Control Policy:

1. The permittee shall implement proper operation and regular maintenance programs for the sewer system and the CSOs. The purpose of the operation and maintenance programs is to reduce the magnitude, frequency and duration of CSOs. The programs shall consider regular sewer inspections; sewer, catch basin, and regulator cleaning; equipment and sewer collection system repair or replacement, where necessary; and disconnection of illegal connections.
2. The permittee shall implement procedures that will maximize the use of collection system for wastewater storage that can be accommodated by the storage capacity of the collection system in order to reduce the magnitude, frequency and duration of CSOs.
3. The permittee shall review and modify, as appropriate, its existing pretreatment program to minimize CSO impacts from non-domestic users. The permittee shall identify all industrial users that discharge to the collection system upstream of any CSO outfalls; this identification shall also include the pollutants in the industrial user's wastewater and the specific CSO outfall(s) that are likely to discharge the wastewater.
4. The permittee shall operate the POTW at the maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency and duration of CSOs. The permittee shall deliver all flows to the treatment plant within the constraints of the treatment capacity of the POTW.
5. Dry weather overflows from CSO outfalls are prohibited. Each dry weather overflow must be reported to IDEM as soon as the permittee becomes aware of the overflow. When the permittee detects a dry weather overflow, it shall begin corrective action immediately. The permittee shall inspect the dry weather overflow each subsequent day until the overflow has been eliminated.
6. The permittee shall implement measures to control solid and floatable materials in CSO discharges.
7. The permittee shall implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters.
8. The permittee shall implement a public notification process to inform citizens of when and where CSO discharges occur and their impacts. This notification must also be done in accordance with 327 IAC 5-2.1.
9. The permittee shall monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

B. The permittee's implementation of each of the minimum controls in Part III.A of this Attachment A shall be documented in its approved CSO Operational Plan (CSOOP). The permittee shall update the CSOOP, as necessary, to reflect changes in its operation or maintenance practices; changes to measures taken to implement the above minimum requirements; and changes to the treatment plant or collection system, including changes in collection system flow characteristics, collection system or WWTP capacity or discharge characteristics (including volume, duration, frequency and pollutant concentration). All updates to the CSOOP must be submitted to IDEM, Office of Water Quality, Municipal NPDES Permits Section for approval.

The CSOOP update(s) shall include a summary of the proposed revisions to the CSOOP as well as a reference to the page(s) that have been modified. Any CSOOP updates shall not result in:

1. a lower amount of flow being sent to and through the plant for treatment, or
2. more discharges (measured either by volume, duration, frequency, or pollutant concentration) occurring from the CSO outfalls.

The permittee shall maintain a current CSO Operational Plan, including all approved updates, on file at the POTW.

IV. Sewer Use Ordinance Review/Revision and Enforcement

The permittee's Sewer Use Ordinance must contain provisions which: (1) prohibit introduction of inflow sources to any sanitary sewer; (2) prohibit construction of new combined sewers outside of the existing combined sewer service area; and (3) provide that for any new building the inflow/clear water connection to a combined sewer shall be made separate and distinct from sanitary waste connection to facilitate disconnection of the former if a separate storm sewer subsequently becomes available. The permittee shall continuously enforce these provisions.

V. Reopening Clauses

A. This permit may be reopened to address changes in the EPA National CSO Policy or state or federal law.
B. The permit may be reopened, after public notice and opportunity for hearing, to incorporate applicable provisions of IC 13-18.

Fact Sheet
June 2014

City of Monticello Wastewater Treatment Plant
located at 705 East Street, Monticello, Indiana, White County

Outfall Location	Latitude:	40° 44' 06" N
	Longitude:	86° 45' 16" W

NPDES Permit No. IN0020176

Background

This is the proposed renewal of the NPDES permit for the City of Monticello Wastewater Treatment Plant which was issued on October 20, 2009, and has an expiration date of November 30, 2014. The permittee submitted an application for renewal which was received on May 23, 2014. The permittee plans on upgrading the WWTP; however, no Construction Approvals have been obtained. Therefore, no reference to the proposed upgrades are included in the permit renewal.

The permittee currently operates a Class II, 1.1 MGD conventional activated sludge treatment facility consisting of influent flow measurement, grit removal, three (3) primary settling tanks, four (4) aeration tanks, two (2) secondary clarifiers, rapid sand filters, chlorination and dechlorination facilities, and an effluent flow meter. Solids are handled through two (2) aerobic digesters and twelve (12) drying beds. The permittee is authorized to bypass the tertiary sand filters provided effluent limitations and requirements in this permit can be met. This bypassing of the tertiary sand filters will maximize the flow through the treatment facility and provide secondary treatment for higher flow volumes while minimizing Combined Sewer Overflow (CSO) discharges.

Collection System

The collection system is comprised of combined sanitary and storm sewers with six (6) CSO locations. The CSO locations have been identified and permitted with provisions in Attachment A of the permit. The facility has one (1) bypass point (Bypass Outfall 101). The bypass point is identified in and is subject to provisions contained in Part II.B.2 of the permit.

CSO Statutory or Regulatory Basis for Permit Provisions

CSOs are point sources subject to NPDES permit requirements, including both technology-based and water quality-based requirements of the CWA and state law. Thus the permit contains provisions IDEM deems necessary to meet water quality standards, as well as technology-based treatment requirements, operation and maintenance requirements, and best management practices. This permit is based on various provisions of state and federal law, including (1) Title 13 of the Indiana Code; (2) the water quality standards set forth in 327 IAC 2-1.5; (3) the NPDES rules set forth in 327 IAC 2 and 327 IAC 5, including 327 IAC 5-2-8 and 327 IAC 5-2-10; and (4) section 402(q) of the CWA (33 USC § 1342), which requires all permits or orders issued for discharges from municipal CSOs to conform with the provisions of EPA's National CSO Control Policy (58 Fed. Reg. 18688, April 19, 1994). EPA's CSO Policy contains provisions that, among other things, require permittees to develop and implement minimum technological and operational controls and long term control plans to meet state water quality standards. The permit's penalty provisions are based in large part on IC 13-30. In addition to the regulatory provisions previously cited, the data collection and reporting requirements are based in part on 327 IAC 5-1-3, 327 IAC 5-2-13 and section 402(q) of the CWA. The Long Term Control Plan (LTCP) provisions were included to ensure compliance with water quality standards.

Explanation of Effluent Limitations and Conditions

The effluent limitations set forth in Part I of Attachment A are derived in part from the narrative water quality standards set forth in 327 IAC 2-1-6. The narrative standards are minimum standards that apply to all waters at all times, and therefore are applicable to all discharges of pollutants. Because EPA has not issued national effluent limitation guidelines for this category of discharges, the technology-based BAT/BCT provisions are based on best professional judgment (BPJ) in addition to section 402(q) of the CWA. (CSO discharges are not subject to the secondary treatment requirements applicable to publicly owned treatment works because overflow points have been determined to not be part of the treatment plant. Montgomery Environmental Coalition v. Costle, 646 F.2d 568 (D.C. Cir. 1980).)

CSO Long Term Control Plan Requirements

The permittee must implement their approved LTCP consistent with the approved implementation schedule and consistent with the terms and conditions of Agreed Order (AO) Case No. 2008-18083-W. A detailed scope of approved LTCP projects are listed below. These projects are incorporated as an enforceable part of Agreed Order Case No. 2008-18083-W.

The approved LTCP alternative includes the following 5 projects:

Project 1	National Homes storm sewer construction (Subsystem 8).
Project 2	Lift Station 02 upgrade, new lift station force main, Maple Street relief sewer and CSO diversion structure modifications.
Project 3	Waste Water Treatment Plant expansion.
Project 4	Subsystems 1 & 3 sewer separation.
Project 5	Construction of a Wet-Weather Treatment Facility.

The LTCP proposes to fully construct these projects within 20 years of IDEM approval. The estimated total capital cost for implementing the proposed plan is $14,850,000. During the planning portion of each project, green infrastructure opportunities will be evaluated for possible inclusion in that project.

The City has 6 CSO Outfalls that discharge to the Tippecanoe River and headwaters of Lake Freeman in White County. Upon completion of the 5 projects outlined above, the City's LTCP proposes the following level of control:

- Wet-weather flows from up to the 1-year, 1-hour storm (1.14 inches of rain in 1 hour) will receive full treatment at the WWTP – no CSO discharges system-wide.
- Wet-weather flows from greater than the 1-year, 1-hour storm will receive a minimum of primary treatment and disinfection at a new wet-weather treatment facility prior to discharge.
- There will be no untreated CSO discharges caused by wet-weather flows less than the 10-year, 1-hour storm (1.98 inches of rain in 1 hour).
- Flows from greater than the 10-year, 1-hour storm will receive treatment to the greatest extent possible.

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.

Receiving Stream

The facility discharges to Lake Freeman via Outfall 005. 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.

Industrial Contributions

The permittee accepts industrial flow from Ball Metal Beverage Container . Based on this industrial contribution, Non-delegated Pretreatment Program Requirements have been retained in Part III of the permit. In addition, monitoring requirements and/or effluent limitations for arsenic, cadmium, copper, lead, molybdenum, mercury, nickel and zinc are being included in the permit renewal. Additionally, Whole Effluent Toxicity Testing has been retained in the permit.

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. The permittee maintains a land application permit (INLA000174) for the disposal of solids.

Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation Procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to the designated use are achieved in the water and any designated use of the downstream water is maintained and protected.

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1-6. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2 antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6.

According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act, including a change in process or operation that will result in a significant lowering of water quality.

This permit includes new permit limitations for lead and zinc. In accordance with 327 IAC 2-1.3-1(b), the new permit limitations are not subject to the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 as the new permit limitations are not the result of a deliberate activity taken by the permittee.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, 327 IAC 5-10-4, and Wasteload Allocation (WLA) analyses performed by this Office's Permits Branch staff on March 4, 2004, August 6, 2009, and June 4, 2014. 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 parameters to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), Ammonia-nitrogen (NH_3-N), Phosphorus, pH, Dissolved Oxygen (DO), Total Residual Chlorine (TRC), *Escherichia coli* (*E. coli)*, Whole Effluent Toxicity, arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, and zinc.

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 have been calculated utilizing the peak design flow of 2.4 MGD. This is to facilitate the maximization of flow through the treatment facility in accordance with this Office's CSO policy.

Influent Monitoring

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 and Part I.B.2 of the permit. 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 the permit.

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 10 mg/l (200.3 lbs/day) as a monthly average and 15 mg/l (300.4 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 March 4, 2004, which cites 327 IAC 5-10-4, and are the same as the concentration limitations found in the facility's previous permit.

TSS

TSS is limited to 12 mg/l (240.3 lbs/day) as a monthly average and 18 mg/l (360.5 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 327 IAC 5-10-4, and are the same as the concentration limitations found in the facility's previous permit.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.1 mg/l (22.0 lbs/day) as a monthly average and 1.6 mg/l (32.0 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 1.6 mg/l (32.0 lbs/day) as a monthly average and 2.4 mg/l (48.1 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 327 IAC 5-10-4, and are the same as the concentration limitations found in the facility's previous permit.

Phosphorus

In accordance with 327 IAC 5-10-4(a)(4), as the treatment facility discharges to Lake Freeman, phosphorus removal facilities shall produce an effluent containing no more than 1.0 mg/l total phosphorus (P). Monitoring is to be conducted five (5) times weekly by grab sampling. Previous NPDES permits incorrectly cited 327 5-10-2(b) which includes a phosphorus removal sliding scale for facilities that discharge is greater than 2 miles away from a lake. The sliding scale has been removed from the permit and replaced by the correct requirement from 327 IAC 5-10-4 for a direct discharge to a lake.

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.

This dissolved oxygen limitation is based 327 IAC 5-10-4, and are the same as the concentration limitations found in the facility's previous permit. 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.

Total Residual Chlorine

Disinfection of the effluent is required from April 1 through October 31, annually.

Effluent dechlorination will be required in order to protect aquatic life. In accordance with Indiana Water Quality Standards, the final effluent limits (end-of-pipe) for TRC are 0.01 mg/l monthly average and 0.02 mg/l daily maximum. Compliance will be demonstrated if the observed effluent concentrations are less than the limit of quantitation (0.06 mg/l). Disinfection requirements are established in 327 IAC 5-10-6. This monitoring is to be conducted five (5) times weekly by grab sampling.

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.

Metals/Non-conventional Pollutants

Effluent metals/toxics data was evaluated as part of the NPDES permit renewal. The evaluation of the monitoring data revealed that the discharge from the wastewater treatment plant did not show potential to exceed the water quality criterion for arsenic, cadmium, molybdenum, and nickel within the receiving waters. Therefore, effluent limitations have not been included in the permit renewal for these parameters. However, monitoring of these parameters are required at the reduced frequency of one (1) time quarterly in both the wastewater influent and effluent. Please refer to Tables 3 and 4 of the permit.

Reasonable Potential Evaluations (RPE) were performed in conjunction with the Wasteload Allocation Analysis performed by this Office's Permits Branch staff on June 4, 2014. The RPE revealed that the projected effluent quality (PEQ) for copper, lead, mercury, and zinc was greater than the projected effluent limitations (PELs). Therefore, effluent limitations for these parameters are included in this permit.

Copper is limited to 0.021 mg/l as a monthly average and 0.048 mg/l as a daily maximum. This monitoring is to be conducted weekly by 24-Hr. composite sampling. These limitations are retained in the permit in accordance with 327 IAC 5-2-10(11).

Lead is limited to 0.010 mg/l as a monthly average and 0.020 as a daily maximum. This monitoring is to be conducted weekly by 24-Hr. composite sampling. These limitations are in accordance with the RPE conducted on June 4, 2014, and are new permit limitations of the permit renewal.

Mercury is limited to 12 ng/l as a monthly average and 20 ng/l as a daily maximum. This monitoring is to be conducted six (6) times annually by grab sampling. The mercury WQBELs are based on the surface water quality criteria of 327 IAC 2-1-6(a)(3), Table 6-1. In accordance with 327 IAC 5-2-11.1(b)(6), the criteria for mercury are applied to the undiluted discharge. These are the same limitations contained in the previous permit.

Zinc is limited to 0.215 mg/l as a monthly average and 0.430 mg/l as a daily maximum. This monitoring is to be conducted weekly by 24-Hr. composite sampling. These limitations are in accordance with the RPE conducted on June 4, 2014, and are new permit limitations of the permit renewal.

In addition to effluent monitoring and limitations, the permittee is required to monitor the influent wastestream for copper, lead, mercury, and zinc at the same frequency as the effluent monitoring frequency. Please refer to Table 4 of the permit.

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 005. 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.

Reopening Clauses

Six 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 incorporate monitoring requirements and effluent limitations for arsenic, cadmium, molybdenum, and/or nickel; a fifth clause is to include whole effluent toxicity limitations or to include limitations for specific toxicants; and a sixth clause is to include a case-specific Method Detection Level (MDL).

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.

Compliance Status

The permittee entered into an Agreed Order (Order No. 2008-18083-W) with this Office on October 3, 2008. The Agreed Order contains requirements for the permittee to develop and implement a Long Term Control Plan for its combined sewer overflow system.

Expiration Date

A five-year NPDES permit is proposed.

Drafted by: Jason House
June 2014

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 2014 – 8C – F
DATE OF NOTICE: AUGUST 22, 2014

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

MAJOR - RENEWAL

MONTICELLO (city) WWTP, Permit No. IN0020176, WHITE COUNTY, 705 East St, Monticello, IN. This municipal facility discharges 1.1 million gallons daily of sanitary, industrial & combined sewer wastewater into Lake Freeman. Permit Manager: Jason House at 317-233-0470, jahouse@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.** See these sites for your rights & responsibilities: Public Participation: http://www.in.gov/idem/5474.htm; Citizen Guide: http://www.in.gov/idem/5903.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.

Appendix B

Agreed Order Case No. 2008-18083-W

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

STATE OF INDIANA) BEFORE THE INDIANA DEPARTMENT OF
) SS: ENVIRONMENTAL MANAGEMENT
COUNTY OF MARION)

COMMISSIONER OF THE DEPARTMENT)
OF ENVIRONMENTAL MANAGEMENT,)
)
Complainant,)
)
v.) Case No. 2008-18083-W
)
CITY OF MONTICELLO)
)
Respondent.)

AGREED ORDER

Complainant, Commissioner of the Indiana Department of Environmental Management ("IDEM"), and Respondent, City of Monticello (hereinafter referred to as the "City") desire to settle and compromise this action without hearing or adjudication of any issue of fact or law, and consent to the entry of the following Findings of Fact and Order. Pursuant to Indiana Code ("IC") 13-30-3-3, entry into the terms of this Agreed Order does not constitute an admission of any violation contained herein. The City's entry into this Agreed Order shall not constitute a waiver of any defense, legal or equitable, which the City may have in any future administrative or judicial proceeding, except a proceeding to enforce this Order.

I. FINDINGS OF FACT

1. IDEM is a department of the State of Indiana created by IC 13-13-1-1.

2. The City of Monticello owns and operates a wastewater collection system comprised of combined and sanitary sewers, which includes six (6) combined sewer overflow ("CSO") outfalls, and the Monticello wastewater treatment plant located at 705 East Street, in the City of Monticello, White County, Indiana. The City is authorized by National Pollutant Discharge Elimination System Permit No. IN0020176 (the "Permit"), to discharge wastewater to the receiving waters named Lake Freeman in accordance with effluent limitations, monitoring requirements, and other conditions contained in the Permit.

3. IDEM has jurisdiction over the parties and subject matter of this action.

4. Pursuant to 327 Indiana Administrative Code ("IAC") 5-2-8(1) and Part II.A.1 of the Permit, the City shall comply with all terms and conditions of its permit.

5. Pursuant to Attachment A, Part I.C. of the Permit, Part I.A.2 of the Permit and, 327 IAC 2-1-6(a)(1), all waters at all times and at all places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges:

   A) that will settle to form putrescent or otherwise objectionable deposits;
   B) that are in amounts sufficient to be unsightly or deleterious;
   C) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;
   D) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants or humans; and
   E) 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.

6. Pursuant to IC 13-18-4-5, it is unlawful for any person to throw, run, drain, or otherwise dispose into any of the streams or waters of Indiana; or cause, permit, or suffer to be thrown, run, drained, allowed to seep, or otherwise disposed into any waters; any organic or inorganic matter that causes or contributes to a polluted condition of any waters, as determined by a rule of the board adopted under IC 13-18-4-1 and IC 13-18-4-3.

7. Pursuant to IC 13-30-2-1, a person may not discharge, emit, cause, allow, or threaten to discharge, emit, cause, or allow any contaminant or waste including any noxious odor, either alone or in combination with contaminants from other sources, into the environment in any form which causes or would cause pollution which violates rules, standards, or discharge or emission requirements adopted by the appropriate board under the environmental management laws.

8. Part I.A of Attachment A of the Permit identifies six (6) CSO outfalls in the City's sewage collection system, identified as Outfall Nos. 001, 002, 003, 004, 105 and 007.

9. IDEM records for the last three (3) years indicate that the City has reported discharges from CSO Outfalls listed in the Permit. Such discharges were not provided with treatment, and therefore violated or threatened to violate the narrative effluent limitations contained in Part I.C of Attachment A of the Permit and Part I.A.2 of the Permit. Accordingly, such discharges are in violation of Part I.C of Attachment A, Part I.A.2, and Part II.A.1 of the Permit, as well as 327 IAC 5-2-8(1), 327 IAC 2-1-6(a)(1), and thus also violated IC 13-18-4-5 and IC 13-30-2-1.

10. Pursuant to Part VI of Attachment A of the Permit, the City was required to submit to IDEM a CSO Long-Term Control Plan ("LTCP") that contains, among other elements, the following:

a. a description of the control/treatment measures that will be implemented by the City in order to ensure that discharges from its CSO outfalls comply with the water quality based and technology based requirements of the Clean Water Act (CWA) and state law, along with a schedule, that includes specific milestone dates, for implementation of the control/treatment measures; and

b. a description of the post construction compliance monitoring program that will be implemented by the City in order to determine whether the control/treatment measures, upon implementation, are adequate to ensure compliance with the water quality based and technology based requirements of the CWA and state law, along with a schedule, that includes specific milestone dates for implementation of the post construction compliance monitoring program.

11. The City submitted a LTCP to IDEM that contains the elements specified in the Findings of Fact paragraphs 10.a. and 10.b. above.

12. The City waives issuance of a Notice of Violation and to the settlement period of sixty (60) days as provided for by IC 13-30-3-3.

13. In recognition of the settlement reached, the City waives any right to administrative and judicial review of this Agreed Order.

II. ORDER

1. This Agreed Order shall be effective (Effective Date) when it is approved by Complainant or his delegate, and has been received by the City. This Agreed Order shall have no force or effect until the Effective Date.

2. The City shall comply with 327 IAC 5-2-8(1), 327 IAC 2-1-6(a)(1), IC 13-18-4-5, IC 13-30-2-1, and Part II.A.1, Part I.C of Attachment A, and Part I.A.2 of the Permit.

3. Beginning on the Effective Date, and continuing during implementation of the LTCP pursuant to this Agreed Order, the City shall, at all times, operate its sewage collection system and wastewater treatment system as efficiently and effectively as possible.

REVISION OF LONG TERM CONTROL PLAN

4. The City shall revise and implement the LTCP. The LTCP shall provide for the construction and implementation of all facility and sewer system improvements and other measures necessary to ensure that CSO discharges from all CSO outfalls comply with the technology based and water quality based requirements of the CWA, state law and regulation, and the City's Permit.

5. The City shall revise the LTCP in accordance with the schedule set forth in Attachment 1, which is a Work Plan prepared by the City and approved by IDEM. The Work Plan describes plans and schedules for revising and submitting for

approval and implementation a LTCP. The City may seek to amend or revise the Work Plan in accordance with applicable laws, rules, policy and this Agreed Order. Upon the City's receipt of IDEM's approval of any amendment or revision to the Work Plan, the revised Work Plan (including any additional post-construction monitoring and modeling) shall supersede the schedule contained in Attachment 1, any previously revised Work Plan, or any previously-approved extension of deadlines, and the City shall implement the revised Work Plan (including any additional post-construction monitoring and modeling) in accordance with the schedule in the approved revised Work Plan.

COMPLIANCE AND IMPLEMENTATION OF THE APPROVED LONG TERM CONTROL PLAN

6. Upon approval by IDEM, the City shall implement the LTCP, in accordance with the implementation schedule specified in the approved LTCP. In the event that the implementation schedule determined by the approved LTCP is before October 31, 2030, the date in the approved LTCP shall apply.

7. Upon the City's receipt of IDEM's approval of the revised LTCP (which will become the approved LTCP), the schedule contained in the approved LTCP shall supersede the schedule contained in Attachment 1, any then applicable revised schedule contained in any subsequently approved revised Work Plan, and/or any previously approved extension of deadlines.

8. The City may seek to amend or revise the approved LTCP in accordance with applicable laws, rules, policy and this Agreed Order. Upon the City's receipt of IDEM's approval of any amendment or revision to the LTCP, the revised LTCP (including any additional post-construction monitoring and modeling) shall supersede the schedule contained in any previously approved LTCP or revised LTCP, or any previously-approved extension of deadlines, and the City shall implement the revised LTCP (including any additional post-construction monitoring and modeling) in accordance with the schedule in the approved revised LTCP.

IDEM APPROVAL OF SUBMISSIONS

9. The City shall notify IDEM, in writing, within thirty (30) days of completion of each action or milestone contained in the Schedule in Attachment 1 or any subsequent schedule that supersedes the schedule in Attachment 1 and any task or plan accepted or approved by IDEM pursuant to this Agreed Order unless such accepted or approved schedule, task, or plan contains a different time period for the City to notify IDEM of the completion of actions or milestones in which case such different time period shall apply. The notification shall include a description of the action completed and the date it was completed, and a progress report that contains a summary of the activities undertaken to complete the task. The City shall adequately address any IDEM comments regarding the report, within the timeframe identified by IDEM unless the City notifies IDEM in writing no later than five (5) days prior to the conclusion of the timeframe identified by IDEM that such timeframe is insufficient. Following such notification by the City, the

Parties shall mutually agree upon an alternate timeframe for the City to address IDEM's comments. It is understood that failure by IDEM to review submissions required by this Agreed Order in a timely fashion shall automatically extend timeframes for the Work Plan elements in Attachment 1 or any subsequently approved revision(s) of the Work Plan and shall not result in the imposition of penalties or interest associated with the original deadlines that are automatically extended.

10. In the event that the City is unable to complete a task as specified in the Work Plan, the City shall notify IDEM in writing no later than fourteen (14) days prior to the task deadline. This notification shall include a description of the task, justification for why the deadline will be missed and a Task Compliance Plan ("Task CP") that includes a new deadline.

11. The City, upon receipt of written notification from IDEM of acceptance or approval of the Task CP, shall immediately implement the accepted or approved Task CP and adhere to the schedules contained therein. The accepted or approved Task CP shall be incorporated into this Agreed Order and shall be deemed an enforceable part thereof.

12. Within sixty (60) days after completion of each post-construction monitoring phase of the approved LTCP, the City shall submit to IDEM, for review and approval, a report that contains a summary of the data gathered as a result of the post-construction compliance monitoring and an evaluation of the success of the phase in meeting the goals of the approved LTCP. The City shall adequately address any IDEM comments regarding the report, within the timeframe identified by IDEM unless the City notifies IDEM in writing no later than five (5) days prior to the conclusion of the timeframe identified by IDEM that such timeframe is insufficient. Following such notification by the City, the Parties shall mutually agree upon an alternate timeframe for the City to address IDEM's comments.

13. Upon full implementation of the approved LTCP projects, in the event that data resulting from CSO monitoring or other information indicates that the approved LTCP is not adequate to ensure compliance with the technological and water quality based requirements of the CWA, the City shall, within ninety (90) days of becoming aware of such inadequacy, develop and submit to IDEM, for approval, a CSO Compliance Plan ("CSO CP") that identifies (a) additional measures that will be implemented by the City; and (b) the post-construction compliance monitoring program that will be implemented by the City in order to determine whether the additional measures, upon implementation, are adequate, along with a schedule, that includes specific milestone dates.

14. The CSO CP is subject to IDEM approval. Following receipt of the CSO CP, IDEM may, in writing (a) approve all of or any portion of the CSO CP; (b) approve all or a portion of the CSO CP upon specified conditions; (c) disapprove of all or any portion of the CSO CP, notifying the City of deficiencies in the CP and granting the City additional time, as mutually agreed to by the Parties, within which to correct the deficiencies; (d) modify the submission to correct deficiencies; or (e) reject all or any portion of the CP.

15. The City, upon receipt of written notification from IDEM of approval of the CSO CP, shall immediately implement the approved CSO CP and adhere to the schedules contained therein. The schedule contained in the approved CSO CP shall supersede the portion(s) of any schedules contained in the approved LTCP that address the same issues as are addressed in the approved CSO CP. The approved CSO CP shall be incorporated into this Agreed Order and shall be deemed an enforceable part thereof.

16. In the event that a Use Attainability Analysis ("UAA") is denied, the City shall, within ninety (90) days, develop and submit to IDEM, for approval, a CSO CP as stated above in Paragraphs 13, 14, and 15.

17. The provisions of Order Paragraphs 13, 14, and 15 shall continue to apply until post-construction monitoring indicates to IDEM that water quality standards are being met.

COMMUNICATIONS

18. All submittals required by this Agreed Order, unless notified otherwise in writing, shall be sent to:

Cyndi Wagner, Chief, Wet Weather Section
Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

STIPULATED PENALTIES

19. In the event the terms and conditions of the following paragraphs are violated, IDEM may assess and the City shall pay a stipulated penalty in the following amount:

Paragraph	**Violation**	**Stipulated Penalty**
5	Failure to revise the LTCP and adhere to the milestone dates set forth in the schedule in Attachment 1.	$500 per week late, or part thereof.
6	Failure to implement the LTCP and adhere to the milestone dates set forth in the schedule in the approved LTCP.	$500 per week late, or part thereof.
9	Failure to notify IDEM, in writing, within 30 days of completion of each action contained in the LTCP and any plan approved by IDEM pursuant to this Agreed Order.	$250 per week late, or part thereof.

9	Failure to timely submit report.	$500 per week late, or part thereof.
9	Failure to timely address any IDEM comments within the timeframe set by IDEM.	$500 per week late, or part thereof.
13	Failure to timely submit a complete and sufficient CSO CP.	$500 per week late, or part thereof.
14	Failure to timely revise and resubmit the CSO CP in accordance with written notice by IDEM.	$500 per week late, or part thereof.
15	Failure to comply with any milestone date contained in the schedule set forth in the approved CSO CP.	$500 per week late, or part thereof.
16	Failure to develop and submit to IDEM a CSO CP in the event that a UAA is denied.	$500 per week late, or part thereof.

20. Stipulated penalties shall be due and payable within thirty (30) days after the City receives written notice that IDEM has determined a stipulated penalty is due. Assessment and payment of stipulated penalties shall not preclude IDEM from seeking any additional relief against the City for violation of this Agreed Order. In lieu of any of the stipulated penalties set out above, IDEM may seek any other remedies or sanctions available by virtue of the City's violation of this Agreed Order, or Indiana law, including but not limited to, civil penalties pursuant to IC 13-30-4.

21. Stipulated penalties are payable by check to the Environmental Management Special Fund. Checks shall include the Case Number of this action and shall be mailed to:

Indiana Department of Environmental Management
Cashier – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

22. In the event that any stipulated amount assessed pursuant to Paragraph Nos.19 and 20 is not paid within thirty (30) days of notice that it is due, the City shall pay interest on the unpaid balance at the rate established by IC 24-4.6-1-101. The interest shall continue to accrue until the stipulated penalty is paid in full.

FORCE MAJEURE

23 "Force Majeure" for purposes of this Agreed Order, is defined as any event arising from causes totally beyond the control and without fault of the City that delays or prevents the performance of any obligation under this Agreed Order despite the City's best efforts to fulfill the obligation. The requirement that the City exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent possible.

"Force Majeure" does not include changed business or economic conditions, financial inability to complete the work required by this Agreed Order, or increases in costs to perform the work.

24. The City shall notify IDEM by calling the case manager within three (3) calendar days and by writing no later than seven (7) calendar days after it has knowledge of any event which the City contends is a force majeure. Such notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken or to be taken by the City to minimize the delay, and the timetable by which these measures will be implemented. The City shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude the City from asserting any claim of force majeure for that event. The City shall have the burden of demonstrating that the event is a force majeure. The decision of whether an event is a force majeure shall be made by IDEM.

25. IDEM agrees that, if a delay is attributable to a force majeure, IDEM shall extend, in writing, the time period for performance under this Agreed Order, by the amount of time that is directly attributable to the event constituting the force majeure.

CERTIFICATION

26. Any report, plan, or other submission that the City is required by this Agreed Order to submit, including reports, plans or other submissions that the City is also required to submit by its Permit, shall be signed by an official or authorized agent of the City and shall include the following certification:

I certify under penalty of law that the document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated 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.

GENERAL PROVISIONS

27. If at any time a dispute arises, the parties agree to enter into informal negotiations. If the informal negotiations are unsuccessful, the City may submit a letter to IDEM stating that the parties are unable to reach an agreement; therefore, IDEM should seek civil enforcement of this Agreed Order so that the issues may be presented to a court.

28. In the event that informal negotiations are unsuccessful and the City requests civil enforcement, payment of any stipulated penalties, and any accrued interest, assessed in relation to the issues in dispute shall be stayed pending resolution of the dispute. If IDEM prevails in whole or in part, the City shall pay all accrued penalties (and interest) determined to be owed related to the issue(s) on which IDEM prevailed, within sixty (60) days of a final decision.

29. This Agreed Order shall apply to and be binding upon the City and its successors and assigns. The City's signatories to this Agreed Order certify that they are fully authorized to execute this document and legally bind the party they represent. No change in ownership, corporate, or partnership status of the City shall in any way alter its status or responsibilities under this Agreed Order.

30. In the event that any terms of the Agreed Order are found to be invalid, the remaining terms shall remain in full force and effect and shall be construed and enforced as if the Agreed Order did not contain the invalid terms.

31. The City shall provide a copy of this Agreed Order, if in force, to any subsequent owners or successors before ownership rights are transferred. The City shall ensure that all contractors, firms and other persons performing work under this Agreed Order comply with the terms of this Agreed Order.

32. This Agreed Order is not and shall not be interpreted to be a permit or a modification of an existing permit. This Agreed Order, and IDEM's review or approval of any submittal made by the City pursuant to this Agreed Order, shall not in any way relieve the City of its obligation to comply with the requirements of its applicable permit or any other applicable Federal or State law or regulation.

33. IDEM does not, by its approval of this Agreed Order, warrant or aver in any manner that the City's compliance with any aspect of this Agreed Order will result in compliance with the provisions of any permit or order or any applicable federal or state law or regulation. Additionally, IDEM or anyone acting on its behalf shall not be held liable for any costs or penalties the City may incur as a result of the City's efforts to comply with this Agreed Order.

34. Nothing in this Agreed Order shall prevent or limit IDEM's rights to obtain penalties or injunctive relief under any applicable federal or state law or regulation.

35. Nothing in this Agreed Order shall prevent IDEM from communicating with the United States Environmental Protection Agency (EPA) or any other agency or entity about any matters relating to this enforcement action. IDEM or anyone acting on its behalf shall not be held liable for any costs or penalties the City may incur as a result of such communications with the EPA or any other agency or entity.

36. This Agreed Order shall remain in effect until the City has complied with the terms of Order Paragraphs 4 through 22 and IDEM issues a Resolution of Case letter.

TECHNICAL RECOMMENDATION:
Department of Environmental Management

By: Mark W. Stanifer
Mark Stanifer, Section Chief
Water Enforcement Section
Office of Enforcement

Date: 10-2-2008

RESPONDENT:
City of Monticello

By:
Jason A. Thompson
Mayor

Date: 9/29/08

COUNSEL FOR COMPLAINANT:
Department of Environmental Management

By: Sierra L. Cutts
Sierra L. Cutts
Indiana Attorney General's Office

Date: 10/2/2008

COUNSEL FOR RESPONDENT

By: ____________________

Date: ____________________

APPROVED AND ADOPTED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT THIS 3rd DAY OF October, 2008.

FOR THE COMMISSIONER:

Robert B. Keene
Robert B. Keene
Assistant Commissioner
Office of Legal Counsel and Enforcement

CITY OF MONTICELLO, INDIANA
CSO LONG-TERM CONTROL PLAN

PROPOSED SCHEDULE FOR LTCP REVISIONS

ITEM	ESTIMATED DURATION	DATE
Receive IDEM LTCP Review Comments	---	By Sep. 30, 2008
Review IDEM Comment Letter	2 weeks	October 15, 2008
Meet with IDEM to discuss Review Comments	2 weeks	October 29, 2008
Deliver Response Letter to IDEM (90 days)	90 days from receipt	December 30, 2008
Model 1/1 & 10/1 Events for Design Storm Approach	2 months	February 28, 2009
Evaluate Projects to Meet Design Storm Approach	3 months	May 31, 2009
Develop Cost Estimates for Design Storm Projects	1 month	June 30, 2009
Affordability Analysis	2 weeks	July 15, 2009
Meet with City, Review Design Storm Approach and UAA	1 week	July 22, 2009
Meet with IDEM to review Design Storm Approach vs. UAA	2 weeks	August 10, 2009
Finalize Revised LTCP report	1 month	September 15, 2009
Public Hearing on Revised LTCP	2 weeks	September 30, 2009
Submit Revised LTCP to IDEM	2 weeks	October 15, 2009
Receive IDEM Review Comments on Revised LTCP	2 months	December 15, 2009
Review IDEM Comment Letter, meet with City	1 month	January 15, 2010
Meet with IDEM to Discuss Review Comments	2 weeks	January 31, 2010
Respond to IDEM Review Comments	90 days from receipt	March 15, 2010
Revise LTCP Report (including necessary modeling, cost estimates, schedule)	3 months	June 15, 2010
Public Hearing on Revised LTCP	2 weeks	June 30, 2010
Submit Finalized LTCP to IDEM	2 weeks	July 15, 2010
IDEM Approval of LTCP (UAA may follow)	1 month	August 15, 2010

Prepared by
M. D. Wessler & Associates, Inc.
September 22, 2008

Attachment 1

MEMO TO ENFORCEMENT FILE

CITY OF MONTICELLO

2008-18083-W

Date: 9/30/08

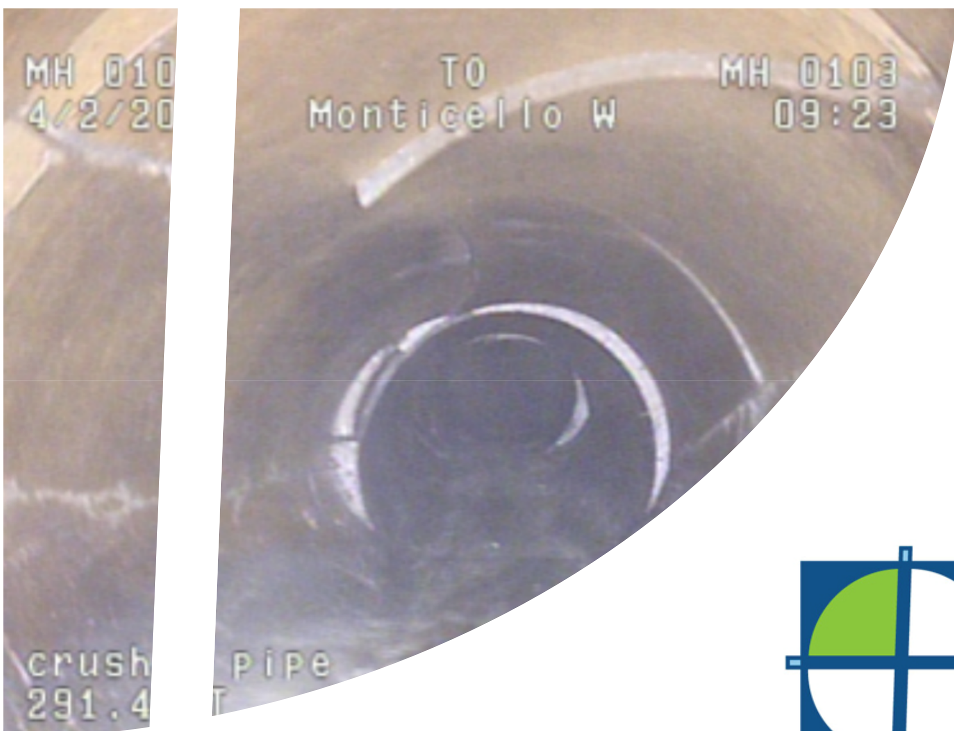
From: Paul Cluxton PCC Thru: Mark Stanifer MWS 10-2-08

On September 30, 2008, Sierra Cutts, Deputy Attorney General, requested a case number to use in the proposed Agreed Order she had drafted with the Office of Water Quality for the City of Monticello in relation to the revision of their Combined Sewer Overflow Long Term Control Plan implementation schedule with an Attachment 1. The number 2008-18083-W was assigned through METS.
There is waiver of the Notice of Violation in this matter.

This is one of several similar 2008 Agreed Order arrangements to assure development and implementation of the community's Plan over a period longer than one NPDES Permit cycle. No enforcement case management is expected; the schedule will be tracked by the Wet Weather Section of the Office of Water Quality Permits Branch. David Tennis is currently the OWQ contact.

Appendix C

City of Monticello's 2018 Citywide Sanitary Sewer / Combined Sewer Rehabilitation Assessment: Area 1



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CITY OF MONTICELLO

Citywide Sanitary Sewer/Combined Sewer Rehabilitation Assessment: AREA 1

August 2018

A Wealth of Resources to Master a Common Goal.

CEI Project #S17061

EXECUTIVE SUMMARY

A. Collection System Assessment

The purpose of this Sewer Rehabilitation Assessment is to provide the City of Monticello (City) with a condition assessment of the existing collection system. The work includes cleaning and televising of the collection system in order to determine required rehab or repair of the existing collection system piping. Manhole repair work is not anticipated as part of this assessment.

The City has been divided into six (6) areas with the intent of one (1) area being completed with each contract renewal. Cleaning and televising of Area 1 (23,300 LF) has been completed by Accu-dig – Excavation and Sewer; Area 1 is roughly bound by North Beach Drive to the north, Main Street to the west, the Tippecanoe River to the east, and E St. Mary's Avenue to the south.

This Executive Summary is to provide a summary as follows:

1. Summarizes field investigation findings of the City's collection system for Area 1
2. Outlines estimated rehab construction costs for Area 1

B. Field Investigation Findings of Existing Sewer Condition

These inspections included condition assessment of the sanitary sewer main. Overall, the condition assessment identified the following typical issues throughout Area 1:

- minor to major staining on pipe walls
- infiltration at pipe joints, pipe wall, influent taps
- pipe penetrations with or without infiltration (i.e. presence of protruding taps or roots)
- fractures within pipe
- pipe sags
- pipe segments unable to be televised due to inaccessibility
- broken segments of pipe
- heavy debris needing removal beyond traditional cleaning methods

C. Recommendations and Probable Construction Costs

Based upon our review of the existing conditions of the collection system in Area 1, we conclude it is plausible for the City to pursue a comprehensive rehabilitation plan of the existing high priority sections in such a manner as to provide structural integrity and prolong the life of the existing collection system. Phased rehabilitation of the collection system is recommended based on a priority ranking developed to adhere to conditions of the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP). See the below **Table ES-1** for a summary of the probable construction costs for the recommended rehabilitation projects for Area 1.

Table ES-1
Estimated Probable Construction Costs

Description	Estimated Cost
High Priority Action Items	$ 241,100.00
Medium Priority Action Items	$ 196,900.00
Low Priority Action Items	$ 56,000.00
Subtotal, Estimated Construction Costs	**$ 494,00.00**
Contingency (10%)	**$ 50,000.00**
Estimated Construction Costs	**$ 548,000.00**

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

SECTION 1

GENERAL

The City of Monticello (City) has contracted with Commonwealth Engineers, Inc (CEI) to complete a Citywide sanitary sewer/combined sewer rehabilitation assessment of their existing collection system. Goals of the assessment will be to give recommended action and costs to improve integrity of the system and reduce inflow and infiltration (I/I) to the City's treatment facility (WWTP). The existing collection system is comprised of approximately 172,000 linear feet (over 32 miles) of sanitary and combined sewer main, ranging from 6-inches to 36-inches, dating back to 1950 when the original WWTP was constructed. It is recommended that the City phase rehabilitation of the system to reduce annual cost and overall scope of work.

The City has been divided into six (6) areas with the intent of completing one rehabilitation assessment per year for the duration of 6-years; **Figure 1** shows the division between areas. The work in each area includes cleaning and closed circuit televising (CCTV) rehabilitation. Through conversations with City personnel, sanitary/combined sewer structures in the system (i.e. manholes) are not included in this assessment.

Completing CCTV for a pipe segment is an important step in the assessment of a sanitary sewer collection system. CCTV allows for clear visuals of buried pipe to provide data for inspection of current conditions. Laterals, pipe defects, debris, etc. are identified by clockwise positioning within the pipe in the direction of the CCTV, as depicted in the **Figure 2** below:

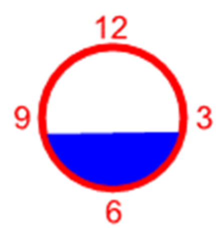
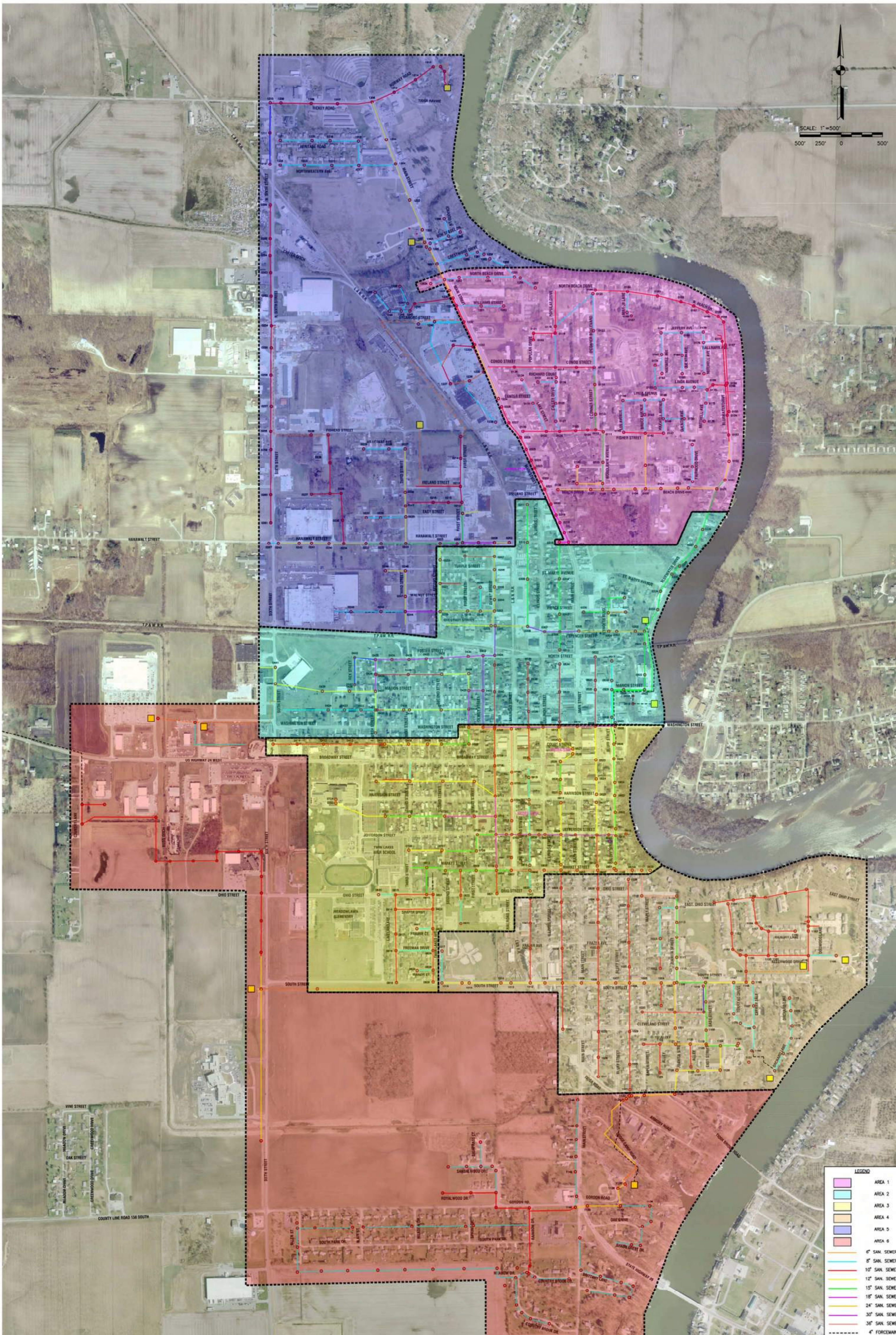


Figure 2

Clockwise positioning with the direction of the CCTV.

Inspection data is then used as a basis for the following:

- Create a readily-accessible archive of all descriptive pipe system data using standard procedures and data format
- Develop a condition rating for each line
- Display results on a map
- Provide follow-up recommendations
- Establish benchmarks to compare with future inspections of the same line.



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(812) 474-1177

9604 Coldwater Road, Suite 203
Fort Wayne, IN 46825
(260) 494-3223

CITY OF MONTICELLO, INDIANA
WHITE COUNTY

SEWER REHABILITATION

TELEVISING AREA MAP

The purpose of this Assessment Report is to provide the City with a condition assessment of the existing collection system in Area 1. Cleaning and televising of Area 1 was completed by Accu-dig – Excavation and Sewer in late February 2018. Observations and recommendations were provided for each sanitary sewer main taking into consideration pipe integrity, connections, infiltration/exfiltration, general wear, new or existing access points, etc.

AREA 1 COLLECTION SYSTEM OVERVIEW

Area 1 consists of approximately 23,300 LF of sanitary sewer main ranging from 6-inches to 15-inches in diameter and is roughly bound by North Beach Drive to the north, Main Street to the west, the Tippecanoe River to the east, and E. St. Mary's Avenue to the south. Pipe data for this area is represented in **Table 1** below and includes pipe diameter, material time, and number, distance, and position of the active laterals.

There is currently a Bluewater Interceptor Project that aims to replace and upsize portions of the sanitary sewer along Bluewater Drive. Select sections of the sanitary sewer within the interceptor project overlap with recommendations in this report based on CCTV assessments. Sections that overlap are highlighted blue in the **Tables 1, 2,** and **4** and costs associated with recommendations for these sections are not included. These sections are as follows:

- Sanitary sewer connecting MH0153 and MH0154 (sheet 16; Appendix B).
- Sanitary sewer along Beach Drive between MH0101 and MH0105 (Sheet 20; Appendix B).
    - **Table 4** recommends that the section of sanitary sewer from MH 105 to MH 138 be rehabilitated by CIPP methods (sheet 19; Appendix B). The City has requested that this section of CIPP be included in the Bluewater Interceptor Project. Therefore, the cost of the proposed CIPP has not been included in this report.
- Sanitary sewer along Bluewater Drive from MH 334 to MH 335 (Sheet 24; Appendix B).
- Sanitary sewer along Bluewater Drive from MH 336 to MH 337 (Sheet 24; Appendix B).

TABLE 1
PIPE DATA

Manhole/CCTV		Pipe Segment			Laterals																	Appendix B Sheet Number	Street/Location
						#1		#2		#3		#4		#5		#6		#7		#8			
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Cumulative Total for Pipe Segment	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position		
101	339	235.8	15	Clay Tile	6	10.10	3	62.70	1	76.70	11	103.10	2	124.40	11	173.60	1					20, 24	Bluewater Drive
102	101	150.7	12	Clay Tile	-																	20	Beach Drive
104	102	299.5	12	PVC	1	27.00	9															20	Beach Drive
105	104	64.4	15	Clay Tile	1	64.80	10															20, 19	Beach Drive
105	104	153.2	12	Clay Tile	6	83.50	1	88.30	9	127.00	9	134.90	1	138.00	2	153.10	2					20, 19	Beach Drive
106	105	82.4	15	Clay Tile	-																	19	Beach Drive
107	106	306	15	Clay Tile	2	159.60	1	175.20	12													19	Beach Drive
108	107	159.9	15	Clay Tile	1	93.60	1															19	Beach Drive
139	109	268.5	10	RCP	5	5.90	2	20.80	2	76.80	11	89.70	2	170.90	2							19	Beach Drive
109	108	60.9	15	Clay Tile	-																	19	Woodlawn Avenue
110	109	259.8	15	Clay Tile	1	152.80	1															19	Woodlawn Avenue
111	110	349.2	15	Clay Tile	3	142.10	3	223.90	12	271.80	2											19, 15	Woodlawn Avenue
112	111	74	15	Clay Tile	-																	15	E Fisher Street
113	112	336	15	Clay Tile	8	30.40	3	63.30	1	91.40	11	94.10	9	164.70	12	206.10	6	231.70	1	274.40	9	15	O'Conner Street
114	113	258.1	15	Clay Tile	2	98.70	3	99.10	1													15	O'Conner Street
115	114	217.2	15	RCP	1	168.20	11															11	O'Conner Boulevard
116	115	298.7	10	Clay Tile	5	10.10	1	12.80	12	84.80	12	232.70	1	260.70	11							11	Condo Street
117	116	252.9	10	Clay Tile	3	71.70	11	194.40	12	218.80	11											11	Condo Street
118	118B	31.5	10	Clay Tile	-																	11	Poplar Drive
119	118B	115.8	10	Clay Tile	-																	11	Poplar Drive
120	123	78.3	8	Clay Tile	1	73.00	11															7, 11	O'Conner Boulevard
121	118B	11	10	Clay Tile	2	69.80	11	132.10	1													11	Poplar Drive
122	121	73.5	10	Clay Tile	1	29.30	1															11	Poplar Drive
123	123B	325.6	8	Clay Tile	7	34.40	1	61.10	11	126.20	3	178.60	12	217.60	9	267.90	9	308.70	9			11	O'Conner Boulevard
126	125	202	10	Clay Tile	4	75.20	3	89.70	12	172.80	3	188.70	9									15	E Fisher Street
125	112	201.4	10	Clay Tile	-																	15	E Fisher Street
126	125	41.1	10	Clay Tile	-																	15	E Fisher Street
127	126	129.2	8	Clay Tile	3	35.70	12	53.30	1	99.60	10											15	approximately 150 ft east of Lake Street between E Fisher Street and Condo Street
128	127	281.6	8	Clay Tile	5	26.20	9	77.00	3	103.70	9	188.40	9	239.40	11							15	Calley Drive
129	128	136.2	8	Clay Tile	3	55.70	9	72.90	11	136.20	9											15	Calley Drive
129	128	129	8	Clay Tile	4	39.90	9	76.00	3	125.60	9	129.00	3									15	Calley Drive
132	126	169	10	Clay Tile	-																	15	E Fisher Street
133	132B	169.5	8	Fiberglass Reinforced	2	66.10	9	154.40	3													15	Lake Street
134	133	154.5	8	Fiberglass Reinforced	3	105.20	9	117.70	1	127.00	3											15	Lake Street
136	117C	363.7	10	Clay Tile	5	142.70	2	152.80	11	281.00	12	290.70	11	330.30	12							11	Condo Street

TABLE 1
PIPE DATA

Manhole/CCTV		Pipe Segment			Laterals																		
						#1		#2		#3		#4		#5		#6		#7		#8			
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Cumulative Total for Pipe Segment	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Appendix B Sheet Number	Street/Location
137	108	144.3	15	Clay Tile	-																	19	Beach Drive
138	137	303.7	15	Clay Tile	3	4.00	3	6.60	3	207.20	3											19	Beach Drive
139	109	284.5	10	RCP	2	76.40	11	171.60	1													19	Beach Drive
139	109	260.1	10	RCP/PVC	2	21.40	1	77.10	12													19	Beach Drive
139	109	10.2	8	PVC/Unk	-																	19	Beach Drive
140	139	188.8.	8	PVC	2	115.90	9	117.80	3													19	N Pine Lane
141	105	329.1	10	Clay Tile	-																	19	Approximately 500 ft east of Woodlawn Ave between E Fisher Street and S Beach Drive
142	141	347.7	10	Clay Tile	-																	15, 19	approximately 500 ft east of Woodlawn Ave between E Fisher Street and S Beach Drive
143	142	21.3	8	Clay Tile	-																	15	Bruce Avenue
144	143	155.7	8	Clay Tile	2	55.10	1	65.60	9													15	Bruce Avenue
145	146	363.6	8	Clay Tile	7	125.10	11	132.00	12	170.30	12	188.60	1	254.60	9	257.50	12	337.30	1			15	Lee Avenue
145	142	284.4	8	Clay Tile	2	68.80	11	163.10	11													15	E Fisher Street
146	145	28.9	8	Clay Tile	-																	15	Lee Avenue
147	148	94.4	8	Clay Tile	2	34.80	3	93.60	9													16	Maxwell Avenue
147	142	224.6	8	Clay Tile	1	98.10	3															15, 16	E Fisher Street
148	147	73.6	8	Clay Tile	3	46.30	9	48.50	3	73.30	9											16	Maxwell Avenue
149	148	253.1	8	Clay Tile	6	59.70	9	61.80	3	131.10	9	139.20	3	218.40	3	220.60	9					16	Maxwell Avenue
150	148	254.4	8	Clay Tile	3	90.70	1	104.10	9	143.20	9											16	approximately 150 ft north of E Fisher Street between Maxwell Avenue and Quentin Avenue
151	101	154.4	15	Clay Tile	1	15.00	1															20	Bluewater Drive
152	151	154	12	Clay Tile	3	37.30	1	68.40	11	102.70	1											20	Bluewater Drive
153	152	265.9	12	Clay Tile	6	21.80	1	90.50	1	95.50	1	112.80	3	152.90	1	185.50	12					16, 20	Bluewater Drive
154	153	307.5	10	PVC	3	98.80	1	177.30	12	267.70	2											16	Bluewater Drive
154	168	149.9	10	Clay Tile	2	43.10	9	75.60	1													16	Bluewater Drive
155	154	22.2	10	PVC	-																	16	Bluewater Drive
156	155	357	10	PVC	4	90.80	12	204.60	12	279.70	9	313.60	9									16	Bluewater Drive
157	156	363.3	10	PVC	3	54.40	11	265.40	11	330.30	11											12	Bluewater Drive
158	157	368.6	6	PVC	6	97.40	9	111.90	3	126.30	9	206.10	9	272.80	9	313.60	11					12	Bluewater Drive
159	158	93.4	10	PVC	1	89.80	9															12	Bluewater Drive
160	159	186.3	10	PVC	2	103.80	1	170.70	9													12	Bluewater Drive
161	160	266	10	PVC	5	22.20	11	50.10	1	181.90	1	183.40	11	262.90	11							8	North Beach Drive
162	161	341.7	10	PVC	6	32.60	11	47.50	1	126.80	11	167.80	11	221.50	11	327.40	11					8	Bluewater Drive
163	162	182.8	10	PVC	5	7.20	1	47.70	11	101.00	1	157.10	11	160.00	1							8	North Beach Drive
164	163	185.9	10	PVC	4	60.80	1	69.80	11	111.50	11	149.40	11									7, 8	North Beach Drive
165	164	399.7	10	PVC	8	58.00	12	98.20	12	126..6	11	154.00	1	208.50	11	275.60	1	297.30	9	383.70	9	7	North Beach Drive
166	164	242.8	8	PVC	2	64.40	11	145.20	11													7	Mar-Jo Lane

TABLE 1
PIPE DATA

Manhole/CCTV		Pipe Segment			Laterals																	Appendix B Sheet Number	Street/Location
						#1		#2		#3		#4		#5		#6		#7		#8			
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Cumulative Total for Pipe Segment	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position		
167	166	54.8	8	PVC	3	8.34	9	9.40	3	39.70	11											7	Mar-Jo Lane
168	177	81.9	10	Clay Tile	1	81.80	3															12	Bluewater Drive
169	168	160.1	10	Clay Tile	-																	16	Approximately 600 ft north of E Fisher Street between Mitchell Avenue and Bluewater Drive
170	169	79.3	10	Clay Tile	1	58.30	12															16	Mitchell Avenue
171	170	161	8	Clay Tile	1	62.80	1															16	Linda Avenue
172	171	134.9	8	Clay Tile	-	-																16	Linda Avenue
173	172	245.4	8	Clay Tile	2	53.00	12	119.00	1													16	Linda Avenue
175	170	93.1	8	Clay Tile	4	18.40	3	20.40	3	91.10	9	93.10	3									16	Mitchell Avenue
177	168	373.5	10	Clay Tile	5	67.80	3	153.50	3	236.00	12	302.30	12	373.10	9							12	Bluewater Drive
178	177	27.6	8	Clay Tile	-																	12	Hallmark Avenue
178	177	136.4	8	Clay Tile	-																	12	Hallmark Avenue
179	178	161.1	8	Clay Tile	3	59.30	1	67.60	11	91.10	9											12	Mitchell Avenue
180	179	64	8	Clay Tile	1	37.40	12															12	Jeffery Avenue
181	180	251	8	Clay Tile	3	73.30	9	75.60	3	166.50	11											12	Jeffery Avenue
182	181	194	8	Clay Tile	4	57.50	9	59.00	3	133.30	9	151.00	11									12	Maxwell Avenue
183	182	211	8	Clay Tile	2	114.90	3	117.10	9													12	Maxwell Avenue
184	180	320	8	Clay Tile	8	26.40	11	28.40	3	101.30	9	103.40	3	117.20	3	179.30	1	250.30	11	252.70	1	12	Quentin Avenue
185	184	142.9	8	Clay Tile	2	84.80	11	86.80	1													12	Quentin Avenue
186	178	343.7	8	Clay Tile	8	39.10	3	32.90	9	111.30	3	140.30	9	194.70	3	215.30	9	278.80	3	289.20	9	12	Mitchell Avenue
187	189	199.4	8	Clay Tile/PVC	4	41.10	3	59.60	9	113.10	3	135.80	9									20	Fairwood Drive
188	187	212.5	8	Clay Tile	5	54.00	3	88.60	12	119.00	3	126.30	9	174.40	3							16, 20	Fairwood Drive
189	102	103.4	8	Clay Tile	-																	20	Fairwood Drive
335	334	260.4	15	Clay Tile	-																	24	Bluewater Drive
336	335	208.1	15	Clay Tile	1	100.10	2															24	Bluewater Drive
337	338	237.4	15	Clay Tile	7	23.40	10	51.90	2	69.80	12	75.20	9	137.40	10	140.70	2	233.60	9			24	Bluewater Drive
338	336	209.4	15	Clay Tile	4	12.00	3	13.00	3	120.30	1	156.40	11									24	Bluewater Drive
339	337	254.6	15	Clay Tile	7	59.10	3	75.10	9	92.60	10	123.00	2	126.80	3	203.20	252	251.50	12			24	Bluewater Drive
1251	1231	260	8	PVC	3	25.10	1	65.80	9	114.10	2											6	Williams Street
1252	1251	297.7	8	PVC	6	10.40	10	77.00	2	156.70	2	158.10	9	218.40	2	279.30	9					6	Williams Street
1253	1228	150	8	PVC	2	7.90	11	107.70	1													6	North Beach Drive
1254	1253	349	8	PVC	6	7.80	10	61.50	1	89.40	11	208.20	1	217.70	10	324.20	10					6	North Beach Drive
1255	1254	352.8	8	PVC	5	80.70	11	147.90	9	228.00	1	242.60	9	278.40	1							6	North Beach Drive
1256	1255	73.7	8	PVC	1	45.00	11															6	North Beach Drive
1257	1256	229	8	PVC	4	7.70	3	13.70	3	195.60	200	1.00										7	North Beach Drive
1258	1255	152	8	PVC	-																	6	Crestwood Drive
1259	1261	59	8	PVC	1	49.10																6	Crestwood Drive
1261	1260	154.9	8	PVC	2	49.80	3	60.50	9													6	Crestwood Drive
1261	1227	299.6	8	PVC	1	59.10	3															6	Crestwood Drive
1262	1258	182.6	8	PVC	3	6.10	9	30.40	9	176.40	11											6	Crestwood Drive
1264	1263	213.3	8	PVC	3	74.30	11	141.10	1	142.60	11											6	Von Tassel Drive
1265	1264	100.7	8	PVC	2	21.40	2	62.10	9													6	Von Tassel Drive
1266	1264	138.1	8	PVC	-																	6	Ichabod Lane

TABLE 1
PIPE DATA

Manhole/CCTV		Pipe Segment			Laterals																	Appendix B Sheet Number	Street/Location
						#1		#2		#3		#4		#5		#6		#7		#8			
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Cumulative Total for Pipe Segment	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position	Distance (LF)	Position		
117B	117	112.7	8	Clay Tile	-																	11	approximately 200 ft east of Poplar Drive between Condo Street and Poplar Drive
117C	117	55	10	Clay Tile	1	13.10	12															11	Condo Street
118B	117B	291	10	Clay Tile	1	74.10	12															11	approximately 200 ft east of Poplar Drive between Condo Street and Poplar Drive
123B	115	136.7	8	Clay Tile	-																	11	O'Conner Boulevard
1263A	1228	132.7	8	PVC	1	10.30	3															6	Oakview Drive
132B	132	269.5	8	Fiberglass Reinforced	4	63.60	9	135.40	3	204.40	3	214.00	9									15	Lake Street
150B	150	75	6	Clay Tile	-																	16	Quentin Avenue
No MH	136	131.6	10	Clay Tile	1	22.20	9															11	Condo Street
Unk	119	27.9	10	Clay Tile	1	27.90	11															7, 11	Poplar Drive
Unk	150	75.4	6	Clay Tile	2	74.10	3	75.40	9													16	Quentin Avenue
Unk	146	5.6	8	Clay Tile	-																	15	Linda Avenue
Unk	101	140.3	12	Clay Tile	-																	20	Beach Drive
Unk	177	4	10	Clay Tile	-																	12	Approximately 50 ft west of Bluewater Drive between Jeffery Ave and Hallmark Ave

SECTION 2

OBSERVATIONS

According to NASSCO PACP, factors that influence deterioration of pipelines can be categorized as Structural, Maintenance Related, and Construction/Design related. This information was further divided into six categories including:

- Inflow and Infiltration (I/I)
- Structural Integrity
- Presence of a Sag
- Operational and Maintenance
- Surface Damage
- Debris/Blockage

Each category was assessed utilizing a Conditions Grading System as summarized in the City of Monticello Sewer Rehabilitation Conditions Grading System Memorandum in **Appendix A**. The overall ranking of each pipe section was determined by adding the value of condition assigned to each category. High priority areas are those with the most points. **Table 2** below indicates the results of the conditions assessment and high priority action items that require immediate attention.

TABLE 2
OBSERVATIONS

Manhole/CCTV		Pipe Segment			OBSERVATIONS						Ranking	Appendix B Sheet Number	Street/Location
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	I/I	Structural Integrity	Presence of a Sag	Operational and Maintenance	Surface Damage	Debris/ Blockage			
139	109	284.5	10	RCP	3	4	4		4	1	16	19	Beach Drive
139	109	268.5	10	RCP	3	3		4	3		13	19	Beach Drive
123	123B	325.6	8	Clay Tile	3	4	4	2			13	11	O'Conner Boulevard
139	109	260.1	10	RCP/PVC	4			4	3		11	19	Beach Drive
154	153	307.5	10	PVC	3	2	4	2			11	16	Bluewater Drive
177	168	373.5	10	Clay Tile	2	2	4	2			10	12	Bluewater Drive
113	112	336	15	Clay Tile	4	4					8	15	O'Conner Street
114	113	258.1	15	Clay Tile		4	4				8	15	O'Conner Street
338	336	209.4	15	Clay Tile	2	3		3			8	24	Bluewater Drive
118B	117B	291	10	Clay Tile	3	3		2			8	11	approximately 200 ft east of Poplar Drive between Condo Street and Poplar Drive
126	125	41.1	10	Clay Tile	3		4				7	15	E Fisher Street
139	109	10.2	8	PVC/Unk	3		4				7	19	Beach Drive
104	102	299.5	12	PVC	2	4					6	20	Beach Drive
115	114	217.2	15	RCP	3	3					6	11	O'Conner Boulevard
134	133	154.5	8	Fiberglass Reinforced Pipe	3			3			6	15	Lake Street
137	108	144.3	15	Clay Tile	3	3					6	19	Beach Drive
138	137	303.7	15	Clay Tile	3	3					6	19	Beach Drive
154	168	149.9	10	Clay Tile	4					2	6	16	Bluewater Drive
184	180	320	8	Clay Tile	2	2		2			6	12	Quentin Avenue
337	338	237.4	15	Clay Tile	3			3			6	24	Bluewater Drive

TABLE 2
OBSERVATIONS

Manhole/CCTV		Pipe Segment			OBSERVATIONS						Ranking	Appendix B Sheet Number	Street/Location
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	I/I	Structural Integrity	Presence of a Sag	Operational and Maintenance	Surface Damage	Debris/ Blockage			
150B	150	75	6	Clay Tile	2			2		2	6	16	Quentin Avenue
No MH	136	131.6	10	Clay Tile			4			2	6	11	Condo Street
126	125	202	10	Clay Tile	3		2				5	15	E Fisher Street
153	152	265.9	12	Clay Tile	2	1		2			5	16, 20	Bluewater Drive
178	177	27.6	8	Clay Tile				3	2		5	12	Hallmark Avenue
335	334	260.4	15	Clay Tile	2	3					5	24	Bluewater Drive
117B	117	112.7	8	Clay Tile	3			2			5	11	approximately 200 ft east of Poplar Drive between Condo Street and Poplar Drive
118	118B	31.5	10	Clay Tile				4			4	11	Poplar Drive
119	118B	115.8	10	Clay Tile			4				4	11	Poplar Drive
120	123	78.3	8	Clay Tile	2			2			4	7, 11	O'Conner Boulevard
128	127	281.6	8	Clay Tile	2			2			4	15	Calley Drive
136	117C	363.7	10	Clay Tile	4						4	11	Condo Street
143	142	21.3	8	Clay Tile	2			2			4	15	Bruce Avenue
145	146	363.6	8	Clay Tile	1	3					4	15	Lee Avenue
146	145	28.9	8	Clay Tile	1	3					4	15	Lee Avenue
147	148	94.4	8	Clay Tile				4			4	16	Maxwell Avenue
148	147	73.6	8	Clay Tile			4				4	16	Maxwell Avenue
165	164	399.7	10	PVC	4						4	7	North Beach Drive
181	180	251	8	Clay Tile	2	2					4	12	Jeffery Avenue
186	178	343.7	8	Clay Tile	3		1				4	12	Mitchell Avenue
189	102	103.4	8	Clay Tile	4						4	20	Fairwood Drive
1253	1228	150	8	PVC			4				4	6	North Beach Drive
1255	1254	352.8	8	PVC	4						4	6	North Beach Drive
1264	1263	213.3	8	PVC			4				4	6	Von Tassel Drive
1263A	1228	132.7	8	PVC						4	4	6	Oakview Drive
Unk	119	27.9	10	Clay Tile						4	4	7, 11	Poplar Drive

TABLE 2
OBSERVATIONS

Manhole/CCTV		Pipe Segment			OBSERVATIONS						Ranking	Appendix B Sheet Number	Street/Location
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	I/I	Structural Integrity	Presence of a Sag	Operational and Maintenance	Surface Damage	Debris/ Blockage			
102	101	150.7	12	Clay Tile	1	2					3	20	Beach Drive
105	104	64.4	15	Clay Tile	1	2					3	20, 19	Beach Drive
105	104	153.2	12	Clay Tile	2	1					3	20, 19	Beach Drive
106	105	82.4	15	Clay Tile	1	2					3	19	Beach Drive
107	106	306	15	Clay Tile	1	2					3	19	Beach Drive
122	121	73.5	10	Clay Tile		3					3	11	Poplar Drive
142	141	347.7	10	Clay Tile	2			1			3	15, 19	approximately 500 ft east of Woodlawn Ave between E Fisher Street and S Beach Drive
145	142	284.4	8	Clay Tile	2			1			3	15	E Fisher Street
147	142	224.6	8	Clay Tile	2			1			3	15, 16	E Fisher Street
161	160	266	10	PVC	3						3	8	North Beach Drive
173	172	245.4	8	Clay Tile		3					3	16	Linda Avenue
183	182	211	8	Clay Tile		1		2			3	12	Maxwell Avenue
187	189	199.4	8	Clay Tile/PVC	2			1			3	20	Fairwood Drive
101	339	235.8	15	Clay Tile	1	1					2	20, 24	Bluewater Drive
111	110	349.2	15	Clay Tile	2						2	19, 15	Woodlawn Avenue
132	126	169	10	Clay Tile	2						2	15	E Fisher Street
133	132B	169.5	8	Fiberglass Reinforced Pipe	2						2	15	Lake Street
144	143	155.7	8	Clay Tile				2			2	15	Bruce Avenue
156	155	357	10	PVC	2						2	16	Bluewater Drive
160	159	186.3	10	PVC				2			2	12	Bluewater Drive
170	169	79.3	10	Clay Tile	2						2	16	Mitchell Avenue
171	170	161	8	Clay Tile	2						2	16	Linda Avenue
188	187	212.5	8	Clay Tile	1			1			2	16, 20	Fairwood Drive
123B	115	136.7	8	Clay Tile		2					2	11	O'Conner Boulevard

TABLE 2
OBSERVATIONS

Manhole/CCTV		Pipe Segment			OBSERVATIONS						Ranking	Appendix B Sheet Number	Street/Location
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	I/I	Structural Integrity	Presence of a Sag	Operational and Maintenance	Surface Damage	Debris/ Blockage			
Unk	150	75.4	6	Clay Tile				2			2	16	Quentin Avenue
108	107	159.9	15	Clay Tile		1					1	19	Beach Drive
182	181	194	8	Clay Tile		1					1	12	Maxwell Avenue
109	108	60.9	15	Clay Tile							0	19	Woodlawn Avenue
110	109	259.8	15	Clay Tile							0	19	Woodlawn Avenue
112	111	74	15	Clay Tile							0	15	E Fisher Street
116	115	298.7	10	Clay Tile							0	11	Condo Street
117	116	252.9	10	Clay Tile							0	11	Condo Street
121	118B	11	10	Clay Tile							0	11	Poplar Drive
125	112	201.4	10	Clay Tile							0	15	E Fisher Street
127	126	129.2	8	Clay Tile							0	15	approximately 150 ft east of Lake Street between E Fisher Street and Condo Street
129	128	136.2	8	Clay Tile							0	15	Calley Drive
129	128	129	8	Clay Tile							0	15	Calley Drive
140	139	188.8.	8	PVC							0	19	N Pine Lane
141	105	329.1	10	Clay Tile							0	19	Approximately 500 ft east of Woodlawn Ave between E Fisher Street and S Beach Drive
149	148	253.1	8	Clay Tile							0	16	Maxwell Avenue
150	148	254.4	8	Clay Tile							0	16	approximately 150 ft north of E Fisher Street between Maxwell Avenue and Quentin Avenue
151	101	154.4	15	Clay Tile							0	20	Bluewater Drive
152	151	154	12	Clay Tile							0	20	Bluewater Drive
155	154	22.2	10	PVC							0	16	Bluewater Drive
157	156	363.3	10	PVC							0	12	Bluewater Drive
158	157	368.6	6	PVC							0	12	Bluewater Drive
159	158	93.4	10	PVC							0	12	Bluewater Drive
162	161	341.7	10	PVC							0	8	Bluewater Drive
163	162	182.8	10	PVC							0	8	North Beach Drive
164	163	185.9	10	PVC							0	7, 8	North Beach Drive
166	164	242.8	8	PVC							0	7	Mar-Jo Lane
167	166	54.8	8	PVC							0	7	Mar-Jo Lane
168	177	81.9	10	Clay Tile							0	12	Bluewater Drive
169	168	160.1	10	Clay Tile							0	16	Approximately 600 ft north of E Fisher Street between Mitchell Avenue and Bluewater Drive
172	171	134.9	8	Clay Tile							0	16	Linda Avenue

TABLE 2
OBSERVATIONS

Manhole/CCTV		Pipe Segment			OBSERVATIONS						Ranking	Appendix B Sheet Number	Street/Location
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	I/I	Structural Integrity	Presence of a Sag	Operational and Maintenance	Surface Damage	Debris/ Blockage			
175	170	93.1	8	Clay Tile							0	16	Mitchell Avenue
178	177	136.4	8	Clay Tile							0	12	Hallmark Avenue
179	178	161.1	8	Clay Tile							0	12	Mitchell Avenue
180	179	64	8	Clay Tile							0	12	Jeffery Avenue
185	184	142.9	8	Clay Tile							0	12	Quentin Avenue
336	335	208.1	15	Clay Tile							0	24	Bluewater Drive
339	337	254.6	15	Clay Tile							0	24	Bluewater Drive
1251	1231	260	8	PVC							0	6	Williams Street
1252	1251	297.7	8	PVC							0	6	Williams Street
1254	1253	349	8	PVC							0	6	North Beach Drive
1256	1255	73.7	8	PVC							0	6	North Beach Drive
1257	1256	229	8	PVC							0	7	North Beach Drive
1258	1255	152	8	PVC							0	6	Crestwood Drive
1259	1261	59	8	PVC							0	6	Crestwood Drive
1261	1260	154.9	8	PVC							0	6	Crestwood Drive
1261	1227	299.6	8	PVC							0	6	Crestwood Drive
1262	1258	182.6	8	PVC							0	6	Crestwood Drive
1265	1264	100.7	8	PVC							0	6	Von Tassel Drive
1266	1264	138.1	8	PVC							0	6	Ichabod Lane
117C	117	55	10	Clay Tile							0	11	Condo Street
132B	132	269.5	8	Fiberglass Reinforced Pipe							0	15	Lake Street
Unk	146	5.6	8	Clay Tile							0	15	Linda Avenue
Unk	101	140.3	12	Clay Tile							0	20	Beach Drive
Unk	177	4	10	Clay Tile							0	12	Approximately 50 ft west of Bluewater Drive between Jeffery Ave and Hallmark Ave

SECTION 3

RECOMMENDATIONS AND PROBABLE CONSTRUCTION COSTS

A summary of recommendations for each sewer main segment took into consideration pipe integrity, pipe connections, infiltration/exfiltration, general wear, and new or existing access points. Based upon these overall assessments, it is possible for the existing sewer main sections to be rehabilitated in-place with high-quality products that provide structural rehabilitation to extend their respective service lives with wastewater conveyance. It is imperative proper structural design and construction practices are taken into consideration with high regard to not compromise the sewer main segments as-is.

Table 4 below shows rehabilitation recommendations and cost for each pipe segment. A visual map of the rehabilitation areas can be found in **Appendix B** of this report. Of particular note are the point repairs in the sewer connecting MH0123 and MH0123B and MH0123B and MH0115. It is recommended that the repairs to these sections of gravity sewer be repaired before Community Crossings, ideally in Spring 2019.

Recommended rehabilitation methods outlined in this section are inclusive of the following:

- Point repairs

  Point repairs are necessary to mitigate severe sags, pipe breaks, and pipe collapses within the system prior to lining the pipe segment, or for general proper conveyance. **Figure 3** below is an example of a pipe break that would require a point repair. All point repairs are anticipated to be constructed via hydro-excavation to protect the existing infrastructure and minimize construction area.

Figure 3
Collapsed Pipe Section at 291.4 LF from Manhole 104 to Manhole 103.

- Additional Cleaning of heavy roots/debris

  When the sanitary sewer main is televised, it is also cleaned; however, root intrusion and presence of debris can be severe and require additional cleaning and physical removal of foreign objects from the sewer main. **Figure 4** below is an example of foreign objects in the sewer main that need to be removed.

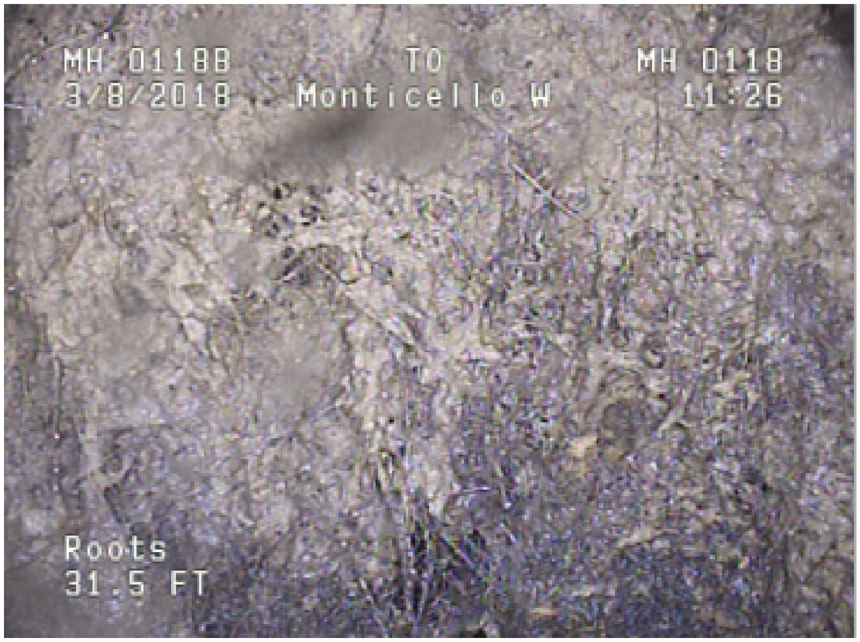

Figure 4
Severe root intrusion encompassing entire diameter of sewer main at 31.5 LF from Manhole 118B to Manhole 118.

- Chemical grouting of cracks, fractures, joints

  Cracks, fractures, and leaking joints allows I/I into the system and can eventually lead to structural failure. Some sections of sewer main have minor cracks, fractures, and leaking joints that aren't severe enough to require a point repair; however, should be grouted/sealed to prevent future I/I, pipe breaks/collapses, and root intrusion. **Figure 5** below is an example of minor cracks on the pipe wall.

Figure 5
Minor Cracks in the 12 position at 71.4 LF from Manhole 102 to Manhole 101.

- Lateral rehabilitation including but not limited to chemical grouting or partial lateral lining.

  Laterals are often installed by connecting into the sanitary sewer main after the pipe has been laid and in-use. Due to the installation method of physically breaking the sewer main and attaching the lateral via grout and epoxy, groundwater and roots often enter the sanitary sewer. **Figure 6** is an example of groundwater entering the sanitary sewer via a leaking tap.

Figure 6
I/I from Lateral joint at 147.9 LF from Manhole 1255 to Manhole 1254.

- Lining of the existing pipe segment by Cured in Place Pipe (CIPP) including reinstatements and removal of protruding taps.

  Pipe sections that have severe root intrusion/cracks/broken pipes, corrosion, or other structural integrity disabilities shall be lined in order to preserve their function as a sanitary sewer pipe. **Figure 7** is an example of a pipe section that should be lined.

Figure 7
Pipe needing CIPP due to failing structural integrity at 144.3 LF from Manhole 107 to Manhole 106.

Table 3 below represents unit price for rehabilitation methods outlined in this section to be utilized with **Table 4** to determine probable construction costs. The following assumptions were made:

- Point repair is inclusive of the appropriate diameter pipe, granular fill, and surface restoration, and hydro-excavation. Bypass pumping is included to allow working conditions to complete the point repair.
- Each pipe segment is composed of 6-foot barrel sections.
- Heavy Root Intrusion = 70% of joints affected.
- Medium Root Intrusion = 30% of joints affected.
- Minor Root Intrusion = 5% of joints affected.
- Additional Cleaning = 1 (one) joint per minute.
- If lining is required then associated cleaning/grouting of the pipe segment is included in the CIPP cost.
- Reinstatements/cutting if protruding taps are separate.
- T-Liner Installation is intended for lateral rehabilitation.

Table 3
2018 Unit Price Estimates for Rehabilitation Methods

Description	Unit Price	Unit
6" CIPP	$ 30.00	LF
8" CIPP	$ 38.00	LF
10" CIPP	$ 52.00	LF
12" CIPP	$ 68.00	LF
15" CIPP	$ 86.00	LF
18" CIPP	$ 100.00	LF
Reinstatements	$ 250.00	EA
Protruding Taps	$ 250.00	EA
Heavy Cleaning	$ 365.00	HR
6" Pipe	$ 140.00	LF
8" Pipe	$ 150.00	LF
10" Pipe	$ 160.00	LF
12" Pipe	$ 170.00	LF
15" Pipe	$ 180.00	LF
18" Pipe	$ 200.00	LF
Granular 6-10"	$ 50.00	LF
Granular 12-18"	$ 80.00	LF
Grout Mainline Joint (6")	$ 15.00	EA
Grout Mainline Joint (8")	$ 20.00	EA
Grout Mainline Joint (10")	$ 20.00	EA
Grout Mainline Joint (12")	$ 30.00	EA
Grout Mainline Joint (15")	$ 30.00	EA
Grout Mainline Joint (18")	$ 130.00	EA
T-Liner Installation (6x6, 4 ft)	$ 2,700.00	EA
T-Liner Installation (8x6, 4 ft)	$ 3,000.00	EA
T-Liner Installation (10x6, 4 ft)	$ 3,000.00	EA
T-Liner Installation (12x6, 4 ft)	$ 3,500.00	EA
T-Liner Installation (15x6, 4 ft)	$ 3,500.00	EA
T-Liner Installation (18x6, 4 ft)	$ 5,000.00	EA
Surface Restoration	$ 100.00	LF
Bypass Pumping	$ 5,000.00	LS
Manhole Structure	$ 6,000.00	EA

TABLE 4
RECOMMENDATIONS

Manhole/CCTV		Pipe Segment				Recommendations											
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Ranking	Point Repairs (LF)	Clean/Grout (HR) assume 1 min/ft	Lateral Rehab/ Lining	CIPP (LF)	# of Reinstatements (EA)	Cut Taps (EA)	No Action	Note (Based on cctv)	Cost Estimate	Cost Estimates for Bluewater Interceptor Segments	Appendix B Sheet Number	Street/Location
139	109	284.5	10	RCP	16	90			320	7			I/I from taps Severe sag in need of point repair. From 81-92 and starting at 210 continuing on. Major roots need to be cleaned along entire pipe section and whole pipe section needs to be lined.	$ 52,000.00		19	Beach Drive
139	109	268.5	10	RCP	13								Severe Root intrusion entire segment of pipe. Reverse survey. Taken care of in other pipe section.			19	Beach Drive
123	123B	325.6	8	Clay Tile	13	15			326	7			Sag towards end of pipe segment needs Point Repair. It is recommended that point repairs occur before Community Crossings (aim for Spring 2019).	$ 24,000.00		11	O'Conner Boulevard
139	109	260.1	10	RCP/PVC	11				260	2			Severe Root intrusion entire segment of pipe	$ 20,000.00		19	Beach Drive
154	153	307.5	10	PVC	11	20			308	3	2		Break is at 11 position. Sag is heavy. Root intrusion is medium, with weeper I/I and consistant from 63' to 225'		$ 29,000.00	16	Bluewater Drive
177	168	373.5	10	Clay Tile	10	25			374	5			sag @ 28' and 122' are severe and needs point repair prior to lining. Medium root intrusion towards end of pipe segment.	$ 34,000.00		12	Bluewater Drive
113	112	336	15	Clay Tile	8	10							Point repair needed at break	$ 9,000.00		15	O'Conner Street
114	113	258.1	15	Clay Tile	8	30							Needs point repair at sag. Pipe is broken at sag position. Second sag from 180 to 195 needs repair too.	$ 16,000.00		15	O'Conner Street
338	336	209.4	15	Clay Tile	8				210	4			Roots are heavy at the beginning of the pipe segment. Cracks are hinge fractures extending the length of pipe segments and should be lined before they collapse.		$ 9,000.00	24	Bluewater Drive
118B	117B	291	10	Clay Tile	8				291	1			Fractures are in the first 60' of pipe with roots and infiltration withinthe first 175' of pipe. Recommended to line entire pipe run.	$ 21,000.00		11	approximately 200 ft east of Poplar Drive between Condo Street and Poplar Drive
126	125	41.1	10	Clay Tile	7	15			245	4			Survey Abandoned. Start at MH126. Pipe needs to be cleaned, sag fixed, and lined to prevent future infiltration	$ 24,000.00		15	E Fisher Street
139	109	10.2	8	PVC/Unk	7								Taken care of in previous pipe rehab segment. Additional survey			19	Beach Drive
104	102	299.5	12	PVC	6	10			300	1			Crushed pipe at 291.4 needs point repair.		$ 21,000.00	20	Beach Drive
115	114	217.2	15	RCP	6				218	1			Fractures at 183 position 12. need to CIPP before it collapses	$ 9,000.00		11	O'Conner Boulevard
134	133	154.5	8	Fiberglass Reinforced Pipe	6		155						Med-heavy root intrusion & associated I/I	$ 300.00		15	Lake Street
137	108	144.3	15	Clay Tile	6				145	-			Need CIPP before fractures/breaks become severe needing point repair.		$ 6,000.00	19	Beach Drive
138	137	303.7	15	Clay Tile	6				304	3			Needs CIPP before break & Fracture collapse		$ 13,000.00	19	Beach Drive
154	168	149.9	10	Clay Tile	6	10							Major Inflow. Needs Point Repair 8' from MH154. Video abandoned at 149.9 due to heavy debris. At least two additional taps were observed.	$ 9,000.00		16	Bluewater Drive
184	180	320	8	Clay Tile	6	10	320						Point repair at offset joint, clean and grout joints with roots	$ 9,000.00		12	Quentin Avenue
337	338	237.4	15	Clay Tile	6		238						Heavy Roots at 222.6 - clean and grout		$ 500.00	24	Bluewater Drive
150B	150	75	6	Clay Tile	6				75	-			Root intrusion is continuous through the majority of the pipe	$ 3,000.00		16	Quentin Avenue
No MH	136	131.6	10	Clay Tile	6	10	132						pipe run needs to be cleaned of debris. Looks like inspection was abandoned after the sag. Sag needs point repair. Infiltration needs patched.	$ 9,000.00		11	Condo Street
126	125	202	10	Clay Tile	5								Survey Abandoned. Start at MH125. Pipe needs to be cleaned, sag fixed, and lined to prevent future infiltration. Rehab in previous pipe segment			15	E Fisher Street
153	152	265.9	12	Clay Tile	5		266						Roots @ 95.5, 112.8. Crack is minor and should be grouted.	$ 500.00		16, 20	Bluewater Drive
178	177	27.6	8	Clay Tile	5				28	-			Roots need to be cut out, joints need to be grouted and pipe needs to be lined to prevent futher corrosion.	$ 1,100.00		12	Hallmark Avenue

TABLE 4
RECOMMENDATIONS

Manhole/CCTV		Pipe Segment				Recommendations											
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Ranking	Point Repairs (LF)	Clean/Grout (HR) assume 1 min/ft	Lateral Rehab/ Lining	CIPP (LF)	# of Reinstatements (EA)	Cut Taps (EA)	No Action	Note (Based on cctv)	Cost Estimate	Cost Estimates for Bluewater Interceptor Segments	Appendix B Sheet Number	Street/Location
335	334	260.4	15	Clay Tile	5	5			261	-			Point repair needed at break (135.5) prior to lining.		$ 17,000.00	24	Bluewater Drive
117B	117	112.7	8	Clay Tile	5		113						Minor root intrusion with weepers at the beginning and end of pipe run. 78.5&106.5'	$ 200.00		11	approximately 200 ft east of Poplar Drive between Condo Street and Poplar Drive
118	118B	31.5	10	Clay Tile	4				32	-			survey abandoned - roots	$ 7,000.00		11	Poplar Drive
119	118B	115.8	10	Clay Tile	4	20							78-98' severe sag needing point repair	$ 11,200.00		11	Poplar Drive
120	123	78.3	8	Clay Tile	4		79						Capped @ end. Cut out roots and grout joints	$ 200.00		7, 11	O'Conner Boulevard
128	127	281.6	8	Clay Tile	4		282						Mild root intrusion at the end of pipe run.	$ 400.00		15	Calley Drive
136	117C	363.7	10	Clay Tile	4				365	5			Major infiltration at joints along pipe section. Grout or CIPP	$ 26,000.00		11	Condo Street
143	142	21.3	8	Clay Tile	4		22						Tap Root @ 21.3' - survey abandoned	$ 100.00		15	Bruce Avenue
145	146	363.6	8	Clay Tile	4				393	7			Need to CIPP before fractures turn into a collapse	$ 17,000.00		15	Lee Avenue
146	145	28.9	8	Clay Tile	4								Need to CIPP before fractures turn into a collapse. Reverse Survey. Rehab in previous segment			15	Lee Avenue
147	148	94.4	8	Clay Tile	4	25							43-66 Severe Sag	$ 13,000.00		16	Maxwell Avenue
148	147	73.6	8	Clay Tile	4		475	2					Severe roots at 46.3 and 73.3 taps	$ 5,000.00		16	Maxwell Avenue
165	164	399.7	10	PVC	4								severe infiltration present at tap locations. Rehab laterals. Reverse Survey. Rehab in previous segment			7	North Beach Drive
181	180	251	8	Clay Tile	4				251	3			84.2 Pipe Is fractured and deformed. Needs to be CIPP before it gets bad enough to need point repair.	$ 11,000.00		12	Jeffery Avenue
186	178	343.7	8	Clay Tile	4			2	344	8			severe infiltration at taps, clean roots and line pipe segment	$ 22,000.00		12	Mitchell Avenue
189	102	103.4	8	Clay Tile	4		105						May need a point repair to fix. Grout Joint to stop I/I.	$ 200.00		20	Fairwood Drive
1253	1228	150	8	PVC	4	10							sag 110-120 needs point repair.	$ 7,500.00		6	North Beach Drive
1255	1254	352.8	8	PVC	4			1					Severe I/I @ 147.9 Tap. Rehab Lateral.	$ 3,000.00		6	North Beach Drive
1264	1263	213.3	8	PVC	4	10	215						Severe sag in need of point repair.	$ 9,000.00		6	Von Tassel Drive
1263A	1228	132.7	8	PVC	4		133						Inspection ended due to grease. Clean and re-CCTV	$ 5,000.00		6	Oakview Drive
Unk	119	27.9	10	Clay Tile	4								Survey abandoned			7, 11	Poplar Drive
102	101	150.7	12	Clay Tile	3				151	-			Minor hinge cracks need to be lined in the future.		$ 11,000.00	20	Beach Drive
105	104	64.4	15	Clay Tile	3				65	2	1		Survey abandoned. Lateral cracks along the run of pipe. Should be CIPP'ed. Needs to be further videod and checked for sags/breaks.		$ 4,000.00	20, 19	Beach Drive
105	104	153.2	12	Clay Tile	3								Inspection ended due to obstruction/protruding tap. Eventually needs to be lined but not right now. Rehab covered in previous pipe section			20, 19	Beach Drive
106	105	82.4	15	Clay Tile	3				83	-			Lateral Cracks along the run of pipe. Should be CIPP'ed.		$ 4,000.00	19	Beach Drive
107	106	306	15	Clay Tile	3				306	2	1		Pipe is cracked/fractured//broken in multiple places. Sag at end of pipe segment near MH 106 should be able to CIPP through it.		$ 13,000.00	19	Beach Drive
122	121	73.5	10	Clay Tile	3	5							57.3 pipe fractures/broken and needs point repair.	$ 7,000.00		11	Poplar Drive
142	141	347.7	10	Clay Tile	3				348	-			Should be CIPP'ed eventually to prevent future I/I	$ 24,000.00		15, 19	approximately 500 ft east of Woodlawn Ave between E Fisher Street and S Beach Drive
145	142	284.4	8	Clay Tile	3				285	2			There were severe roots in joints -but cleaned during cctv	$ 17,000.00		15	E Fisher Street
147	142	224.6	8	Clay Tile	3		225						severe roots in joints - cleaned during cctv	$ 300.00		15, 16	E Fisher Street
161	160	266	10	PVC	3			1					Moderate infiltration present at tap. Rehab lateral	$ 3,000.00		8	North Beach Drive
173	172	245.4	8	Clay Tile	3	10							Sag needs to be repaired	$ 8,000.00		16	Linda Avenue
183	182	211	8	Clay Tile	3		211						Existing Point Repair @ 197. medium root intrusion @ 12', 21'	$ 300.00		12	Maxwell Avenue

TABLE 4
RECOMMENDATIONS

Manhole/CCTV		Pipe Segment				Recommendations											
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Ranking	Point Repairs (LF)	Clean/Grout (HR) assume 1 min/ft	Lateral Rehab/ Lining	CIPP (LF)	# of Reinstatements (EA)	Cut Taps (EA)	No Action	Note (Based on cctv)	Cost Estimate	Cost Estimates for Bluewater Interceptor Segments	Appendix B Sheet Number	Street/Location
187	189	199.4	8	Clay Tile/PVC	3		200							$ 300.00		20	Fairwood Drive
101	339	235.8	15	Clay Tile	2		236							$ 500.00		20, 24	Bluewater Drive
111	110	349.2	15	Clay Tile	2		350						Potentially re-grout the tapped caps to prevent inflow/infiltartion	$ 700.00		19, 15	Woodlawn Avenue
132	126	169	10	Clay Tile	2				169	-			Clean encrustation and CIPP to prevent future I&I	$ 14,000.00		15	E Fisher Street
133	132B	169.5	8	Fiberglass Reinforced Pipe	2		170	1					infiltration at tap at 66.1'	$ 4,000.00		15	Lake Street
144	143	155.7	8	Clay Tile	2		156						Minor roots. Clean and grout to prevent future I/I.	$ 300.00		15	Bruce Avenue
156	155	357	10	PVC	2			2					Medium root intrusion @ 313.6 & 204.6 Taps with I/I. should be cleaned.	$ 6,000.00		16	Bluewater Drive
160	159	186.3	10	PVC	2		187						Root ball @ 94' was cut out during televising. Major Roots present at 103.8 lateral need to be cleaned out.	$ 300.00		12	Bluewater Drive
170	169	79.3	10	Clay Tile	2			1					Video not able to view, infiltration from 58.3 tap.	$ 3,000.00		16	Mitchell Avenue
171	170	161	8	Clay Tile	2		161							$ 300.00		16	Linda Avenue
188	187	212.5	8	Clay Tile	2		213							$ 300.00		16, 20	Fairwood Drive
123B	115	136.7	8	Clay Tile	2	5							Broken Section Needs Point repair; It is recommended that point repairs occur before Community Crossings (aim for Spring 2019).	$ 6,500.00		11	O'Conner Boulevard
Unk	150	75.4	6	Clay Tile	2		76						Per the City's request, the cost to add a manhole structure have been included for this section of sewer,	$ 100.00		16	Quentin Avenue
108	107	159.9	15	Clay Tile	1		160						Minor Cracks 12-5 position aroiund 153.7'		$ 300.00	19	Beach Drive
182	181	194	8	Clay Tile	1				194	4			187.9' offset joint	$ 14,000.00		12	Maxwell Avenue
109	108	60.9	15	Clay Tile	0							X				19	Woodlawn Avenue
110	109	259.8	15	Clay Tile	0							X				19	Woodlawn Avenue
112	111	74	15	Clay Tile	0							X				15	E Fisher Street
116	115	298.7	10	Clay Tile	0							X				11	Condo Street
117	116	252.9	10	Clay Tile	0							X				11	Condo Street
121	118B	11	10	Clay Tile	0							X				11	Poplar Drive
125	112	201.4	10	Clay Tile	0							X				15	E Fisher Street
127	126	129.2	8	Clay Tile	0							X	End of video couldn't be viewed			15	approximately 150 ft east of Lake Street between E Fisher Street and Condo Street
129	128	136.2	8	Clay Tile	0							X	Survey Abandoned. Survey started at MH 128			15	Calley Drive
129	128	129	8	Clay Tile	0							X	Survey Abandoned. Survey started at MH 129. Reverse Survey			15	Calley Drive
140	139	188.8.	8	PVC	0							X				19	N Pine Lane
141	105	329.1	10	Clay Tile	0							X				19	Approximately 500 ft east of Woodlawn Ave between E Fisher Street and S Beach Drive
149	148	253.1	8	Clay Tile	0							X				16	Maxwell Avenue
150	148	254.4	8	Clay Tile	0							X				16	approximately 150 ft north of E Fisher Street between Maxwell Avenue and Quentin Avenue
151	101	154.4	15	Clay Tile	0							X				20	Bluewater Drive
152	151	154	12	Clay Tile	0							X				20	Bluewater Drive
155	154	22.2	10	PVC	0							X				16	Bluewater Drive
157	156	363.3	10	PVC	0							X				12	Bluewater Drive
158	157	368.6	6	PVC	0							X				12	Bluewater Drive
159	158	93.4	10	PVC	0							X				12	Bluewater Drive
162	161	341.7	10	PVC	0							X				8	Bluewater Drive

TABLE 4
RECOMMENDATIONS

Manhole/CCTV		Pipe Segment				Recommendations											
Upstream MH	Downstream MH	Dist. (LF)	Size (Inch)	Existing Material	Ranking	Point Repairs (LF)	Clean/Grout (HR) assume 1 min/ft	Lateral Rehab/ Lining	CIPP (LF)	# of Reinstatements (EA)	Cut Taps (EA)	No Action	Note (Based on cctv)	Cost Estimate	Cost Estimates for Bluewater Interceptor Segments	Appendix B Sheet Number	Street/Location
163	162	182.8	10	PVC	0							X				8	North Beach Drive
164	163	185.9	10	PVC	0							X				7, 8	North Beach Drive
166	164	242.8	8	PVC	0							X				7	Mar-Jo Lane
167	166	54.8	8	PVC	0							X				7	Mar-Jo Lane
168	177	81.9	10	Clay Tile	0							X	Debris in Tap			12	Bluewater Drive
169	168	160.1	10	Clay Tile	0							X				16	Approximately 600 ft north of E Fisher Street between Mitchell Avenue and Bluewater Drive
172	171	134.9	8	Clay Tile	0							X				16	Linda Avenue
175	170	93.1	8	Clay Tile	0							X				16	Mitchell Avenue
178	177	136.4	8	Clay Tile	0							X	Inspection ended. Too unsafe to proceed (alignment change)			12	Hallmark Avenue
179	178	161.1	8	Clay Tile	0							X	91.1 collapsed lateral. Reverse Survey.			12	Mitchell Avenue
180	179	64	8	Clay Tile	0							X	encrustation will eventually decrease the capacity of the pipe; however, for future consideration			12	Jeffery Avenue
185	184	142.9	8	Clay Tile	0							X				12	Quentin Avenue
336	335	208.1	15	Clay Tile	0							X				24	Bluewater Drive
339	337	254.6	15	Clay Tile	0							X				24	Bluewater Drive
1251	1231	260	8	PVC	0							X				6	Williams Street
1252	1251	297.7	8	PVC	0							X				6	Williams Street
1254	1253	349	8	PVC	0							X				6	North Beach Drive
1256	1255	73.7	8	PVC	0							X				6	North Beach Drive
1257	1256	229	8	PVC	0							X				7	North Beach Drive
1258	1255	152	8	PVC	0							X				6	Crestwood Drive
1259	1261	59	8	PVC	0							X				6	Crestwood Drive
1261	1260	154.9	8	PVC	0							X				6	Crestwood Drive
1261	1227	299.6	8	PVC	0							X	Inspection ended due to grease.			6	Crestwood Drive
1262	1258	182.6	8	PVC	0							X				6	Crestwood Drive
1265	1264	100.7	8	PVC	0							X				6	Von Tassel Drive
1266	1264	138.1	8	PVC	0							X				6	Ichabod Lane
117C	117	55	10	Clay Tile	0							X				11	Condo Street
132B	132	269.5	8	Fiberglass Reinforced Pipe	0							X				15	Lake Street
Unk	146	5.6	8	Clay Tile	0							X	Survey abandoned - reduction in pipe size			15	Linda Avenue
Unk	101	140.3	12	Clay Tile	0							X				20	Beach Drive
Unk	177	4	10	Clay Tile	0							X				12	Approximately 50 ft west of Bluewater Drive between Jeffery Ave and Hallmark Ave

A. OPINION OF PROBABLE CONSTRUCTION COSTS

It is recommended that the City of Monticello phase the rehabilitation of Area 1. Priority areas are defined as follows:

Action Item	Rank
High Priority	≥ 5
Medium Priority	$2 < x < 5$
Low Priority	$0 \leq x \leq 2$

Pipe segments ranked as high priority action items require immediate rehabilitation due to their severe condition. Pipe segments ranked as medium priority should be rehabilitated to improve efficiency of the sanitary sewer main but do not require immediate action. Pipe segments ranked as low priority do not require immediate action and can therefore be re-evaluated for rehabilitation within the next 10-years. The Engineers Opinion of Probable Construction Costs can be found in **Table 5** below.

Table 5
Engineers Opinion of Probable Construction Costs

Description	Estimated Cost
High Priority Action Items	$ 241,100.00
Medium Priority Action Items	$ 196,900.00
Low Priority Action Items	$ 56,000.00
Subtotal, Estimated Construction Costs	**$ 494,00.00**
Contingency (10%)	**$ 50,000.00**
Estimated Construction Costs	**$ 548,000.00**

Appendix A

Rehabilitation Conditions Grading System

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Environmental Engineers & Consultants
7256 Company Drive
Indianapolis, IN 46237
PH: (317) 888-1177 FAX: (317) 887-8641

MEMORANDUM

FROM: Commonwealth Engineers, Inc.

DATE: July 2018

SUBJECT: City of Monticello Sewer Rehabilitation Conditions Grading System

This memorandum was developed to provide clarification to the scoring method utilized in conjunction with closed circuit televised (CCTV) video to determine high priority action items regarding sanitary sewer rehab for the City of Monticello. Under each condition scores range from no action (0) to high priority (4) based on the severity level observed. The condition, grading system utilized in this report aligns with the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP); this document is comprehensive and has been condensed for the purposes of sewer assessments in this report. The NASSCO PACP can be referenced for additional information if needed.

In general, condition grades are assigned as listed below:

4 – Significant defect grade
3 – moderate defect grade
2 – minor to moderate defect grade
1 – Minor defect grade
0 – no defect

This condition grading system results are entirely dependent on the quality of the CCTV videos and PACP coding reports received by the engineer. The grading system alone is inadequate for determining if a pipe segment should be rehabilitated or replaced. Many other factors in addition to the internal condition of the segment should be considered. The fact that a segment has significant grade 4 defects increasing its overall ranking does not necessarily mean the pipe segment should be considered high priority and be immediately rehabilitated.

Inflow and Infiltration (I/I):

Inflow into a sanitary sewer system is composed of stormwater entering the system through manhole covers and improper connections such as downspouts and groundwater sump pumps. Infiltration into a sanitary sewer system is composed of groundwater entering the system through cracks/leaks/breaks in the infrastructure and protrusion of roots/foreign objects through pipe walls or structures. See below for I/I classification:

Rating	Definition
4	Runner (severe I/I – constant high velocity stream entering system)
3	Weeper (moderate I/I – constant low velocity stream entering system)
2	Dripper (mild I/I – droplets entering system)
1	Stains (signs of previous I/I but has since dried)
0	No I/I

Structural Integrity:

It is important to assess the ability of the sanitary sewer to continue bearing the weight of the soil and surface conditions within its immediate area. Structural integrity considers factors that inhibit the ability of the pipe to properly convey flows to the wastewater treatment plant. The NASSCO PACP Structural Family describes various defects, where the pipe is damaged or otherwise defective. This family includes 12 total groups, however, this report condenses the defects to five rating categories. See below for Structural Integrity classification:

Rating	Definition
4	Collapsed/deformation (deformation changing the intended shape of the pipe and compromise >40% of its cross-sectional area)
3	Fracture (break line in the pipe wall that has become visibly open and a gap can be seen – continuous/hinge factures are likely to collapse)
2	Broken (pieces of the pipe are noticeably displaced, exposing soil)
1	Cracks/Offset Joint (break lines are visible on the surface but are not accompanied by a gap and are not visibly open. Offset Joint less than 1 pipe wall thick)
0	No Concerns for Structural Integrity

Presence of a Sag:

A sag is a dip in a section of pipe due to settling/erosion of bedding or other environmental factors. Sags are typically only a problem if they are severe enough to cause debris to settle and collect in the pipe, or if they are severe enough to inhibit the ability to line the pipe segment. Settling debris may eventually result in sewer backups and pipe sags can eventually lead to major structural defects. See below for categories of sags present in pipe sections:

Rating	Definition
4	Major Sag (> 5 ft in length, > 50% pipe diameter)
3	Major Sag (< 5 ft in length, > 50% pipe diameter)
2	Medium Sag (25-50% of a pipe diameter)
1	Mild Sag (minor buildup of debris may occur, < 25% of pipe diameter)
0	No Presence of a Sag

Operational and Maintenance Defects:

Operational and maintenance defects describe various types of foreign objects that are found in pipes and may interfere with the operation of the conveyance system. There are multiple groups outlined in the NASSCO PACP detailing these foreign objects; however, root intrusion was the main focus of this report. See below for Operational and Maintenance Defects classification:

Rating	Definition
4	Major Root Intrusion/ 100% Blockage including Tap Roots
3	Root Ball/ greater than 50% Blockage
2	Medium/Mild Roots/ up to 50% Blockage
1	Cleaned During CCTV
0	No Roots

Surface Damage:

NASSCO PACP describes surface damage as the progression of pipe material deterioration normally caused by hydrogen sulfide (H_2S) attack, erosion at the flow line, and general degradation of concrete exposed to the harsh sewer environment over time. See below for Surface Damage Classifications:

Rating	Definition
4	Major Surface Damage (H_2S gas corrosion)
3	Medium Surface Damage (Erosion at the flow line)
2	Mild Surface Damage (general degradation of exposed concrete)
1	Roughness to the pipe surface
0	No Surface Damage

Debris/Blockage/Additional Cleaning Needed:

NASSCO PACP considers debris present in sanitary sewers as an operational and maintenance defect; however due to the severity of root intrusion in the system, additional blockage has been rated as a separate observation. See below for Debris/Blockage/Additional Cleaning Needed classification:

Rating	Definition
4	up to 100% Blockage
3	up to 50% Blockage
2	up to 25% Blockage
1	up to 5% Blockage
0	No Blockage

Appendix B

Rehabilitation Maps


LOW PRIORITY
MEDIUM-HIGH PRIORITY
NEEDS TO BE CLEANED + ADDITIONAL CCTV
PART OF BLUEWATER DRIVE INTERCEPTOR (BO1)
1266
1265
VON TASSEL DR.
1264
1263
POINT REPAIR SAG
1201
1225
1226
1261
1259
1260
CRESTWOOD DRIVE
1262
CRESTWOOD DRIVE
1258
1227
MAIN STREET
POINT REPAIR SAG
LATERAL REPAIR
NORTH BEACH DRIVE
148'
1255
1256
1254
1253
1228
INSPECTION ENDED DUE TO GREASE. CLEAN + CCTV.
1263A
1248
1229
1230
1247
1244
WILLIAMS STREET
1231
1251
1252
1249
1246
1245
SCALE: 1"=100'
100' 50' 0 100'
N
COMMONWEALTH ENGINEERS, INC.
CITY OF MONTICELLO, INDIANA
WHITE COUNTY
SEWER MAPPING
FIELD INVESTIGATION MAPS
SHEET 5

LOW PRIORITY

MED-HIGH PRIORITY

ADD'L CLEANING /CCTV

BDI

SCALE: 1"=100'

100' 50' 0 100'

N

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY

SEWER MAPPING

FIELD INVESTIGATION MAPS
SHEET 7

LOW PRIORITY
MED-HIGH PRIORITY
ADD'L CLEANING / CCTV

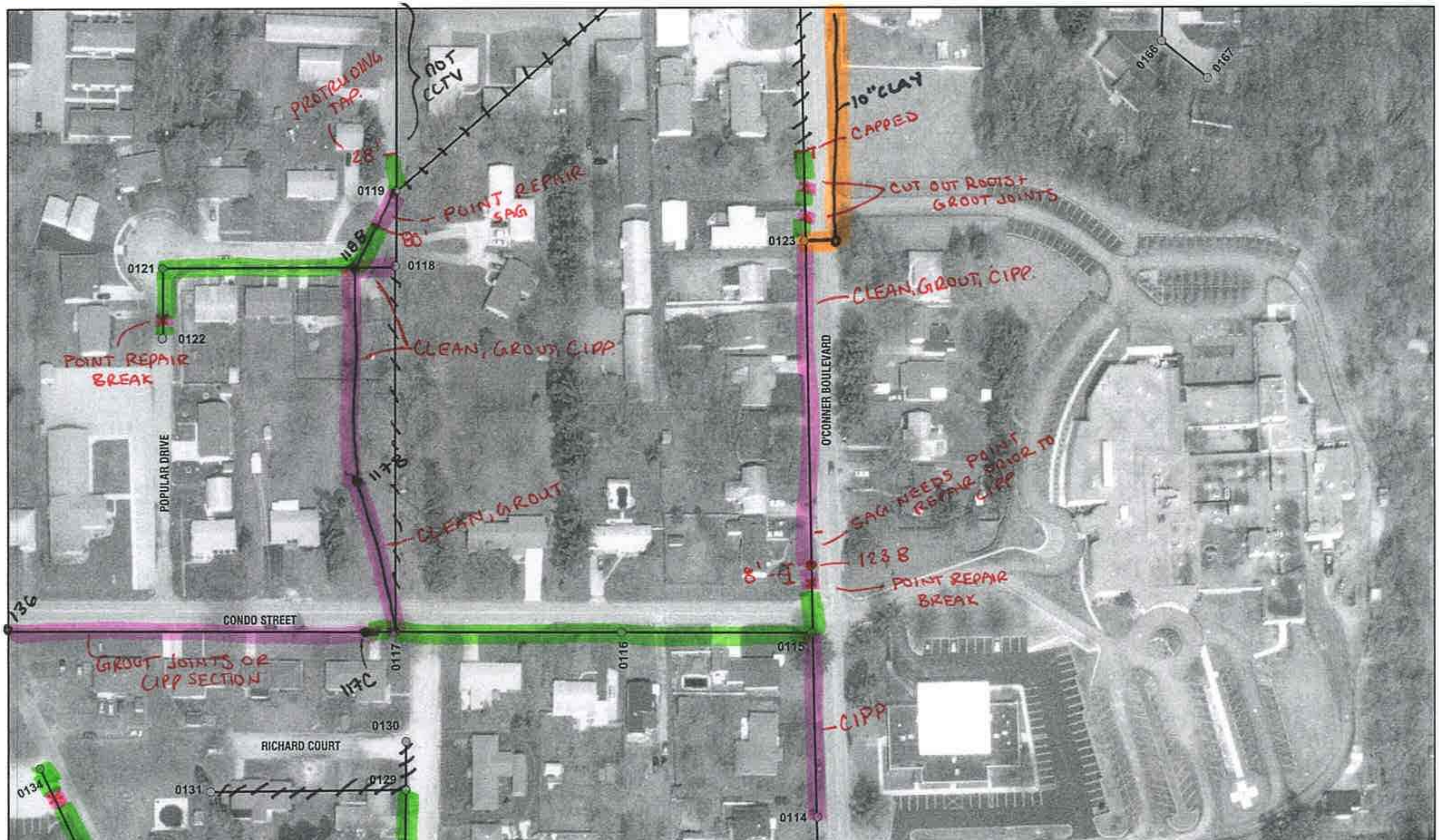
B01

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY
SEWER MAPPING
FIELD INVESTIGATION MAPS
SHEET 8

LOW PRIORITY
MED-HIGH PRIORITY
ADD'L CLEANING/CCTV

BDI



SCALE: 1"=100'

100' 50' 0 100'

N

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY

SEWER MAPPING

FIELD INVESTIGATION MAPS
SHEET 11

LOW PRIORITY

MED-HIGH PRIORITY

ADD'L CLEANING/CCTV

BDI

SCALE: 1"=100'

100' 50' 0 100'

N

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY

SEWER MAPPING

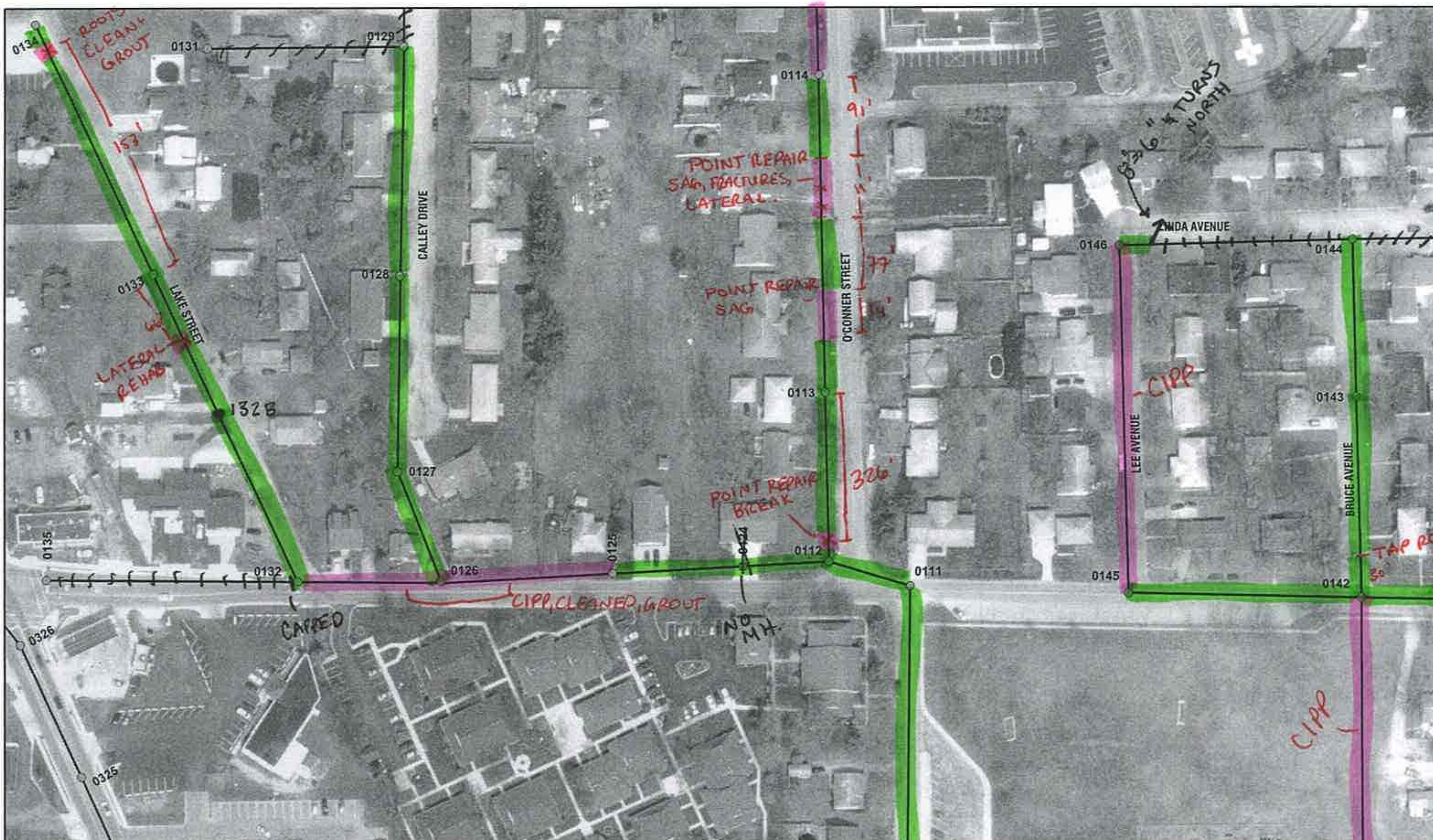
FIELD INVESTIGATION MAPS
SHEET 12

LOW PRIORITY

MED-HIGH PRIORITY

ADD'L CLEANING/CCTV

BD)



SCALE: 1"=100'

100' 50' 0 100'

N

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY

SEWER MAPPING

FIELD INVESTIGATION MAPS
SHEET 15

LOW PRIORITY
MED-HIGH PRIORITY
ADD'L CLEANING/ CCTV

BD1

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY
SEWER MAPPING
FIELD INVESTIGATION MAPS
SHEET 16

LOW PRIORITY

MED-HIGH PRIORITY

ADD'L CLEANING ITEM

BDI

COMMONWEALTH ENGINEERS, INC.

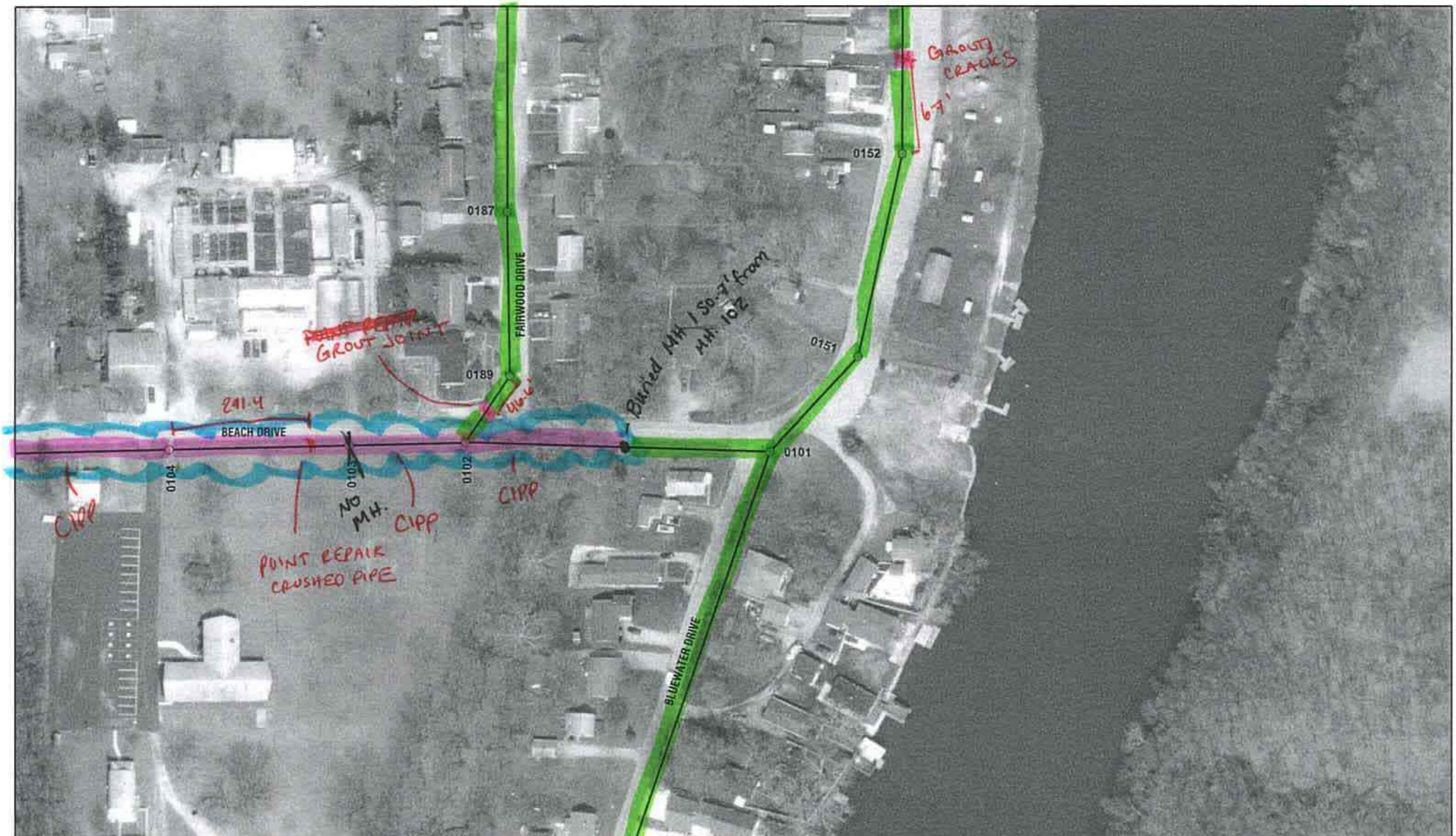
CITY OF MONTICELLO, INDIANA
WHITE COUNTY

SEWER MAPPING

FIELD INVESTIGATION MAPS
SHEET 19

LOW PRIORITY
MED-HIGH PRIORITY
ADD'L CLEANING/CCTV

BO1



COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY
SEWER MAPPING
FIELD INVESTIGATION MAPS
SHEET 20

LOW PRIORITY
MED-HIGH PRIORITY
ADDL CLEANING (CCTV

BD1

COMMONWEALTH ENGINEERS, INC.

CITY OF MONTICELLO, INDIANA
WHITE COUNTY
SEWER MAPPING
FIELD INVESTIGATION MAPS
SHEET 24

Appendix D

City of Monticello

Schedule of Indebtedness

SCHEDULE OF INDEBTEDNESS

The following schedule shows the outstanding indebtedness of the City of Monticello (the "City") and the taxing units within and overlapping its jurisdiction as of March 15, 2018, as reported by the respective taxing units.

Direct Debt	Original Par Amount	Final Maturity	Outstanding Amount
Self-Supporting Revenue Debt			
Sewage Works Revenue Bonds of 2015, Series A (SRF)	$870,000	05/01/23	$734,000
Sewage Works Revenue Bonds of 2015, Series B (SRF)	11,865,000	05/01/36	11,864,000
Sewage Works Revenue Bonds of 2014, Series A (SRF)	3,862,000	05/01/35	3,541,000
Sewage Works Revenue Bonds of 2009	2,050,000	05/01/22	2,050,000
Sewage Works Revenue Bonds of 2006	705,000	05/01/18	90,000
Sewage Works Revenue Bonds of 1998	5,300,000	05/01/18	395,000
Waterworks Revenue Bonds of 2013	1,785,000	01/01/26	1,580,000
Waterworks Revenue Bonds of 2009	825,000	01/01/24	825,000
Waterworks Revenue Bonds of 2006	610,000	01/01/21	255,000
Waterworks Revenue Bonds of 2001 (SRF)	3,800,000	01/01/21	745,215
Subtotal			22,079,215
Tax Supported Debt			
Redevelopment District Lease Rental Bonds of 2015	4,055,000	02/15/31	3,850,000
EDIT Revenue Bonds of 2006	435,000	08/01/18	50,000
Tax Increment Revenue Bonds of 2003	700,000	02/01/20	115,000
Subtotal			4,015,000
Total Direct Debt			$26,094,215

Overlapping Debt	Total Debt	Percent Allocable to the City (1)	Amount Allocable to the City
Tax Supported Debt			
White County	$20,510,000	11.14%	$2,284,814
Twin Lakes Community School Corporation	10,443,333	29.64%	3,095,404
Total Overlapping Debt			$5,380,218

(1) Based upon the 2016 payable 2017 net assessed valuation of the respective taxing units.

The schedule presented above is based on information furnished by the obligors or other sources and is deemed reliable. The City makes no representation or warranty as to its accuracy or completeness.

DEBT RATIOS

The following presents the ratios relative to the revenue supported indebtedness of the taxing units within and overlapping the City as of March 15, 2018.

	Direct Sewage Works Revenue Supported Debt $18,674,000	Direct Waterworks Revenue Supported Debt $3,405,215	Total Direct Utility Revenue Debt $22,079,215
Per capita (1)	$3,549.52	$647.26	$4,196.77
Per user (2)			
Sewage Works	$8,073.50		
Waterworks		$1,338.53	

(1) According to the U.S. Census Bureau, the estimated 2016 population of the City is 5,261.

(2) Based upon the billing records, the current number of users are as follows:

Sewage	2,313
Water	2,544

PROPERTY TAXES LEVIED AND COLLECTED

Collection Year	Certified Taxes Levied	Circuit Breaker Tax Credit (1)	Certified Taxes Levied Net of Circuit Breaker Tax Credit	Taxes Collected	Collected as Percent of Gross Levy	Collected as Percent of Net Levy
2015	$2,838,483	($114,216)	$2,724,267	$2,655,353	93.55%	97.47%
2016	2,898,513	(135,747)	2,762,766	2,751,313	94.92%	99.59%
2017	3,004,932	(136,743)	2,868,189	2,858,042	95.11%	99.65%

Source: The White County Auditor's Office and the DLGF Certified Budget Orders for the City.

(1) Circuit Breaker Tax Credits allocable to the City per the DLGF.

Indiana Code 6-1.1-20.6 (the "Statute") provides taxpayers with a tax credit for all property taxes in an amount that exceeds the gross assessed value of real and personal property eligible for the credit ("Circuit Breaker Tax Credit").

Property taxes for residential homesteads are limited to 1.0% of the gross assessed value of the homestead; property taxes for agricultural, other residential property and long term care facilities are limited to 2.0% of their gross assessed value; and property taxes for all other real and personal property are limited to 3.0% of gross assessed value. Additional property tax limits have been made available to certain senior citizens. School corporations are authorized to impose a referendum tax levy to replace property tax revenue that the school corporation will not receive due to the Circuit Breaker Tax Credit. Other political subdivisions may not increase their property tax levy or borrow money to make up for any property tax revenue shortfall due to the application of the Circuit Breaker Tax Credit.

The Statute categorizes property taxes levied to pay Debt Service Obligations as "protected taxes," regardless of whether the property taxes were approved at a referendum, and all other property taxes as "unprotected taxes." The total amount of revenue to be distributed to the fund for which the protected taxes were imposed shall be determined without applying the Circuit Breaker Tax Credit. The application of the Circuit Breaker Tax Credit must reduce only the amount of unprotected taxes distributed to a fund. The political subdivision may allocate the reduction by using a combination of unprotected taxes of the political subdivision in those taxing districts in which the Circuit Breaker Tax Credit caused a reduction in protected taxes. The tax revenue and each fund of any other political subdivisions must not be affected by the reduction.

Appendix E

Hydraulic Modeling Technical Memorandum

Environmental Engineers & Consultants
9604 Coldwater Road, Suite 203
Ft. Wayne, IN 46825
PH :-(260) 494-3223 FAX :-(260) 494-3224

SWMM MODEL CALIBRATION, FUTURE GROWTH & ALTERNATIVE ANALYSES TECHNICAL MEMORANDUM

TO: Adam Downey - City of Monticello

FROM: Brian Desharnais, Ph.D., P.E. – Commonwealth Engineers, Inc.
Brian Wilson, P.E. – Commonwealth Engineers, Inc.

DATE: March 2018 ***(Revised April 2020)***

SUBJECT: SWMM Model Calibration, Future Growth, and Alternatives Analyses

ATTACHMENTS: Attachment 1 - Model Modifications
Attachment 2 - Dry Weather Calibration and Validation Figures
Attachment 3 - Wet Weather Calibration and Validation Figures

1.0 Introduction

The project area studied as a part of this technical memorandum includes the City of Monticello's combined sewer collection system, which is depicted in **Figure 1**. The collection system encompasses approximately 1,825 acres and is comprised of approximately 81,000 linear feet of sanitary sewer, 89,275 linear feet of combined sewer, and 18,135 linear feet of force main.

Domestic sanitary flow is conveyed to the City's wastewater treatment plant (WWTP) via combined and sanitary gravity interceptors and pump stations. During wet weather, the collection system experiences significant peak wet weather flows throughout the City's combined sewer basins. The City maintains six (6) combined sewer outfalls (CSOs) along the Tippecanoe River / Lake Freeman. In accordance with the City's Long-Term Control Plan (LTCP), the City must improve the collection system to prevent CSOs for wet weather events up to and including the 10-year 1-hour design storm.

As a part of the City's five (5) year update to their LTCP, the six (6) CSOs listed below were evaluated as a part of this modeling effort.

- CSO 001
- CSO 002
- CSO 003
- CSO 004
- CSO 007
- CSO 105

The City has recently completed several LTCP projects, which include: the National Homes Sewer Separation, Bryan's Lift Station Improvements and Wet Weather Storage, 48-inch Maple Street Interceptor, Bryan's Lift Station Force Main, and the Wasteater Treatment Plant Expansion. The intent of this study is to determine the impact of the completed projects and develop cost-effective alternatives to mitigate CSOs and ensure compliance with the City's LTCP.

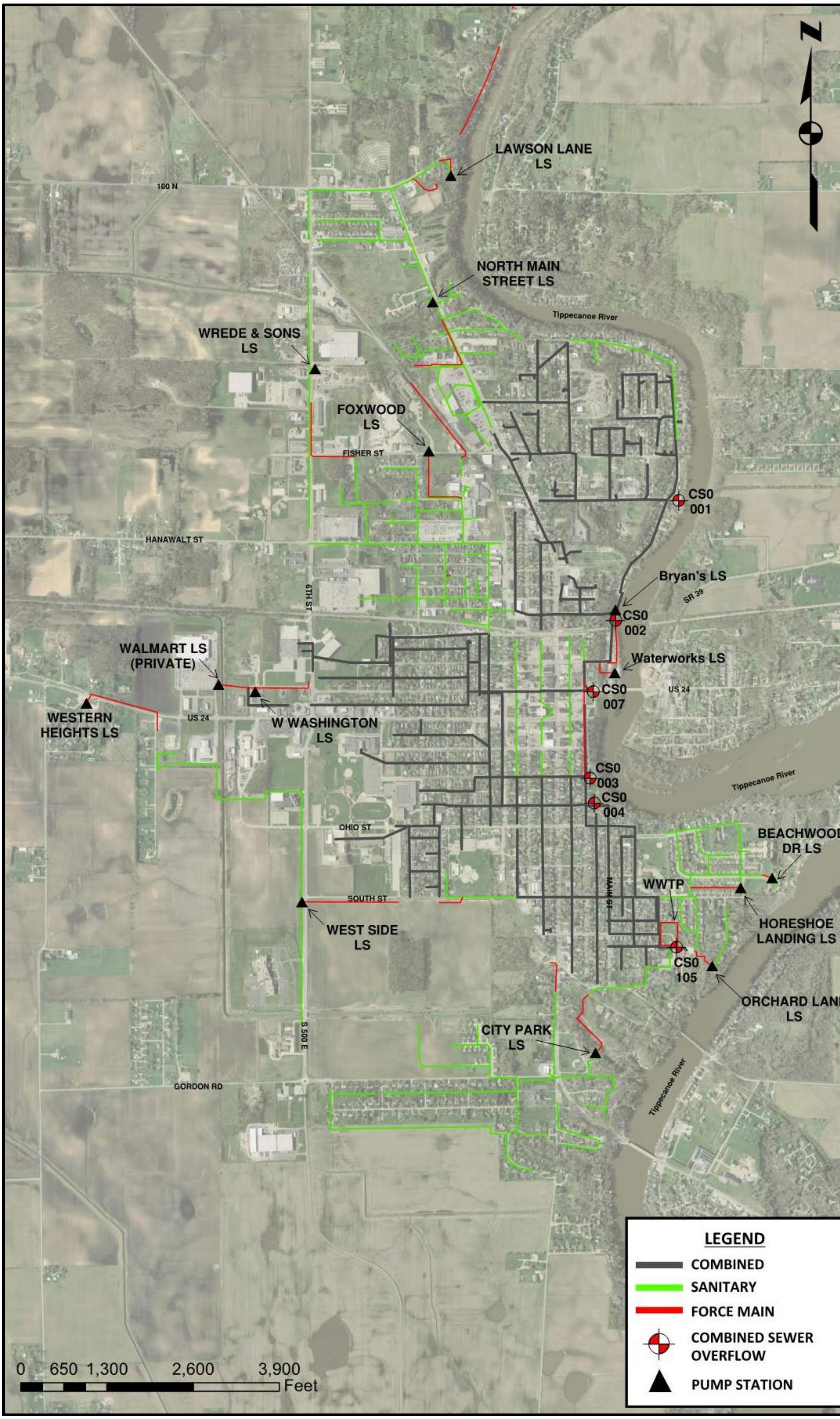


Figure 1 - City of Monticello Collection System

2.0 Hydraulic Model Expansion

A hydraulic model that accurately represents the existing conditions of the collection system was developed to evaluate planning-level alternative solutions to mitigate CSOs and achieve compliance with the City's LTCP. The hydraulic model was developed and calibrated using the United States Environmental Agency's (USEPA) hydraulic modeling program Storm Water Management Model, Version 5 (SWMM5). The model is well calibrated to dry and wet weather events and is suitable for planning-level alternative analyses. The following is a summary of the hydraulic model architecture.

Extensive surveying of the City's collection system was performed as a part of this study to accurately represent the physical characteristics of the system in the hydraulic model. Nodes and links were added to the model based on the surveying data; record drawings and the City's Geographic Information System (GIS) were used as supplemental information in instances where additional information beyond the surveying and field data was required. For example, the Bryan's Lift Station and Wet Weather Storage System were incorporated into the model using survey and field data; the record drawings were then used as a secondary check to ensure that physical characteristics of the system were being modeled correctly. **Figure 2** depicts the model architecture. **Attachment 1** details the properties of each model element.

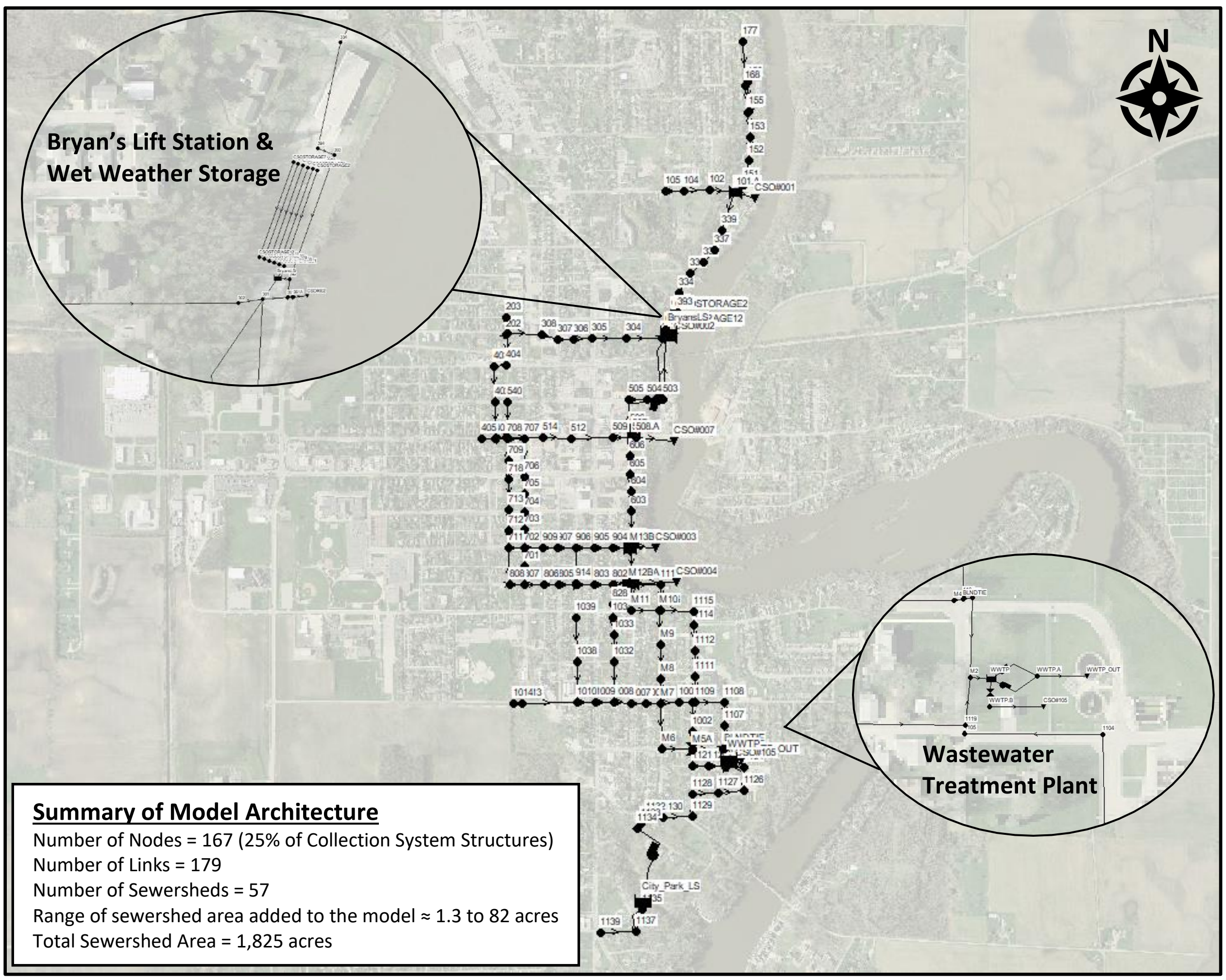


Figure 2 - SWMM5 Model Architecture

3.0 Rainfall and Flow Meter Data

An accurate source of rainfall and flow meter data is necessary to develop a calibrated hydraulic model for the City's collection system. The City maintains two (2) rainfall gauges and five (5) permanent flow meters for the CSOs. In addition, temporary flow meters were installed as part of this LTCP modeling effort. The following is a summary of the rainfall and flow meter data that was used for the model calibration.

3.1 Rainfall Data

The City maintains two (2) permanent rainfall gauges. One gauge is located at the City's Wastewater Treatment Plant Lab, and the other is located at the Wrede and Sons Lift Station on North 6th Street. **Figure 3** illustrates the location of each rain gauge. Rainfall data was downloaded and analyzed for the duration of the flow monitoring period from mid-September 2017 to mid-November 2017. Several wet weather events occurred during the flow monitoring period and are classified in **Table 1**.

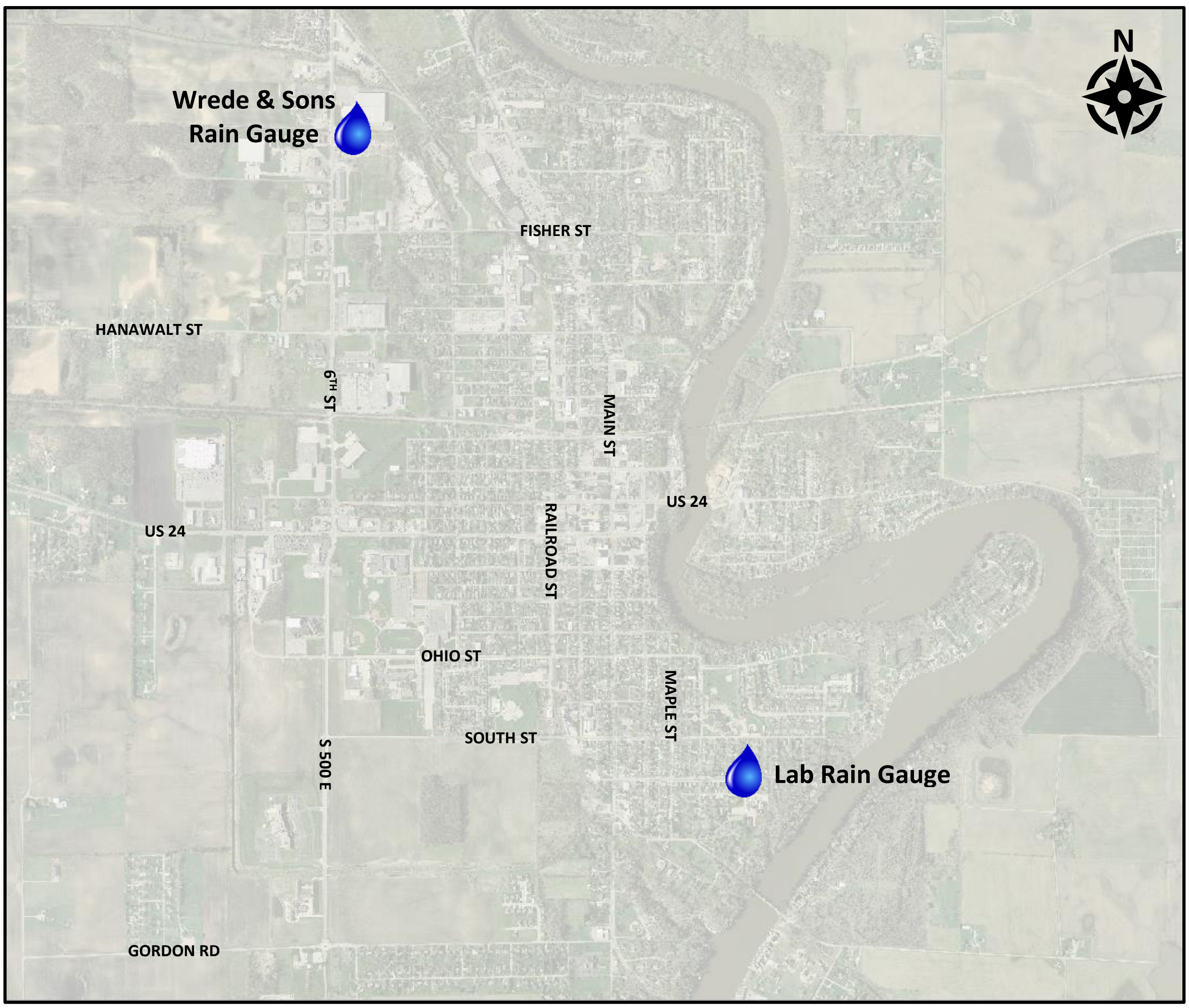


Figure 3 - Permanent Rain Gauge Locations

Table 1 - Classification of Rainfall Events

Date	Lab Rain Gauge[A]			Wrede and Sons Rain Gauge[B]		
	Depth (in)	Duration (hr)	Recurrence Interval[C]	Depth (in)	Duration (hr)	Recurrence Interval[C]
10/10/2017	0.81	12	< 2 Months	1.06	6	2 - 3 Months
10/23/2017[D]	1.49	18	3 - 4 Months	1.32	18	2 - 3 Months
11/1/2017	0.29	18	< 2 Months	0.19	18	< 2 Months
11/5/2017	0.73	6	< 2 Months	0.37	6	< 2 Months

[A] *Rain gauge located at the City's Wastewater Treatment Plant*

[B] *Rain gauge located at Wrede and Sons Excavating, Inc. (1109 N 6th St, Monticello, IN 47960)*

[C] *Classification approximated using the* ***Rainfall Frequency Atlas of the Midwest - Bulletin 71***

[D] *The wet weather event that occurred October 23, 2017 was the largest rainfall event during the flow metering period and was used as the primary wet weather calibration event.*

3.2 Flow Meter Data

Eleven (11) temporary area-velocity (AV) flow meters were placed throughout the City's collection system at key hydraulic locations to better understand dry and wet weather flows. The temporary flow meters were installed from mid-September 2017 to mid-November 2017. In addition to the temporary meters, the City maintains five (5) permanent flow meters at the City's CSOs as well as permanent meters at the WWTP and Bryan's Lift Station. **Table 2** provides a list of the temporary and permanent flow meters, corresponding structure locations, and corresponding pipe diameters. **Figure 4** illustrates the location of each flow meter in relation to the modeled SWMM5 subbasins.

Table 2 - Summary of Flow Meters

Location in the Collection System (Manhole #)	Temporary/ Permanent	Pipe Diameter (in)	Meter Location (Influent / Effluent)
168	Temporary	10	Influent
102	Temporary	12	Influent
306	Temporary	24	Effluent
509	Temporary	30	Effluent
202	Temporary	24	Influent
401	Temporary	30	Influent
701	Temporary	36	Influent
802	Temporary	36	Influent
M9	Temporary	48	Influent
1013	Temporary	12	Influent
1137	Temporary	12	Influent
CSO 001	Permanent	N/A[A]	
CSO 002	Permanent	N/A[A]	
CSO 003	Permanent	N/A[A]	
CSO 004	Permanent	N/A[A]	
CSO 105	Permanent	36	Influent
Bryan's Lift Station[B]	Permanent	12	Effluent
WWTP[C]	Permanent	12	Effluent

[A] *CSO monitored via radar depth sensor. CSO flow calculated using a weir equation based on depth within the CSO Regulator.*

[B] *Flow and depth are monitored at Bryan's Lift Station. Flow is monitored via a mag meter on the force main, and depth is monitored via a level pressure transducer within the lift station wet well.*

[C] *Flow and depth are monitored at the City's WWTP. Flow is monitored via a mag meter on the force main, and depth is monitored via a level pressure transducer within the headworks.*

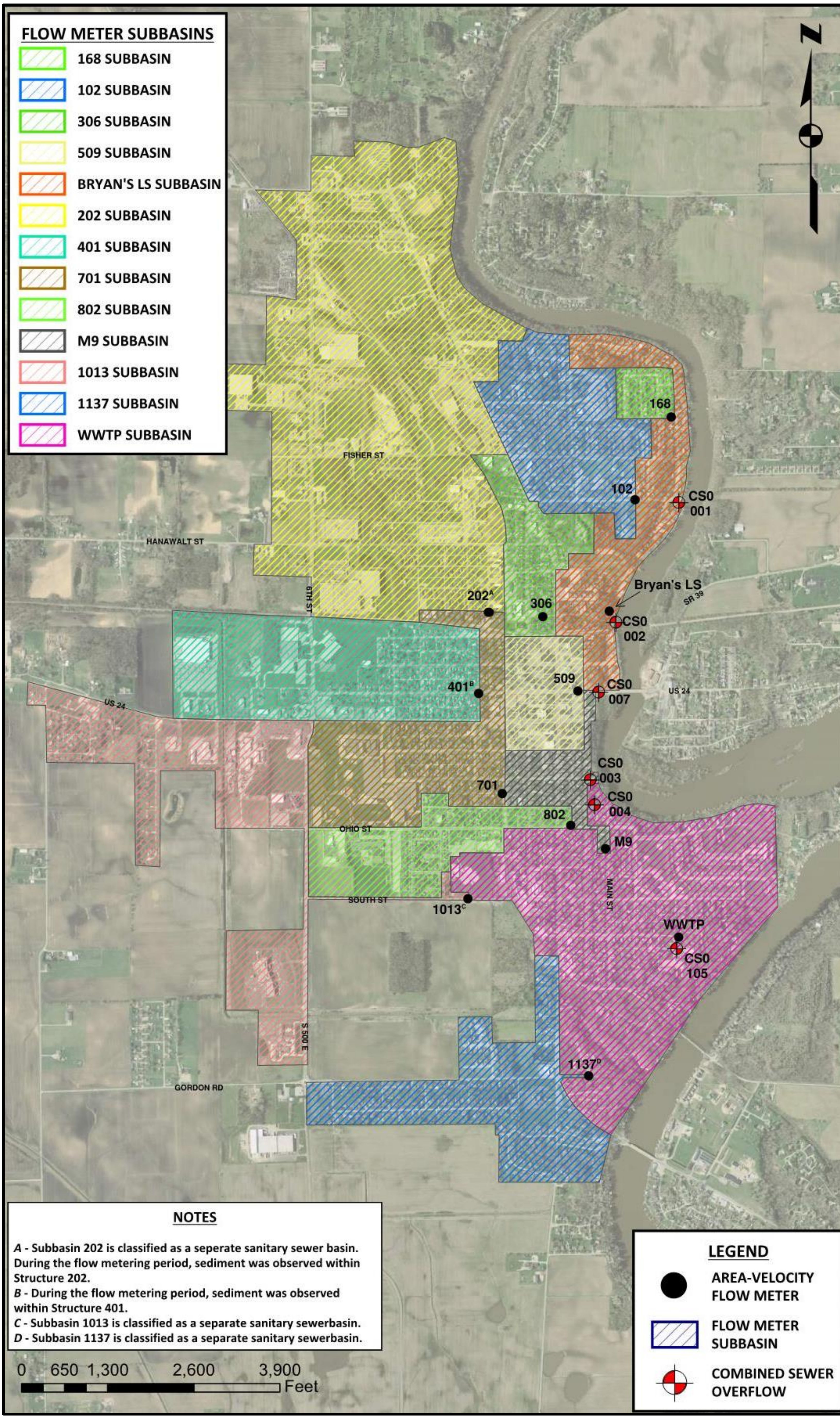


Figure 4 - SWMM5 Flow Meter Subbasins

4.0 Model Calibration

Model calibration for both dry weather and wet weather conditions is a critical component of collection system modeling, which will be used to evaluate alternative solutions to achieve LTCP compliance. Dry weather calibration ensures an accurate depiction of base sanitary flows and levels in the collection system. Wet weather calibration accurately quantifies the volume and rate entering the collection system during various storm events, along with corresponding effects to the hydraulic grade lines (HGLs). Dry and wet weather conditions were calibrated and validated separately, as summarized below.

4.1 Dry Weather Calibration and Validation

The flow metering data was reviewed to find an optimal seven (7) to fourteen (14) day span in which no rainfall had fallen during that span and no wet weather events had occurred in at least the two (2) preceding days. The dry weather span that occurred between September 21, 2017 to October 3, 2017 met these criteria (see **Figure 13**). During this period, the flow metering data was analyzed, and dry weather flow characteristics were calculated for each meter installed within the dry weather flow path. Dry weather calibration was performed by distributing the average dry weather flow metered at the monitoring locations to upstream nodes based on residential / business counts and approximate flow rates from industries and institutions. Diurnal patterns were also calculated that were based upon the hourly and daily variation in the flow. These patterns allowed the average dry weather flow to accurately match the hydrographs collected by the flow meters. **Attachment 2** contains the graphical comparison of the modeled flow and depth data with metered flow and depth data for the selected dry weather calibration period. As shown in **Attachment 2**, the model is adequately calibrated to dry weather conditions due to the consistent agreement between the metered data and model output.

During the flow meter installation, sediment was observed at two (2) of the flow monitoring locations: Structures 202 and 401. Approximately eight (8) inches of sediment was observed in Structure 202 and three (3) inches in Structure 401. As shown in **Figures 5 and 6**, the depths generated by the model in Structures 202 and 401 were significantly and consistently lower than the metered data. Since (a) the flow at each structure is well calibrated and (b) the diameters and slopes of the interceptor were confirmed, this suggest that the sediment or an obstruction is likely present. **Figures 7 and 8** depict the depth in Structures 202 and 401 after the introduction of sediment to the model. As shown, the modeled depth and observed (i.e. metered) depth are well calibrated with the sediment restriction added to the SWMM5 model.

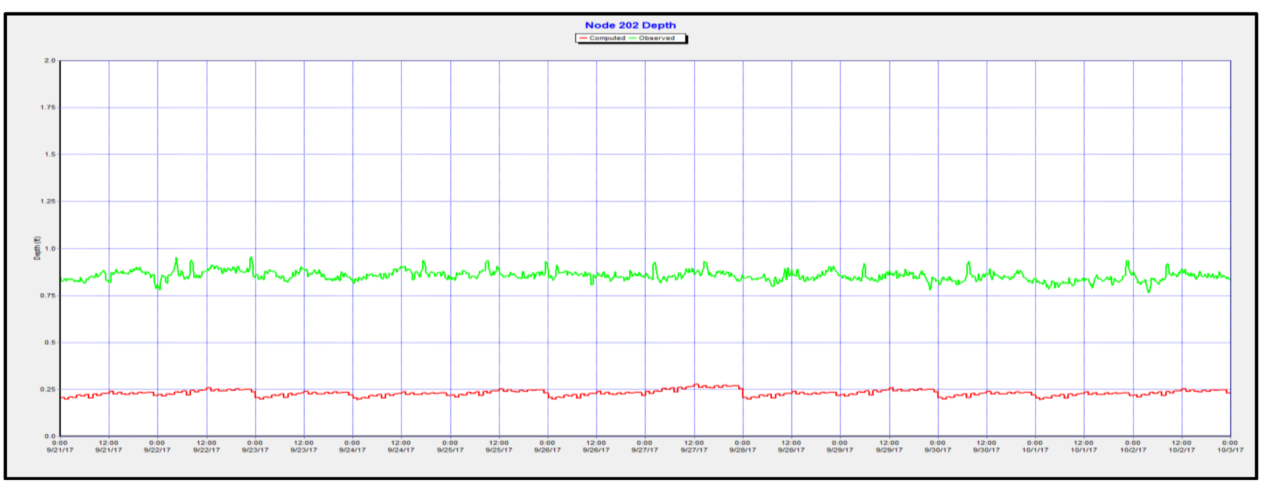


Figure 5 - Depth at Structure 202 without Sediment Added to the SWMM5 Model

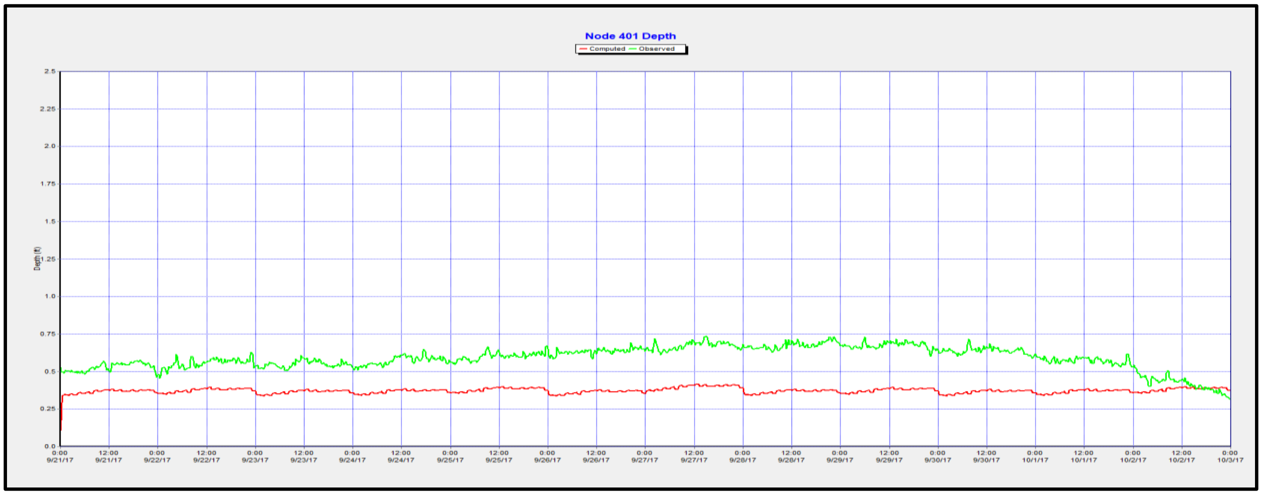


Figure 6 - Depth at Structure 401 without Sediment Added to the SWMM5 Model

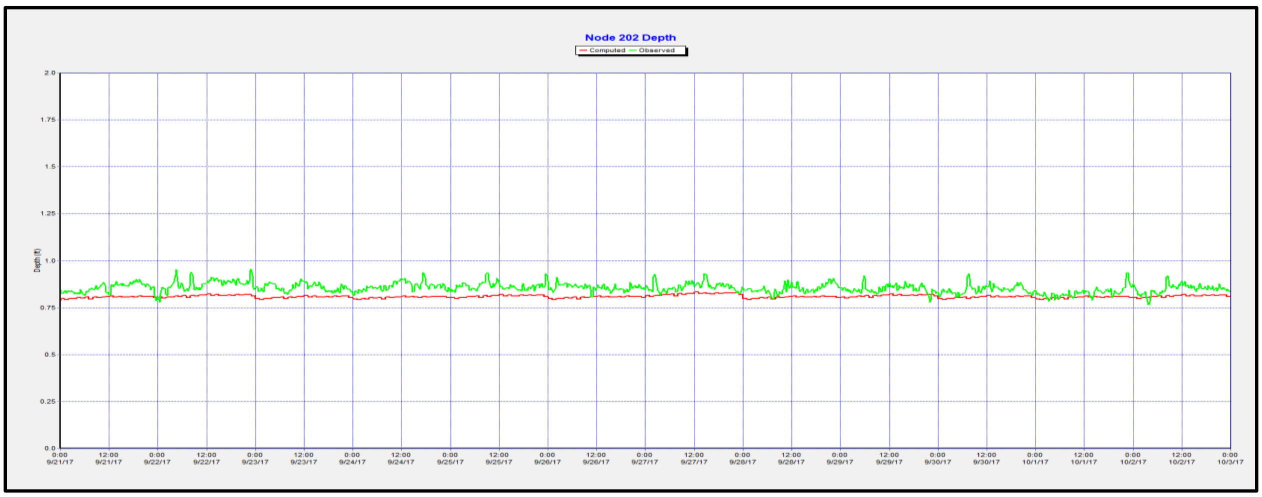


Figure 7 - Depth at Structure 202 with Sediment Added to the SWMM5 Model

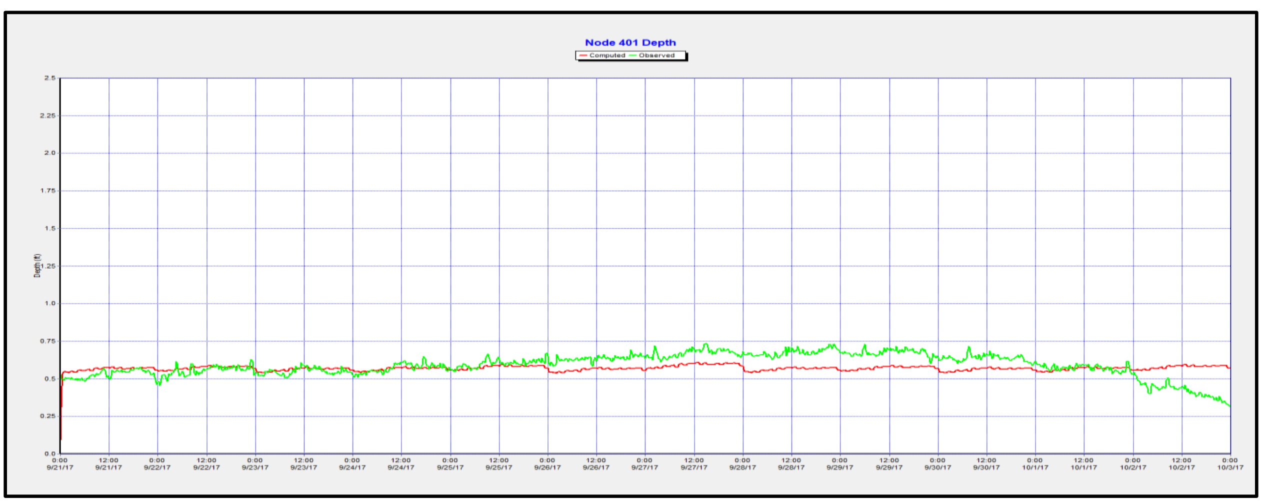


Figure 8 - Depth at Structure 401 with Sediment Added to the SWMM5 Model

The selected dry weather validation span, to independently asses the dry weather calibration, was October 12, 2017 to October 21, 2017 (see **Figure 13**). For the dry weather validation model run, the established dry weather flow patterns from the preceding calibration were not altered in the model, thus providing a secondary period in which the model output can be compared to the gauged metering data during dry weather. **Attachment 2** contains the graphical comparison of the modeled flow and depth data with the gauged metering data for the selected dry weather validation period. As shown, the model is adequately validated for LTCP planning-level purposes due to the consistent agreement between the metered data and model output.

4.2 Wet Weather Calibration & Validation

The wet weather calibration process began by identifying the sanitary and combined portions of the collection system (see **Figure 1**). It was determined that three (3) subbasins are considered completely separated: Subbasin 202, Subbasin 1013, and Subbasin 1137. The remaining subbasins are classified as combined (see **Figure 4**).

During the analysis of the flow metering data it was observed that Subbasins 168, 1013, and 1137 are insensitive to wet weather and did not generate a significant wet weather response. Therefore, wet weather calibration within Subbasins 168, 1013, and 1137 is not required. The remaining separated Subbasin 202 was sensitive to wet weather and was calibrated using unit hydrographs that are representative of the Rainfall Derived Infiltration and Inflow (RDII). The unit hydrographs were systematically adjusted and revised by altering the following calibration parameters: Fraction of Rainfall (volume), Time to Hydrograph Peak (timing), and Ratio of Recession Time to Peak Time (timing).

The remaining combined subbasins (see **Figure 4**), were calibrated using the subcatchment method. The runoff component of SWMM 5 operates on a collection of subcathment areas that receive precipitation and generate runoff. This subcatchment method is an acceptable way to model runoff entering combined sewers. With this method, the amount of flow entering into the combined sewers is correlated with (a) the amount of precipitation during the wet weather event, (b) the sewershed characteristics such as contributing surface area, slope, and width, and (c) soil characteristics. Wet weather calibration using SWMM 5 involves reasonably altering sewershed and soil characteristics until the predicted model results match the measured metering results through an iterative process.

The wet weather event selected for calibration was the rainfall event that occurred October 23, 2017 (see **Figure 13**). This was the largest rainfall event that occurred during the flow monitoring period and produced 1.49 inches of rain falling over an eighteen (18) hour period. The City's two (2) rainfall gauges were used during the calibration process. **Table 3** contains a summary of the rainfall gauges that were utilized within each model subbasin for wet weather calibration. Generally, the Wrede and Sons Gauge was loaded in the northern subbasins and the WTTP Lab Gauge in the southern subbasins. **Attachment 3** contains the graphical comparison of the modeled flow and depth data with metered flow and depth data for the selected wet weather calibration event. As shown in **Attachment 3**, the model is well calibrated at practically all metering points throughout the City's collection system.

Table 3 - SWMM5 Subbasin Rainfall Loading

Rainfall Gauge	Subbasins
WWTP Lab	102, 168, 202, 306, & Bryan's LS
Wrede & Sons	401, 509, 701, 802, M9, 1013, 1037, & WWTP

4.2.1 Long-Term Rainfall Dependent Infiltration Inflow (RDII) in Several Subbasins

During the combined sewer calibration process, the flows within Subbasins 509 and 701 were unable to be captured using the SWMM5 subcatchment method. Each calibration parameter was adjusted to find which variables the subbasins were most sensitive to; however, only the peak of the hydrographs was capable of being captured using the SWWM5 subcatchment method. **Figure 9** depicts the flow at Structure 509 using only the SWMM5 subcatchment method. As shown, the long “tail” of the hydrograph indicates that long-term infiltration is occurring within the subbasin. To account for the long-term infiltration, the modeled flow was subtracted from the observed flow at each time interval for the duration of the event, which is equivalent to the long-term infiltration flow. This flow was then analyzed using EPA SSOAP to determine and generate the representative RDII characteristics within each subbasin. The unit hydrographs within the subbasins were systematically adjusted and revised in the model. **Figures 9 through 12** depict the flow at each location using only the SWMM5 subcatchment method and the addition of the RDII added to the model; as shown, the flow is well calibrated for LTCP planning-level purposes due to the consistent agreement between the metered data and model output.

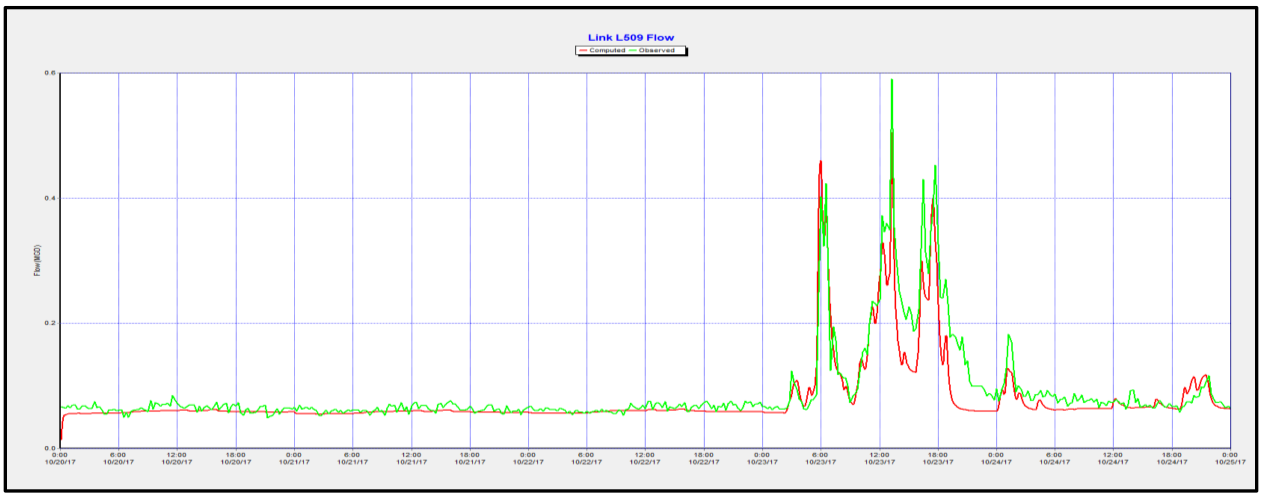


Figure 9 - Flow at 509 without Long-Term RDII

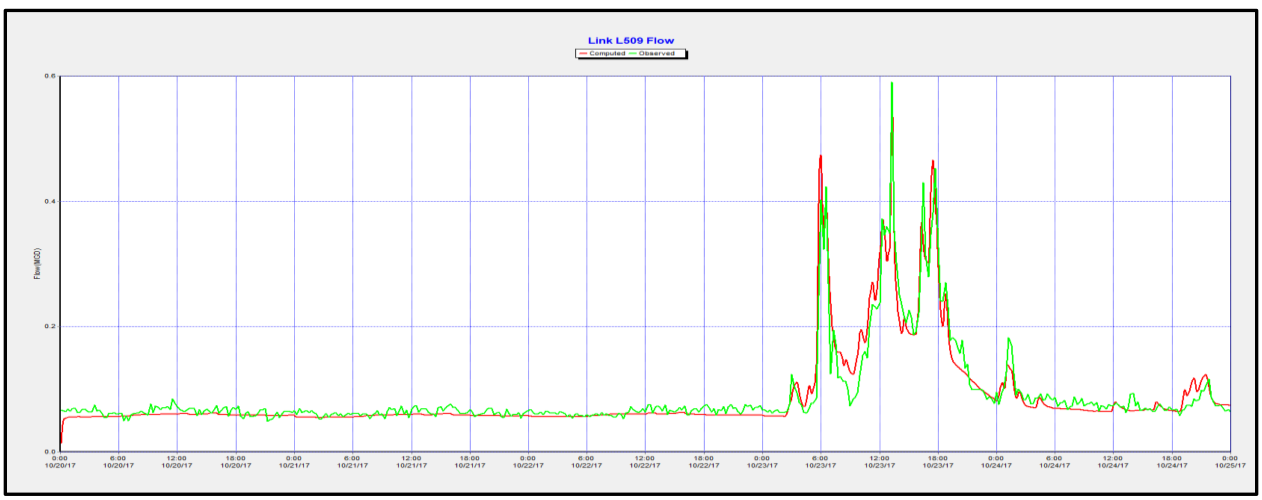


Figure 10 - Flow at 509 with Long-Term RDII

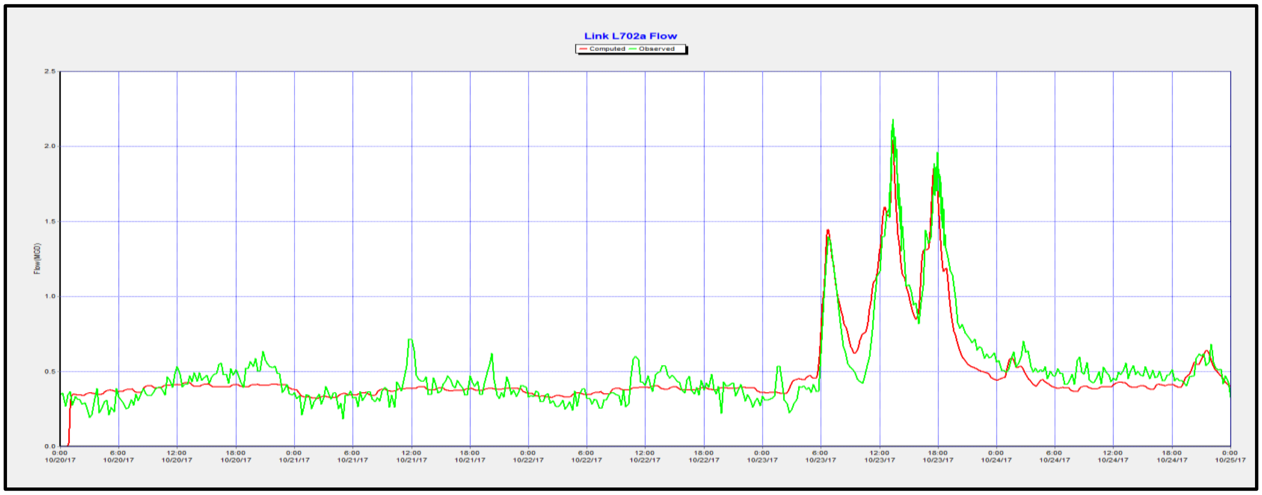


Figure 11 - Flow at 701 without Long-Term RDII

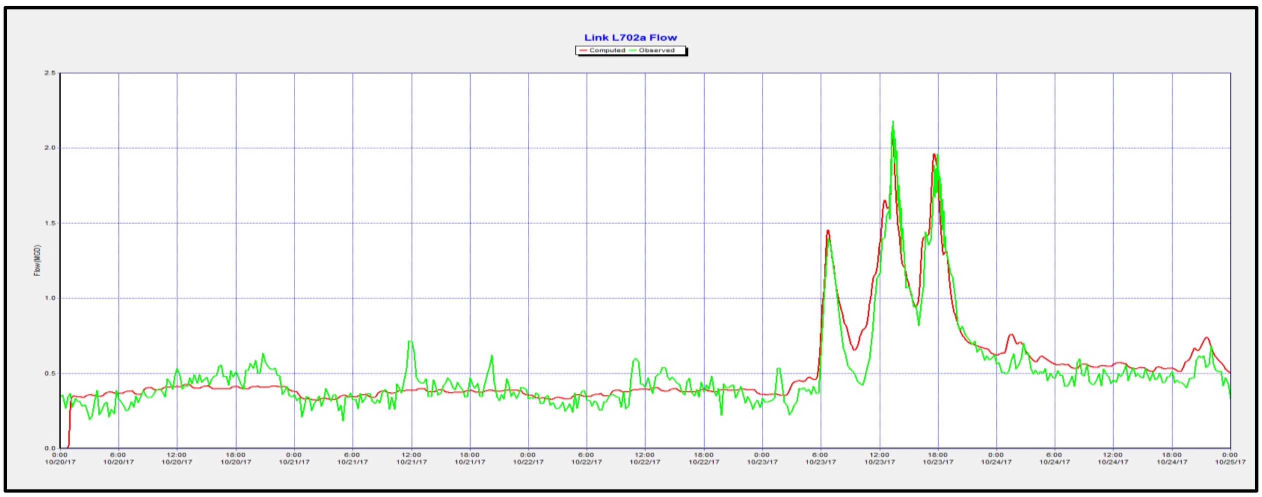


Figure 12 - Flow at 701 with Long-Term RDII

4.2.2 Wet Weather Validation

The entire flow metering period from mid-September 2017 to mid-November 2017 was used for wet weather validation. For the wet weather validation model run, the established runoff parameters from the preceding calibration were not altered in the model. **Attachment 3** contains the graphical comparison of the modeled flow and depth data with the gauged metering for the selected validation period. In general, the model is considered well validated and is suitable for LTCP planning-level purposes due to the consistent agreement between the metered data and model output.

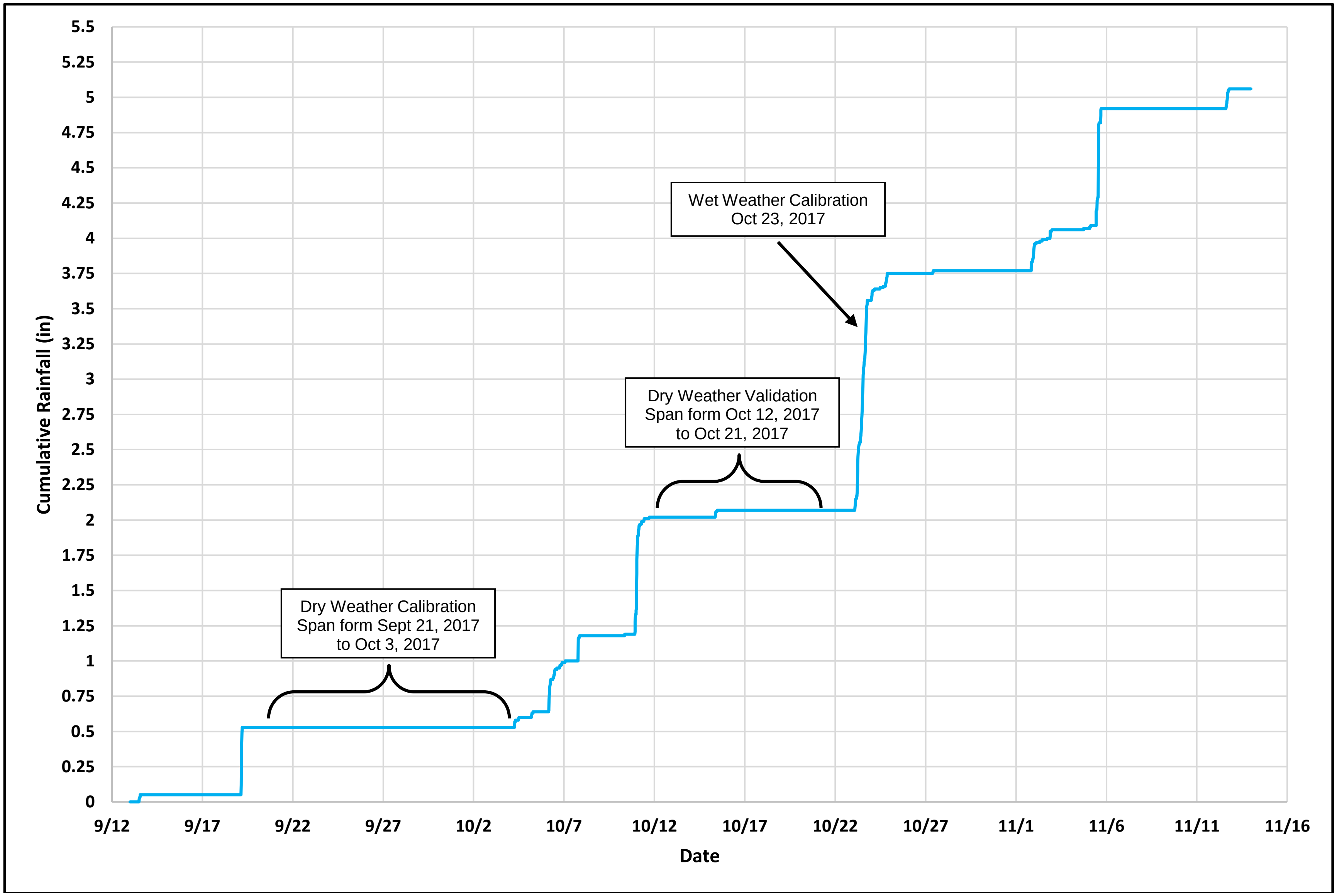


Figure 13 - Lab Rain Gauge Cumulative Rainfall

5.0 Baseline Hydraulic Assessment

Upon completing the dry and wet weather calibration and validation of the City's collection system model, the existing system was analyzed using several baseline design storms with the goal of identifying trouble spots in the existing collection system. **Table 4** contains a summary of the volumes and peak flows discharged at each CSO for the 1-year 1-hour design storm. The calibrated and validated model of the existing system was also analyzed using several larger design storms as summarized in **Tables 5 through 7**.

Figure 14 illustrates the peak depth of flow and potential flooding locations for the 10-year 1-hour design storm. Potential flooding at the periphery loading nodes may not be accurate considering that the collection system upstream of these points are not in the model, which would normally buffer extreme peak flows better.

Table 4 - 1-Year 1-Hour Baseline Hydraulic Assessment

Combined Sewer Outfall (CSO)	Volume (MG)	Peak Flow (MGD)
CSO 001	0.017	1.52
CSO 002	0.000	0.00
CSO 003	0.000	0.00
CSO 004	0.000	0.00
CSO 007	0.043	2.14
CSO 105	0.413	13.48

Table 5 - 2-Year 1-Hour Baseline Hydraulic Assessment

Combined Sewer Outfall (CSO)	Volume (MG)	Peak Flow (MGD)
CSO 001	0.034	2.47
CSO 002	0.000	0.00
CSO 003	0.000	0.00
CSO 004	0.000	0.00
CSO 007	0.072	3.35
CSO 105	0.611	18.40

Table 6 - 5-Year 1-Hour Baseline Hydraulic Assessment

Combined Sewer Outfall (CSO)	Volume (MG)	Peak Flow (MGD)
CSO 001	0.080	2.84
CSO 002	0.061	5.67
CSO 003	0.000	0.00
CSO 004	0.000	0.00
CSO 007	0.181	7.52
CSO 105	1.109	28.63

Table 7 - 10-Year 1-Hour Baseline Hydraulic Assessment

Combined Sewer Outfall (CSO)	Volume (MG)	Peak Flow (MGD)
CSO 001	0.139	3.08
CSO 002	0.205	11.29
CSO 003	0.000	0.00
CSO 004	0.000	0.00
CSO 007	0.371	13.80
CSO 105	1.63	36.87

Flooded Structures

Structure	Volume (MG)	Peak Flow (MGD)
105	0.055	4.26
828	0.004	0.38

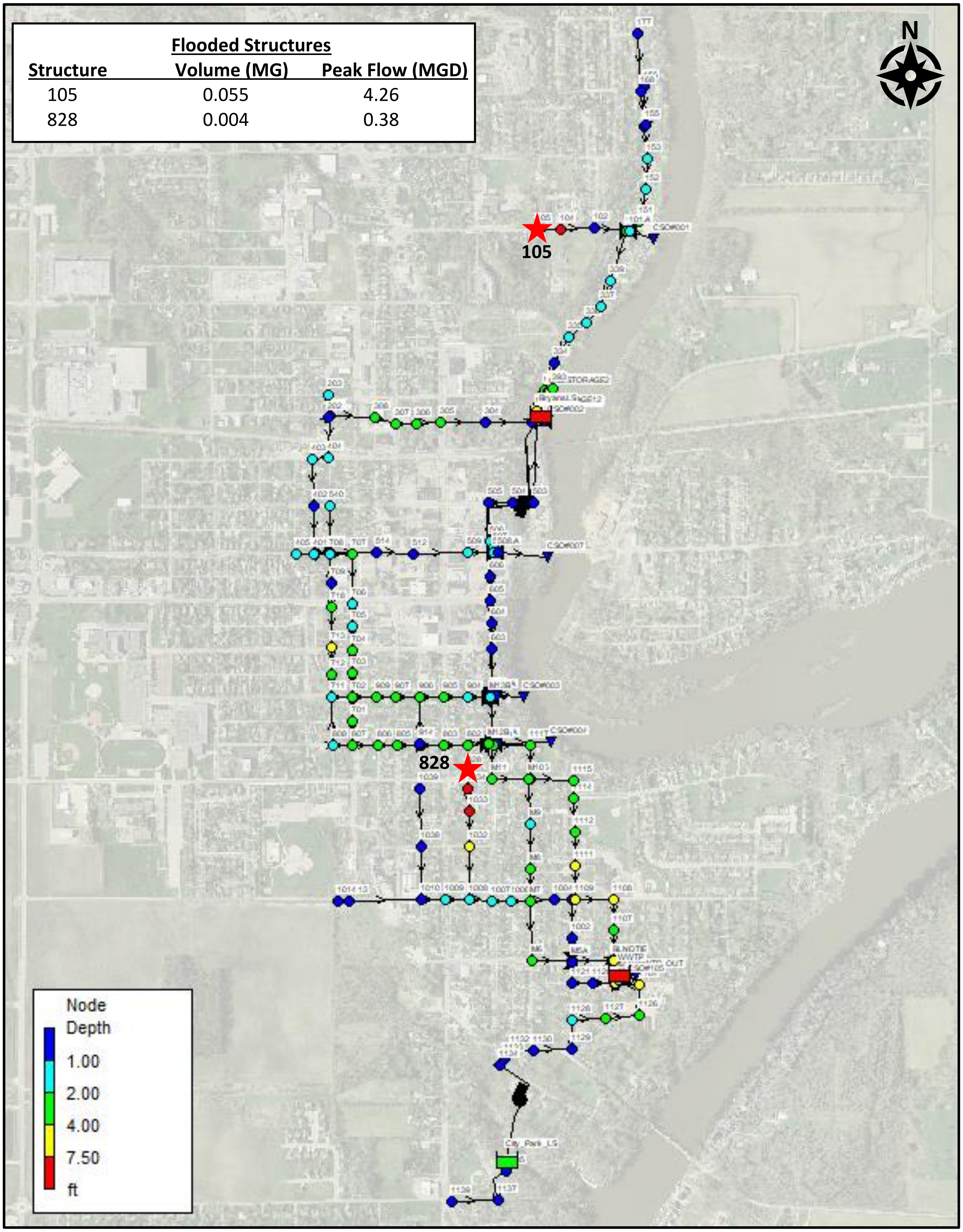


Figure 14 - Existing System Peak Depth of Flow and Potential Flooding Locations for 10-Year 1-Hour Design Storm

6.0 Future Growth

After completing the baseline hydraulic assessment of the existing collection system, the calibrated and validated model was adjusted to account for future growth conditions for a twenty (20) year period. In 2017, Commonwealth performed an update to the City's drinking water model. As a part of that study, the City's future growth was examined using data from the U.S. Census and the Kankakee-Iroquois Regional Planning Commission (KIRPC). The *2017 Monticello Water Model Update* indicates that an ongoing and slow decrease of population in both the City and White County since 2010. The slow decrease in population is expected to continue through the twenty (20) year planning period. Therefore, it is conservative to assume that the City's current population of approximately 5,300 persons will hold relatively constant through the planning period.

Even though the City's total population will not significantly change during the planning period, there is still the possibility of growth in targeted areas, which may impact local infrastructure. For example, the City has identified potential growth areas for residential and commercial development, which are depicted in **Figure 15**. To account for this possibility, future growth was added to the SWMM5 hydraulic model to ensure that all proposed alternative solutions are adequately sized and will achieve compliance with the City's LTCP.

Dry and wet weather loadings associated with future growth were increased proportionately in the SWMM5 model based on the predicted build-out conditions. **Figure 15** illustrates the future growth dry weather flows and additional wet weather subcatchment areas that were added to the model. Due to the size of the anticipated flows, a twenty (20) percent factor of safety was added. Wet weather response for typical new sanitary construction was estimated, and the RDII unit hydrograph values are summarized in **Table 8**. The projected future growth was incorporated in all alternative solutions described in **Section 7**.

Table 8 - Future Growth Weather RDII Characteristics

Response	R[1]	T[2]	K[3]
Short-Term	0.005	2	2
Medium-Term	0.009	4	5
Long-Term	0.03	10	10

[1] *R = fraction of rainfall that becomes I&I.*

[2] *T = time of hydrograph peak (hr).*

[3] *K = falling limb duration / rising limb duration (dimensionless).*

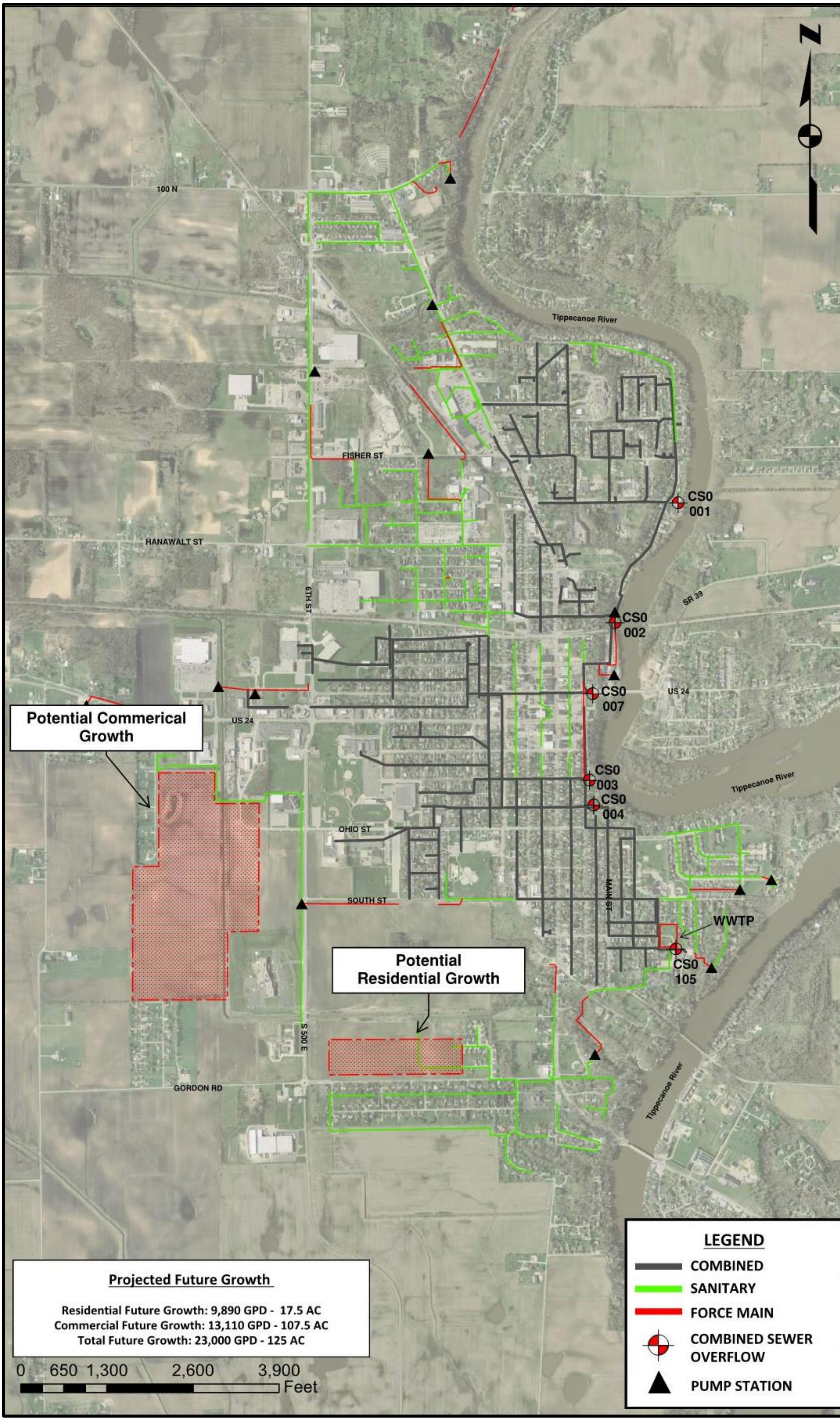


Figure 15 - Monticello Projected Future Growth

7.0 Alternative Solutions

The following performance criteria were used when identifying and assessing alternative solutions for the City of Monticello's combined sewer collection system:

- Eliminate CSOs for the 10-year 1-hour design storm, which is consistent with the 2009 LTCP Revision.
- Achieve eight (8) feet of freeboard between the ground elevation and maximum hydraulic grade line (HGL) in the collections system for the compliance storms. If eight (8) feet of freeboard was not available, the HGL must be lower than the crown of the pipe for the compliance event.
- Decrease the amount of CSO volume and maximize the hydraulic performance of the collection system for rainfall events larger than the compliance storms, making sure that the proposed improvements do not make upstream problems (such as surcharging) worse in the collection system during large wet weather events when CSOs are permissible.

Relevant alternatives presented in the City's 2009 LTCP Revision were used as a starting point for alternative modeling. These alternatives included sewer separation, replacement interceptors, and storage / high rate treatment at the WWTP. In addition to the LTCP alternatives, solutions were developed that utilize new interceptors, localized high rate treatment, and wet weather pump stations. In summary, four (4) alternative solutions were analyzed, and the goals for each are listed below.

- **Alternative Solution 1** = Convey excess wet weather flows to the WWTP for storage / treatment via gravity sewers <u>with</u> storage upgrades at the Bryan's Lift Station Area.
- **Alternative Solution 2** = Convey excess wet weather flows to the WWTP for storage / treatment via gravity sewers <u>without</u> upgrades at the Bryan's Lift Station Area.
- **Alternative Solution 3** = Convey excess wet weather flows to the WWTP and Bryan's Lift Station Area for storage / treatment via gravity sewers.
- **Alternative Solution 4** = Convey excess wet weather flow to the WWTP for storage / treatment via gravity sewers and pumping <u>without</u> upgrades at the Bryan's Lift Station Area.

For each of these alternatives, three (3) variations were investigated:

- **Variation 1** = Perform sewer separation at targeted areas and assume a ninety (90) percent reduction of impervious area, which is consistent with the 2009 LTCP Revision. Based on Commonwealth Engineer's experience with sewer separation projects, a reduction of wet weather flows associated with a ninety (90) percent reduction of impervious area in a SWMM model from sewer separation is very aggressive and likely unattainable.
- **Variation 2** = Perform sewer separation at targeted areas and assume a thirty (30) percent reduction of subcatchment area. Based on Commonwealth Engineer's experience with sewer separation projects, a reduction of wet weather flows associated with a thirty (30) percent reduction in subcatchment area in a SWMM model is more realistic and achievable.
- **Variation 3** = Do not perform sewer separation.

The following seven (7) items were included with each alternative solution.

- **Beach Drive 15" Sewer** - The hydraulic model predicts flooding in the twelve (12) inch interceptor that conveys flow from the west to CSO 001 on S. Beach Drive. The proposed solution is a new fifteen (15) inch sewer from existing Structure 0101 to existing Structure 0105. The fifteen (15) inch interceptor will provide relief to the existing interceptor and homes within the combined sewer basin that have historically experienced basement backups during large wet weather events.

- **Raise CSO 001 & CSO 007 Weirs** - The CSO 001 and CSO 007 weirs will be raised in order to maximize conveyance within the collection system in order eliminate combined sewer overflows for the the 10-year 1-hour design storm.
- **21" Sewer Replacement** - The hydraulic model predicts flooding in Structure 712, which is located in the alley between Harrison and Jefferson Streets. The proposed solution is a new twenty-one (21) inch sewer from Structure 713 to Structure 711.
- **Headworks 30 MGD Mechanical Screen** - During large wet weather events, considerable flows reach the WWTP, which has a mechanical screen that is rated for a peak flow of thirty (30) million gallons per day. The flows reaching the WWTP are greater than the existing screen can handle; therefore, additional screening is required. The WWTP was designed to handle a second thirty (30) million gallons per day screen, which has been included in all alternatives.
- **WWTP Effluent Sewer Improvements** - The WWTP's effluent sewer is aging and does not have enough capacity to handle flows for large wet weather events. Improvements for the City's effluent sewer are included in all proposed solutions.

Cost estimates were generated for each alternative solution and variation and are included in the City's LTCP. The lowest cost alternative solution is **Alternative Solution 1 - Variation 3**, which is illustrated in **Figure 16**. The active storage and wet weather treatment at the WWTP are sized to store the wet weather volume associated with the 1-year 1-hour design storm and to provide at least thirty (30) minutes of detention for the ten-year one-hour peak flow and disinfection in accordance with IDEM Non-Rule Policy Document Water-016. The active storage volume is less than the total storage volume since it was assumed that the storage is an open tank that will accept gravity flow in, but only a portion of tank will be used to hold wet weather volume; the rest of the volume is associated with freeboard to the ground surface. To ensure that the most cost-effective solutions are being realized at the WWTP, two (2) additional iterations of **Alternative Solution 1 - Variation 3** were developed.

- **Alternative Solution 1 - Variation 3a:** This iteration assumes that the storage tank at the WWTP is large enough to store the 1-year 1-hour design storm and provide thirty (30) minutes of detention of the 10-year 1-hour peak flow as well as providing disinfection in accordance with IDEM Non-Rule Policy Document Water-016.
  - **Storage Volume = 1.07 MG (0.62 MG Active Storage)**

- **Alternative Solution 1 - Variation 3b**: This iteration assumes that the storage tank at the WWTP is large enough to completely store the wet weather volume associated with the 10-year 1-hour design storm; therefore, disinfection is not needed.
  - **Storage Volume = 3.50 MG (2.60 MG Active Storage)**

- **Alternative Solution 1 - Variation 3c**: This iteration examined a scenario that involved storage, high rate treatment, and disinfection rated for a peak flow of twenty (20) MGD, thus providing a higher level of treatment than that required in IDEM Non-Rule Policy Document Water-016.
  - **Storage Volume = 1.60 MG (1.10 MG Active Storage)**

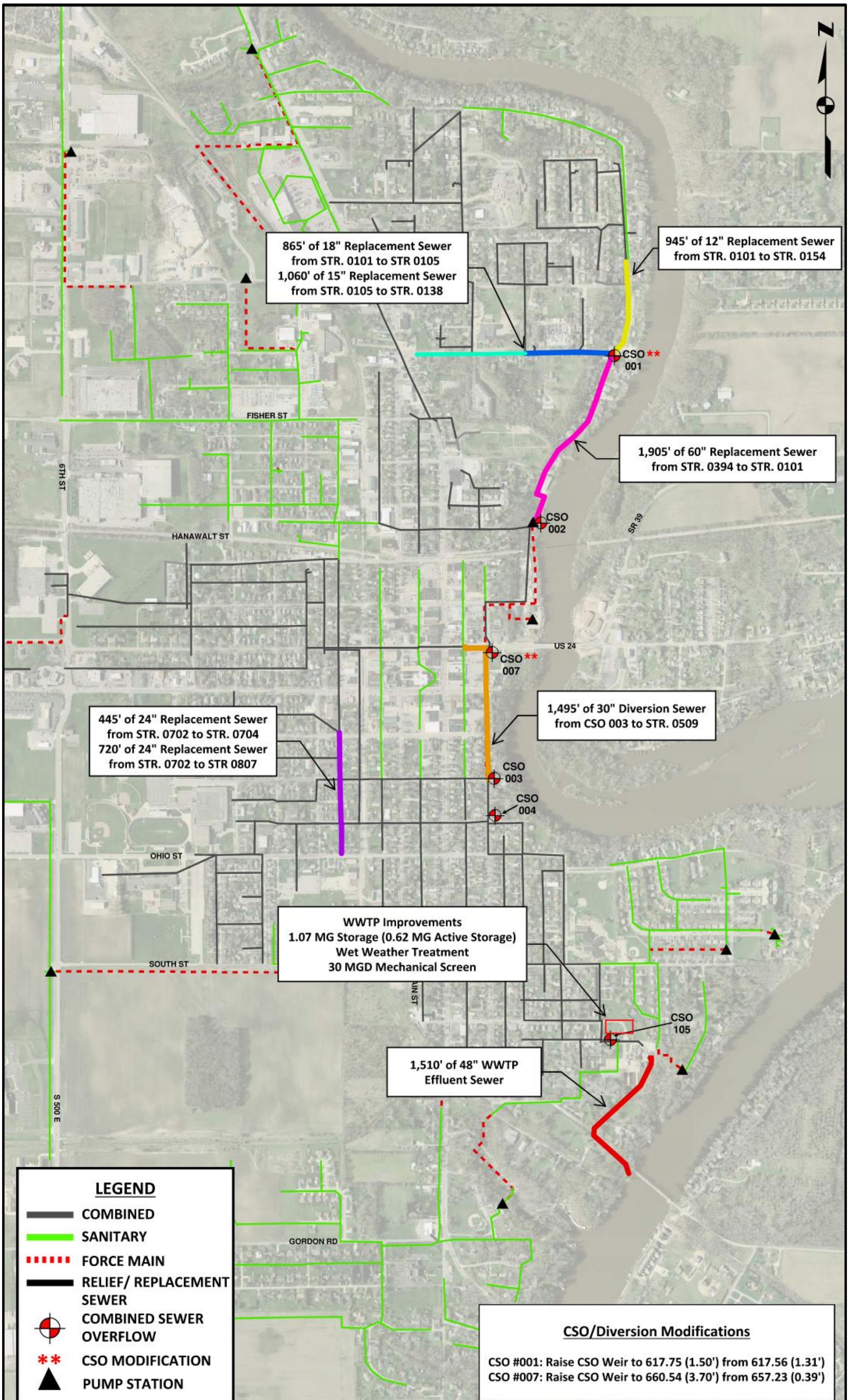


Figure 16 - Recommended CSO LTCP Alternative 1

Attachment 1

Model Modifications

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L177	Addition	Inlet Node = 177 Outlet Node = 168 Shape = CIRCULAR Max Depth = 0.833 Length = 517.43 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L168	Addition	Inlet Node = 168 Outlet Node = 154 Shape = CIRCULAR Max Depth = 0.833 Length = 309.83 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.01
Conduit	L156	Addition	Inlet Node = 156 Outlet Node = 155 Shape = CIRCULAR Max Depth = 0.833 Length = 350.90 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.11
Conduit	L155	Addition	Inlet Node = 155 Outlet Node = 154 Shape = CIRCULAR Max Depth = 0.667 Length = 33 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.01
Conduit	L154	Addition	Inlet Node = 154 Outlet Node = 153 Shape = CIRCULAR Max Depth = 0.833 Length = 299.24 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.52
Conduit	L153	Addition	Inlet Node = 153 Outlet Node = 152 Shape = CIRCULAR Max Depth = 1.25 Length = 262.72 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L152	Addition	Inlet Node = 152 Outlet Node = 151 Shape = CIRCULAR Max Depth = 1.25 Length = 300.81 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L151	Addition	Inlet Node = 151 Outlet Node = 101 Shape = CIRCULAR Max Depth = 1.25 Length = 134.39 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.02
Conduit	L105	Addition	Inlet Node = 105 Outlet Node = 104 Shape = CIRCULAR Max Depth = 1 Length = 216.29 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L104	Addition	Inlet Node = 104 Outlet Node = 102 Shape = CIRCULAR Max Depth = 1 Length = 299.21 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 5.2

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L102	Addition	Inlet Node = 102 Outlet Node = 101 Shape = CIRCULAR Max Depth = 1 Length = 298.87 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.39
Conduit	LCSO#001	Addition	Inlet Node = 101.A Outlet Node = 101.A Shape = CIRCULAR Max Depth = 1.25 Length = 231.12 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L101	Addition	Inlet Node = 101 Outlet Node = 339 Shape = CIRCULAR Max Depth = 1.25 Length = 482.98 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L339	Addition	Inlet Node = 339 Outlet Node = 337 Shape = CIRCULAR Max Depth = 1.25 Length = 233.83 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L337	Addition	Inlet Node = 337 Outlet Node = 336 Shape = CIRCULAR Max Depth = 1.25 Length = 205.30 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L336	Addition	Inlet Node = 336 Outlet Node = 335 Shape = CIRCULAR Max Depth = 1.25 Length = 204.47 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.04
Conduit	L335	Addition	Inlet Node = 335 Outlet Node = 334 Shape = CIRCULAR Max Depth = 1.25 Length = 257.57 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.07
Conduit	L334	Addition	Inlet Node = 334 Outlet Node = 394 Shape = CIRCULAR Max Depth = 1.25 Length = 219.03 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 1.86
Conduit	L394	Addition	Inlet Node = 394 Outlet Node = 393 Shape = CIRCULAR Max Depth = 1.25 Length = 35.36 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.46
Conduit	L393	Addition	Inlet Node = 393 Outlet Node = 392 Shape = CIRCULAR Max Depth = 1.25 Length = 266.87 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.1

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L308	Addition	Inlet Node = 308 Outlet Node = 307 Shape = CIRCULAR Max Depth = 2.50 Length = 193.97 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.05
Conduit	L307	Addition	Inlet Node = 307 Outlet Node = 306 Shape = CIRCULAR Max Depth = 2 Length = 187.35 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.1
Conduit	L306	Addition	Inlet Node = 306 Outlet Node = 305 Shape = CIRCULAR Max Depth = 2 Length = 219.08 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L305	Addition	Inlet Node = 305 Outlet Node = 304 Shape = CIRCULAR Max Depth = 2 Length = 391.35 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L304	Addition	Inlet Node = 304 Outlet Node = 302 Shape = CIRCULAR Max Depth = 2 Length = 423.52 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 4
Conduit	L302	Addition	Inlet Node = 302 Outlet Node = 301 Shape = CIRCULAR Max Depth = 2 Length = 50.39 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.137
Conduit	L540	Addition	Inlet Node = 540 Outlet Node = 515 Shape = CIRCULAR Max Depth = 0.833 Length = 427.82 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 1.08
Conduit	L515	Addition	Inlet Node = 515 Outlet Node = 514 Shape = CIRCULAR Max Depth =2.50 Length = 412.30 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L514	Addition	Inlet Node = 514 Outlet Node = 512 Shape = CIRCULAR Max Depth =2.50 Length = 338.50 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L512	Addition	Inlet Node = 512 Outlet Node = 509 Shape = CIRCULAR Max Depth =2.50 Length = 480.31 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L509	Addition	Inlet Node = 512 Outlet Node = 509 Shape = CIRCULAR Max Depth =2.50 Length = 237.00 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LCSO#007	Addition	Inlet Node = 508.A Outlet Node = CSO#007 Shape = CIRCULAR Max Depth = 2.50 Length = 450.57 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L508	Addition	Inlet Node = 508 Outlet Node = 507 Shape = CIRCULAR Max Depth = 1.25 Length = 35.26 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.24
Conduit	L507	Addition	Inlet Node = 507 Outlet Node = 506 Shape = CIRCULAR Max Depth = 1.25 Length = 70.33 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.19
Conduit	L506	Addition	Inlet Node = 506 Outlet Node = 505 Shape = CIRCULAR Max Depth = 1.25 Length = 339.77 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 5.35
Conduit	L505	Addition	Inlet Node = 505 Outlet Node = 504 Shape = CIRCULAR Max Depth = 1.25 Length = 207.42 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 8.1
Conduit	L504	Addition	Inlet Node = 504 Outlet Node = 503 Shape = CIRCULAR Max Depth = 1.25 Length = 186.78 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L503	Addition	Inlet Node = 503 Outlet Node = 301 Shape = CIRCULAR Max Depth = 1.25 Length = 735.71 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.29
Conduit	L301	Addition	Inlet Node = 301 Outlet Node = 391 Shape = CIRCULAR Max Depth = 2 Length = 49.83 Roughness = 0.014 Inlet Offset = 0.17 Outlet Offset = 0.1
Conduit	LCSO#002	Addition	Inlet Node = 391 A Outlet Node = CSO#002 Shape = CIRCULAR Max Depth = 1.50 Length = 41 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L391	Addition	Inlet Node = 391 Outlet Node = 392 Shape = CIRCULAR Max Depth = 2 Length = 36.93 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 1.07
Conduit	L392	Addition	Inlet Node = 392 Outlet Node = BryansLS Shape = CIRCULAR Max Depth = 2 Length = 33 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 12.01
Conduit	LSTORAGE1	Addition	Inlet Node = CSOSTORAGE7 Outlet Node = CSOSTORAGE12 Shape = CIRCULAR Max Depth = 6 Length = 204.15 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LSTORAGE2	Addition	Inlet Node = CSOSTORAGE6 Outlet Node = CSOSTORAGE11 Shape = CIRCULAR Max Depth = 6 Length = 203.95 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LSTORAGE3	Addition	Inlet Node = CSOSTORAGE5 Outlet Node = CSOSTORAGE10 Shape = CIRCULAR Max Depth = 8 Length = 204.01 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LSTORAGE4	Addition	Inlet Node = CSOSTORAGE4 Outlet Node = CSOSTORAGE9 Shape = CIRCULAR Max Depth = 8 Length = 204 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LSTORAGE5	Addition	Inlet Node = CSOSTORAGE3 Outlet Node = CSOSTORAGE8 Shape = CIRCULAR Max Depth = 7 Length = 203.94 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LSTORAGE6	Addition	Inlet Node = CSOSTORAGE2 Outlet Node = CSOSTORAGE1 Shape = CIRCULAR Max Depth = 7 Length = 203.54 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	8	Addition	Inlet Node = CSOSTORAGE12 Outlet Node = CSOSTORAGE11 Shape = CIRCULAR Max Depth = 8 Length = 10.46 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	9	Addition	Inlet Node = CSOSTORAGE11 Outlet Node = CSOSTORAGE10 Shape = CIRCULAR Max Depth = 8 Length = 10.93 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	10	Addition	Inlet Node = CSOSTORAGE10 Outlet Node = CSOSTORAGE9 Shape = CIRCULAR Max Depth = 8 Length = 10.61 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	11	Addition	Inlet Node = CSOSTORAGE9 Outlet Node = CSOSTORAGE8 Shape = CIRCULAR Max Depth = 8 Length = 10.42 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	12	Addition	Inlet Node = CSOSTORAGE8 Outlet Node = CSOSTORAGE1 Shape = CIRCULAR Max Depth = 8 Length = 10.52 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LSTORAGE7	Addition	Inlet Node = CSOSTORAGE1 Outlet Node = BryansLS Shape = CIRCULAR Max Depth = 2 Length = 33 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L203	Addition	Inlet Node = 203 Outlet Node = 202 Shape = CIRCULAR Max Depth = 2 Length = 190.16 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L202	Addition	Inlet Node = 202 Outlet Node = 201 Shape = CIRCULAR Max Depth = 2 Length = 8.11 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L201	Addition	Inlet Node = 201 Outlet Node = 404 Shape = CIRCULAR Max Depth = 2.5 Length = 362.44 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L201a	Addition	Inlet Node = 201 Outlet Node = 308 Shape = CIRCULAR Max Depth = 2.5 Length = 415.75 Roughness = 0.014 Inlet Offset = 1.68 Outlet Offset = 0
Conduit	L404	Addition	Inlet Node = 404 Outlet Node = 403 Shape = CIRCULAR Max Depth = 2.5 Length = 146.94 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.1
Conduit	L403	Addition	Inlet Node = 403 Outlet Node = 402 Shape = CIRCULAR Max Depth = 2.5 Length = 410.12 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L402	Addition	Inlet Node = 402 Outlet Node = 401 Shape = CIRCULAR Max Depth = 2.5 Length = 434.44 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L405	Addition	Inlet Node = 405 Outlet Node = 401 Shape = CIRCULAR Max Depth = 2.5 Length = 155.35 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L401	Addition	Inlet Node = 401 Outlet Node = 708 Shape = CIRCULAR Max Depth = 3 Length = 152.48 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L708	Addition	Inlet Node = 708 Outlet Node = 707 Shape = CIRCULAR Max Depth = 3 Length = 190.72 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L707	Addition	Inlet Node = 707 Outlet Node = 706 Shape = CIRCULAR Max Depth = 3 Length = 458.78 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L706	Addition	Inlet Node = 706 Outlet Node = 705 Shape = CIRCULAR Max Depth = 3 Length = 194.56 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L705	Addition	Inlet Node = 705 Outlet Node = 704 Shape = CIRCULAR Max Depth = 3 Length = 214.50 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L704	Addition	Inlet Node = 704 Outlet Node = 703 Shape = CIRCULAR Max Depth = 3 Length = 209.15 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L703	Addition	Inlet Node = 703 Outlet Node = 702 Shape = CIRCULAR Max Depth = 3 Length = 213.30 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L718	Addition	Inlet Node = 718 Outlet Node = 713 Shape = CIRCULAR Max Depth = 0.833 Length = 365.59 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.88

SWMM Model Modifications

Type	ID	Change	Size / Info		
Conduit	L709	Addition	Inlet Node = 718 Max Depth = 0.833 Inlet Offset = 2.05	Outlet Node = 709 Length = 217.31 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L709a	Addition	Inlet Node = 709 Max Depth = 0.833 Inlet Offset = 0	Outlet Node = 708 Length = 259.51 Outlet Offset = 1.02	Shape = CIRCULAR Roughness = 0.014
Conduit	L713	Addition	Inlet Node = 713 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 712 Length = 234.8 Outlet Offset = 0.03	Shape = CIRCULAR Roughness = 0.014
Conduit	L712	Addition	Inlet Node = 712 Max Depth = 1.5 Inlet Offset = 0	Outlet Node = 711 Length = 209.92 Outlet Offset = 0.1	Shape = CIRCULAR Roughness = 0.014
Conduit	L808	Addition	Inlet Node = 808 Max Depth = 1.2 Inlet Offset = 0.26	Outlet Node = 807 Length = 179.62 Outlet Offset = 1.63	Shape = CIRCULAR Roughness = 0.014
Conduit	L808a	Addition	Inlet Node = 808 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 729 Length = 3.94 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L729	Addition	Inlet Node = 729 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 711 Length = 428.24 Outlet Offset = 0.17	Shape = CIRCULAR Roughness = 0.014
Conduit	L711	Addition	Inlet Node = 711 Max Depth = 3 Inlet Offset = 0	Outlet Node = 702 Length = 188.83 Outlet Offset = 0.17	Shape = CIRCULAR Roughness = 0.014
Conduit	L702	Addition	Inlet Node = 702 Max Depth = 2.5 Inlet Offset = 0.35	Outlet Node = 909 Length = 214.15 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L702a	Addition	Inlet Node = 702 Max Depth = 3 Inlet Offset = 0	Outlet Node = 701 Length = 210.53 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L701	Addition	Inlet Node = 701 Outlet Node = 807 Shape = CIRCULAR Max Depth = 3 Length = 221.75 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L807	Addition	Inlet Node = 807 Outlet Node = 806 Shape = CIRCULAR Max Depth = 3 Length = 224 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L806	Addition	Inlet Node = 806 Outlet Node = 805 Shape = CIRCULAR Max Depth = 3 Length = 173.23 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L805	Addition	Inlet Node = 805 Outlet Node = 804 Shape = CIRCULAR Max Depth = 3 Length = 206.14 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L909	Addition	Inlet Node = 909 Outlet Node = 907 Shape = CIRCULAR Max Depth = 2.5 Length = 169.75 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.07
Conduit	L907	Addition	Inlet Node = 907 Outlet Node = 906 Shape = CIRCULAR Max Depth = 2.5 Length = 210.16 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L914a	Addition	Inlet Node = 804 Outlet Node = 914 Shape = CIRCULAR Max Depth = 1 Length = 8.29 Roughness = 0.014 Inlet Offset = 6.2 Outlet Offset = 0
Conduit	L914a	Addition	Inlet Node = 804 Outlet Node = 803 Shape = CIRCULAR Max Depth = 3 Length = 221.16 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.05
Conduit	L914	Addition	Inlet Node = 914 Outlet Node = 906 Shape = CIRCULAR Max Depth = 1 Length = 422.54 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.59
Conduit	L906	Addition	Inlet Node = 906 Outlet Node = 905 Shape = CIRCULAR Max Depth = 2.5 Length = 218.39 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info		
Conduit	L905	Addition	Inlet Node = 905 Max Depth = 2.5 Inlet Offset = 0	Outlet Node = 904 Length = 219.56 Outlet Offset = 0.11	Shape = CIRCULAR Roughness = 0.014
Conduit	L904	Addition	Inlet Node = 904 Max Depth = 3 Inlet Offset = 0	Outlet Node = M13B Length = 214.01 Outlet Offset = 0.11	Shape = CIRCULAR Roughness = 0.014
Conduit	L606	Addition	Inlet Node = 606 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 605 Length = 218.66 Outlet Offset = 0.06	Shape = CIRCULAR Roughness = 0.014
Conduit	L605	Addition	Inlet Node = 605 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 604 Length = 211.28 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L604	Addition	Inlet Node = 604 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 603 Length = 223.57 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L603	Addition	Inlet Node = 603 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = 601 Length = 406.98 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L601	Addition	Inlet Node = 601 Max Depth = 1.25 Inlet Offset = 0	Outlet Node = M13 Length = 19.26 Outlet Offset = 1.86	Shape = CIRCULAR Roughness = 0.014
Conduit	LCSO#003	Addition	Inlet Node = M13A Max Depth = 3 Inlet Offset = 0	Outlet Node = CSO#003 Length = 252.55 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014
Conduit	L13	Addition	Inlet Node = M13 Max Depth = 3 Inlet Offset = 0	Outlet Node = M12 Length = 420.2 Outlet Offset = 0.04	Shape = CIRCULAR Roughness = 0.011
Conduit	L804	Addition	Inlet Node = 804 Max Depth = 3 Inlet Offset = 0	Outlet Node = 803 Length = 221.16 Outlet Offset = 0	Shape = CIRCULAR Roughness = 0.014

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L803	Addition	Inlet Node = 803 Outlet Node = 802 Shape = CIRCULAR Max Depth = 3 Length = 218.29 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L802	Addition	Inlet Node = 802 Outlet Node = M12B Shape = CIRCULAR Max Depth = 3 Length = 212.83 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LCSO#004	Addition	Inlet Node = M12A Outlet Node = CSO#004 Shape = CIRCULAR Max Depth = 3 Length = 484.4 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L12	Addition	Inlet Node = M12 Outlet Node = M11 Shape = CIRCULAR Max Depth = 4 Length = 323.77 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.09
Conduit	L11	Addition	Inlet Node = M11 Outlet Node = M10 Shape = CIRCULAR Max Depth = 4 Length = 334.09 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.38
Conduit	L10	Addition	Inlet Node = M10 Outlet Node = M9 Shape = CIRCULAR Max Depth = 4 Length = 400.36 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.04
Conduit	L10	Addition	Inlet Node = M10 Outlet Node = M9 Shape = CIRCULAR Max Depth = 4 Length = 400.36 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.04
Conduit	L9	Addition	Inlet Node = M9 Outlet Node = M8 Shape = CIRCULAR Max Depth = 4 Length = 400.33 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0
Conduit	L8	Addition	Inlet Node = M8 Outlet Node = M7 Shape = CIRCULAR Max Depth = 4 Length = 285.90 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1014	Addition	Inlet Node = 1014 Outlet Node = 1013 Shape = CIRCULAR Max Depth = 1 Length = 103.90 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L1013	Addition	Inlet Node = 1013 Max Depth = 1 Inlet Offset = 0 Outlet Node = 1010 Length = 639.25 Outlet Offset = 0 Shape = CIRCULAR Roughness = 0.014
Conduit	L1039	Addition	Inlet Node = 1039 Max Depth = 0.833 Inlet Offset = 0 Outlet Node = 1038 Length = 527.21 Outlet Offset = 0 Shape = CIRCULAR Roughness = 0.014
Conduit	L1038	Addition	Inlet Node = 1038 Max Depth = 0.833 Inlet Offset = 0 Outlet Node = 1010 Length = 475.51 Outlet Offset = 1.03 Shape = CIRCULAR Roughness = 0.014
Conduit	L1010	Addition	Inlet Node = 1010 Max Depth = 2 Inlet Offset = 0 Outlet Node = 1009 Length = 226 Outlet Offset = 0.14 Shape = CIRCULAR Roughness = 0.014
Conduit	L1009	Addition	Inlet Node = 1009 Max Depth = 2 Inlet Offset = 0 Outlet Node = 1008 Length = 214.2 Outlet Offset = 0.04 Shape = CIRCULAR Roughness = 0.014
Conduit	L828	Addition	Inlet Node = 828 Max Depth = 0.833 Inlet Offset = 0 Outlet Node = 1034 Length = 158.45 Outlet Offset = 0.08 Shape = CIRCULAR Roughness = 0.014
Conduit	L1034	Addition	Inlet Node = 1034 Max Depth = 0.833 Inlet Offset = 0 Outlet Node = 1033 Length = 207.45 Outlet Offset = 0.01 Shape = CIRCULAR Roughness = 0.014
Conduit	L1033	Addition	Inlet Node = 1033 Max Depth = 0.833 Inlet Offset = 0 Outlet Node = 1032 Length = 310.91 Outlet Offset = 0.01 Shape = CIRCULAR Roughness = 0.014
Conduit	L1032	Addition	Inlet Node = 1032 Max Depth = 0.833 Inlet Offset = 0 Outlet Node = 1008 Length = 483.57 Outlet Offset = 1.1 Shape = CIRCULAR Roughness = 0.014
Conduit	L1008	Addition	Inlet Node = 1008 Max Depth = 2 Inlet Offset = 0 Outlet Node = 1007 Length = 203.77 Outlet Offset = 0 Shape = CIRCULAR Roughness = 0.014

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L1007	Addition	Inlet Node = 1007 Outlet Node = 1006 Shape = CIRCULAR Max Depth = 2 Length = 172.51 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1006	Addition	Inlet Node = 1006 Outlet Node = M7 Shape = CIRCULAR Max Depth = 2 Length = 170.34 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 2.7
Conduit	L7	Addition	Inlet Node = M7 Outlet Node = M6 Shape = CIRCULAR Max Depth = 4 Length = 538.84 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.11
Conduit	L6	Addition	Inlet Node = M6 Outlet Node = M5 Shape = CIRCULAR Max Depth = 4 Length = 369.92 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0
Conduit	L5	Addition	Inlet Node = M5 Outlet Node = M4 Shape = CIRCULAR Max Depth = 4 Length = 361.8 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.66
Conduit	L4	Addition	Inlet Node = M4 Outlet Node = BLNDTIE Shape = CIRCULAR Max Depth = 4 Length = 14.87 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0
Conduit	L7a	Addition	Inlet Node = M7 Outlet Node = 1004 Shape = CIRCULAR Max Depth = 2 Length = 216.63 Roughness = 0.011 Inlet Offset = 2.8 Outlet Offset = 0
Conduit	L1004	Addition	Inlet Node = 1004 Outlet Node = 1003 Shape = CIRCULAR Max Depth = 2 Length = 154.21 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1003	Addition	Inlet Node = 1003 Outlet Node = 1002 Shape = CIRCULAR Max Depth = 2 Length = 341.28 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1002	Addition	Inlet Node = 1002 Outlet Node = M5A Shape = CIRCULAR Max Depth = 2 Length = 209.95 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L1118	Addition	Inlet Node = 1118 Outlet Node = 1117 Shape = CIRCULAR Max Depth = 1.25 Length = 324.1 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1117	Addition	Inlet Node = 1117 Outlet Node = 1116 Shape = CIRCULAR Max Depth = 1.25 Length = 302.05 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1116	Addition	Inlet Node = 1116 Outlet Node = 1115 Shape = CIRCULAR Max Depth = 1.25 Length = 401.74 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1115	Addition	Inlet Node = 1115 Outlet Node = 1114 Shape = CIRCULAR Max Depth = 1.25 Length = 165.25 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1114	Addition	Inlet Node = 1114 Outlet Node = 1112 Shape = CIRCULAR Max Depth = 1.25 Length = 298.28 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.02
Conduit	L1112	Addition	Inlet Node = 1112 Outlet Node = 1111 Shape = CIRCULAR Max Depth = 1.25 Length = 302.12 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.18
Conduit	L1111	Addition	Inlet Node = 1111 Outlet Node = 1109 Shape = CIRCULAR Max Depth = 1.25 Length = 297.30 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.05
Conduit	L1109	Addition	Inlet Node = 1109 Outlet Node = 1108 Shape = CIRCULAR Max Depth = 1.25 Length = 349.58 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1108	Addition	Inlet Node = 1108 Outlet Node = 1107 Shape = CIRCULAR Max Depth = 1.25 Length = 274.95 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.13
Conduit	L1107	Addition	Inlet Node = 1107 Outlet Node = 1106 Shape = CIRCULAR Max Depth = 1.25 Length = 277.57 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L1106	Addition	Inlet Node = 1106 Outlet Node = BLNDTIE Shape = CIRCULAR Max Depth = 1.25 Length = 4.18 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	LBLNDTIE	Addition	Inlet Node = BLNDTIE Outlet Node = M3 Shape = CIRCULAR Max Depth = 4 Length = 15.44 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0.1
Conduit	L3	Addition	Inlet Node = M3 Outlet Node = M2 Shape = CIRCULAR Max Depth = 4 Length = 125.44 Roughness = 0.011 Inlet Offset = 0 Outlet Offset = 0
Conduit	L5a	Addition	Inlet Node = M5A Outlet Node = 1121 Shape = CIRCULAR Max Depth = 2 Length = 187.84 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1121	Addition	Inlet Node = 1121 Outlet Node = 1120 Shape = CIRCULAR Max Depth = 2 Length = 185.55 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1120	Addition	Inlet Node = 1120 Outlet Node = 1119 Shape = CIRCULAR Max Depth = 2 Length = 193.16 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 3.23
Conduit	L1139	Addition	Inlet Node = 1139 Outlet Node = 1137 Shape = CIRCULAR Max Depth = 1 Length = 423.08 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 3.23
Conduit	L1137	Addition	Inlet Node = 1137 Outlet Node = 1135 Shape = CIRCULAR Max Depth = 1 Length = 313.32 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.03
Conduit	L1135	Addition	Inlet Node = 1135 Outlet Node = City_Park_LS Shape = CIRCULAR Max Depth = 1 Length = 89.13 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 2
Conduit	L1134	Addition	Inlet Node = 1134 Outlet Node = 1133 Shape = CIRCULAR Max Depth = 1 Length =76.27 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L1133	Addition	Inlet Node = 1133 Outlet Node = 1132 Shape = CIRCULAR Max Depth = 1 Length = 86.94 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1132	Addition	Inlet Node = 1132 Outlet Node = 1130 Shape = CIRCULAR Max Depth = 1 Length = 190.59 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1130	Addition	Inlet Node = 1130 Outlet Node = 1129 Shape = CIRCULAR Max Depth = 1 Length = 354.68 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1129	Addition	Inlet Node = 1129 Outlet Node = 1128 Shape = CIRCULAR Max Depth = 1 Length = 257.92 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1128	Addition	Inlet Node = 1128 Outlet Node = 1127 Shape = CIRCULAR Max Depth = 1 Length = 300.70 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1127	Addition	Inlet Node = 1127 Outlet Node = 1126 Shape = CIRCULAR Max Depth = 1 Length = 299.99 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1126	Addition	Inlet Node = 1126 Outlet Node = 1104 Shape = CIRCULAR Max Depth = 1 Length = 274.84 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 1.04
Conduit	L1104	Addition	Inlet Node = 1104 Outlet Node = 1105 Shape = CIRCULAR Max Depth = 1 Length = 216.42 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0.1
Conduit	L1105	Addition	Inlet Node = 1105 Outlet Node = 1119 Shape = CIRCULAR Max Depth = 2 Length = 13.88 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0
Conduit	L1119	Addition	Inlet Node = 1119 Outlet Node = M2 Shape = CIRCULAR Max Depth = 2 Length = 74.62 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 0

SWMM Model Modifications

Type	ID	Change	Size / Info
Conduit	L2	Addition	Inlet Node = M2 Outlet Node = WWTP Shape = CIRCULAR Max Depth = 4 Length = 32.26 Roughness = 0.014 Inlet Offset = 0 Outlet Offset = 6.28
Junction	177	Addition	X-Coordinate = 3043570.184 Y-Coordinate = 2007314.224 Invert El. = 630 Max Depth = 5
Junction	168	Addition	X-Coordinate = 3043601.341 Y-Coordinate = 2006797.737 Invert El. = 623.73 Max Depth = 4.94
Junction	156	Addition	X-Coordinate = 3043620.324 Y-Coordinate = 2006847.770 Invert El. = 619.836 Max Depth = 8.85
Junction	155	Addition	X-Coordinate = 3043639.485 Y-Coordinate = 2006497.391 Invert El. = 618.991 Max Depth = 7.0

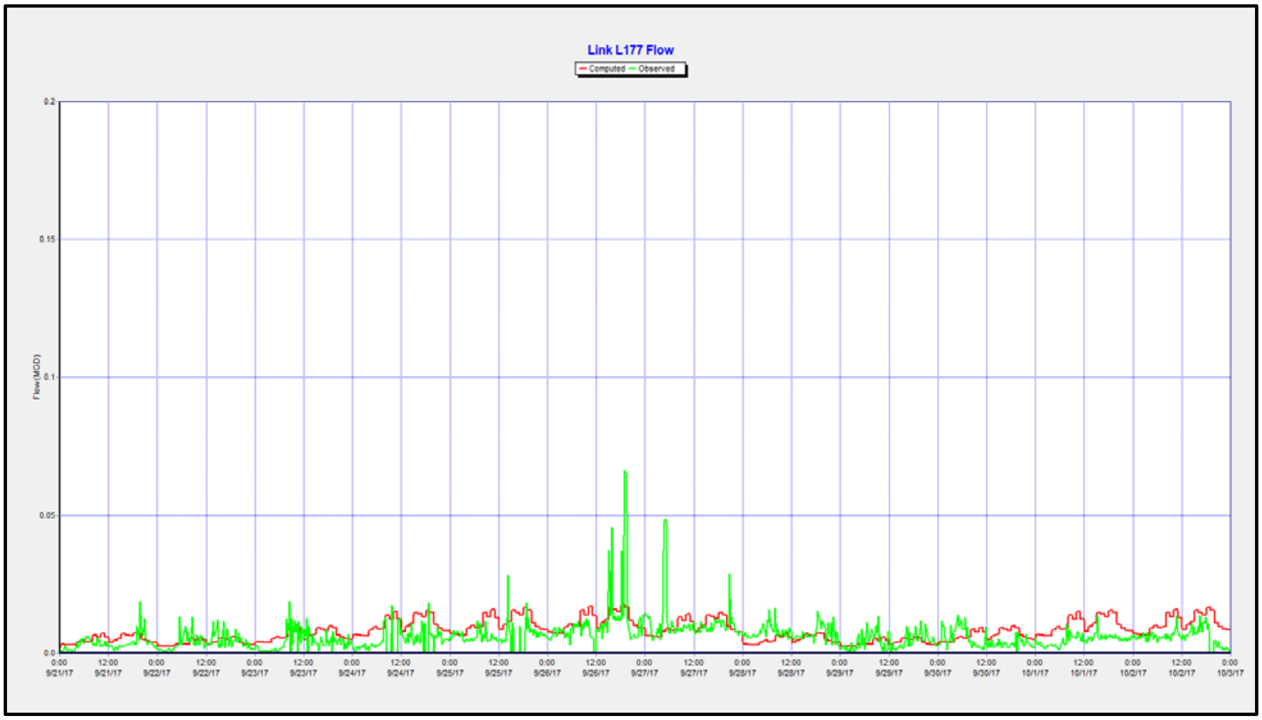
Attachment 2

Dry Weather Calibration & Validation Figures

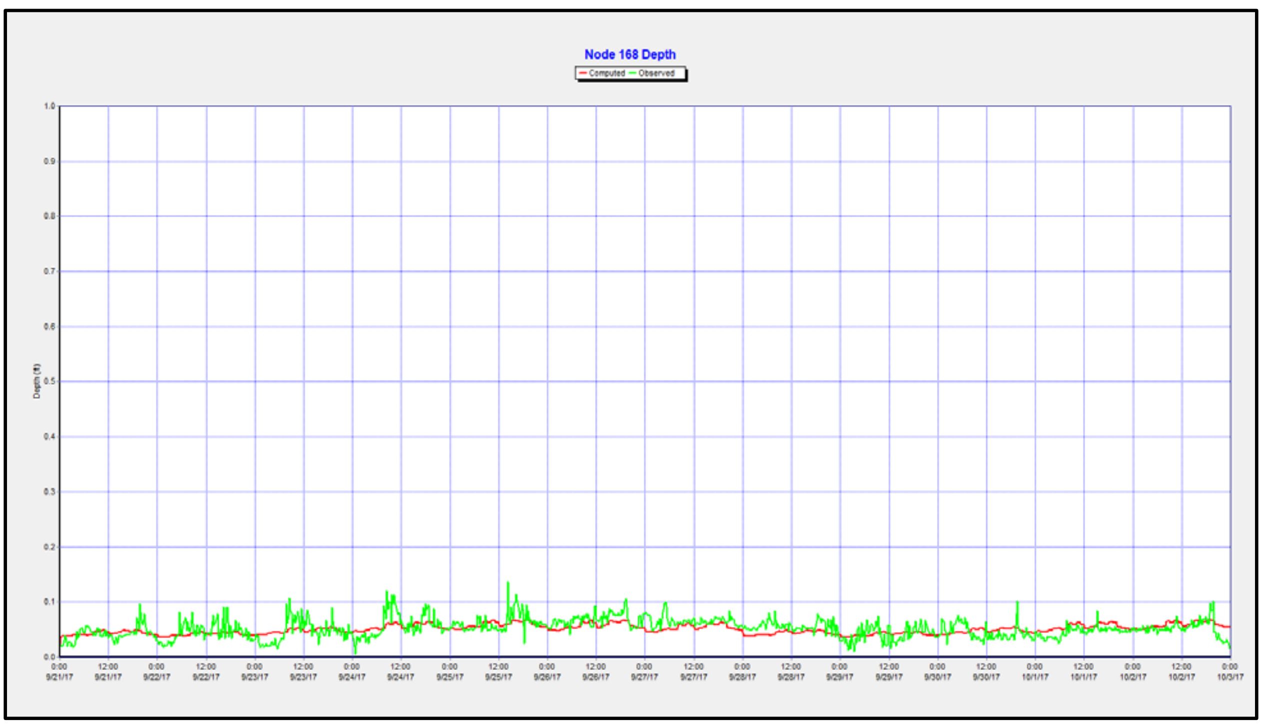
Calibration Event

September 21, 2017 - October 3, 2017

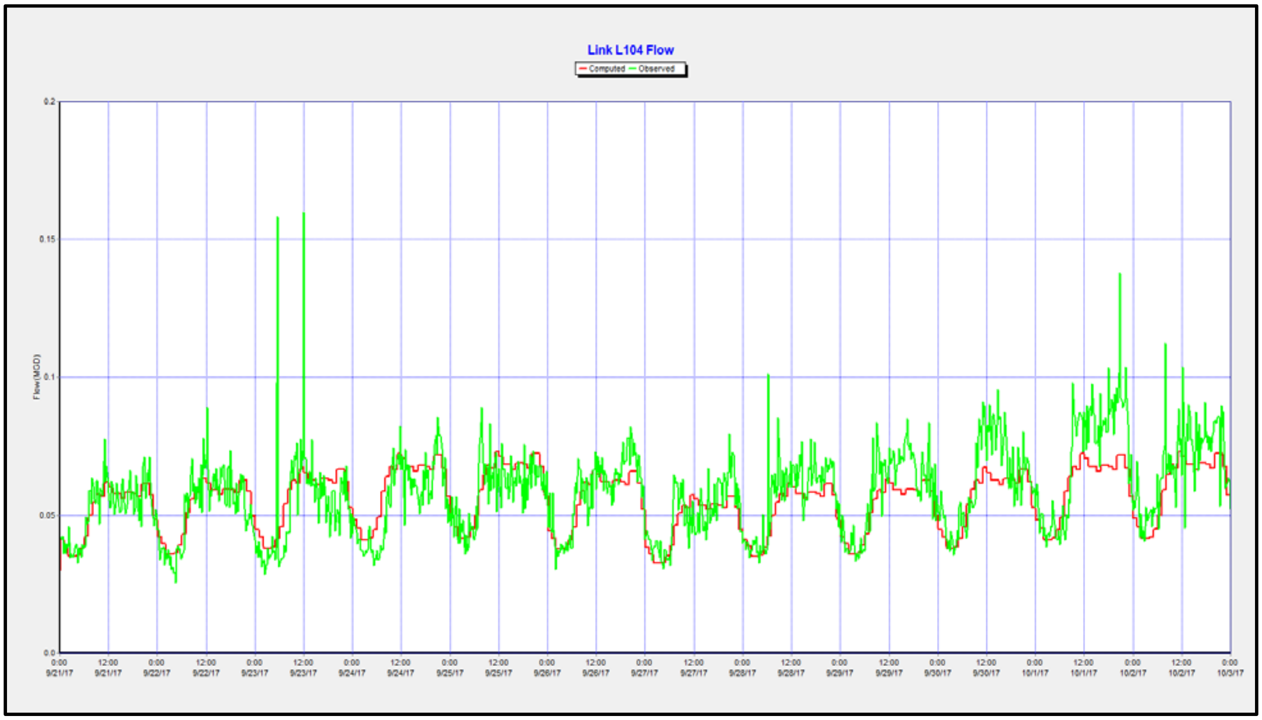
Meter 168 10-inch Influent: Flow (MGD)



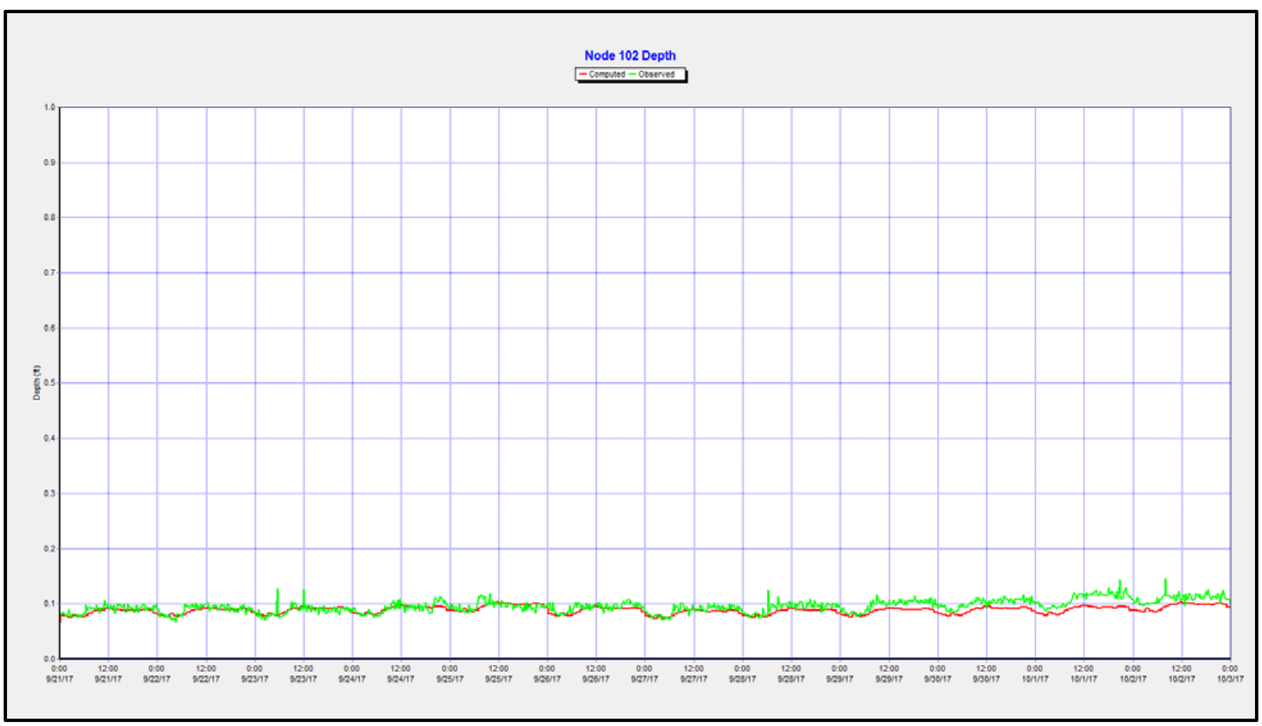
Meter 168 10-inch Influent: Depth (ft)



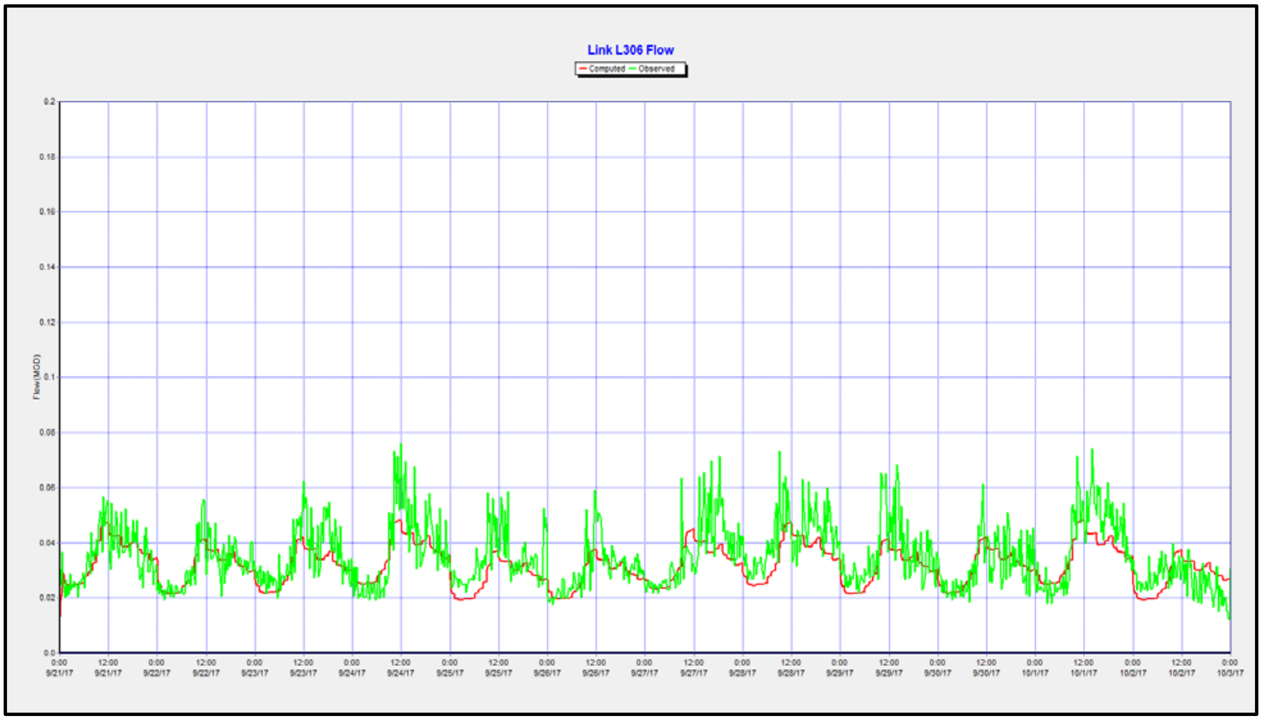
Meter 102 12-inch Influent: Flow (MGD)



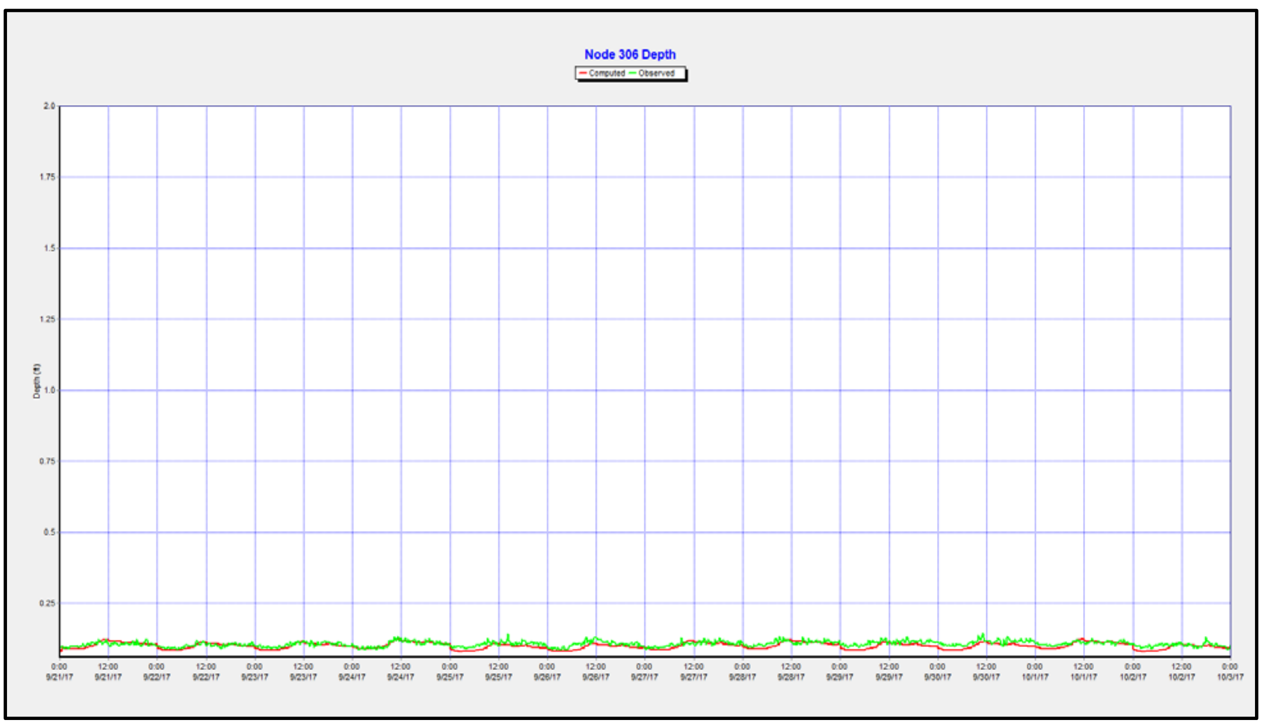
Meter 102 12-inch Influent: Depth (ft)



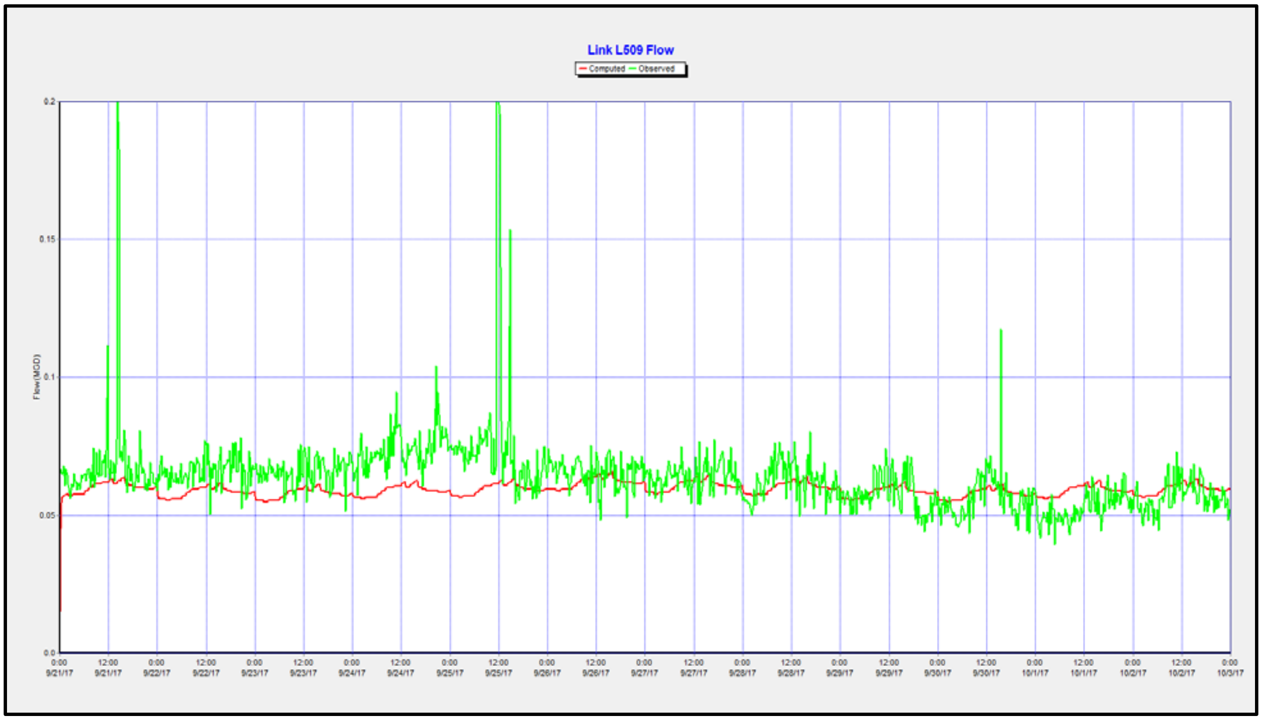
Meter 306 24-inch Effluent: Flow (MGD)



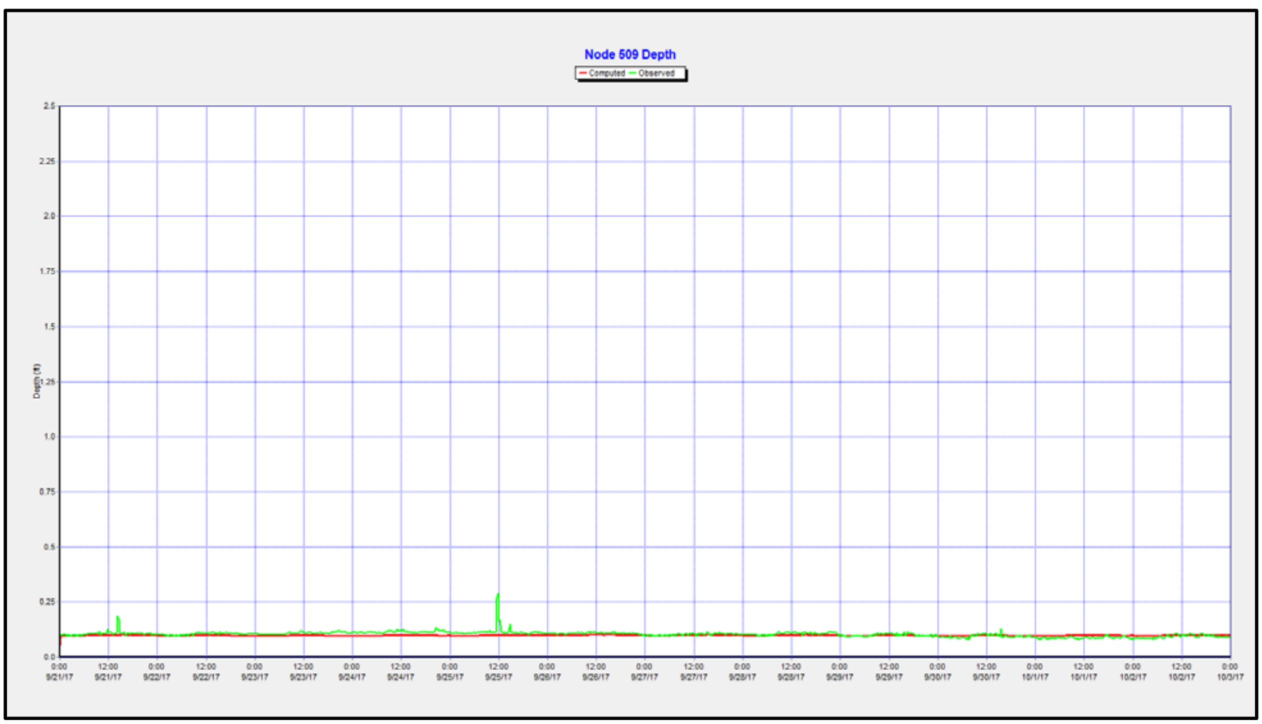
Meter 306 24-inch Effluent: Depth (ft)



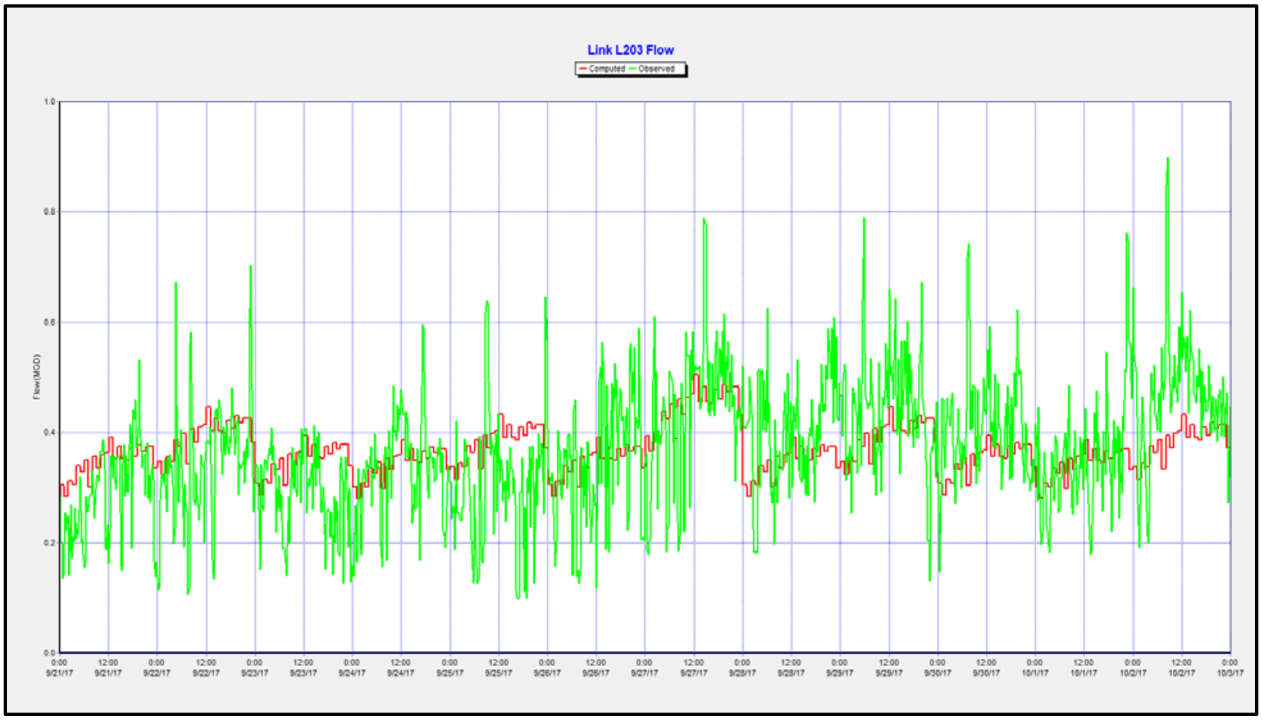
Meter 509 30-inch Effluent: Flow (MGD)



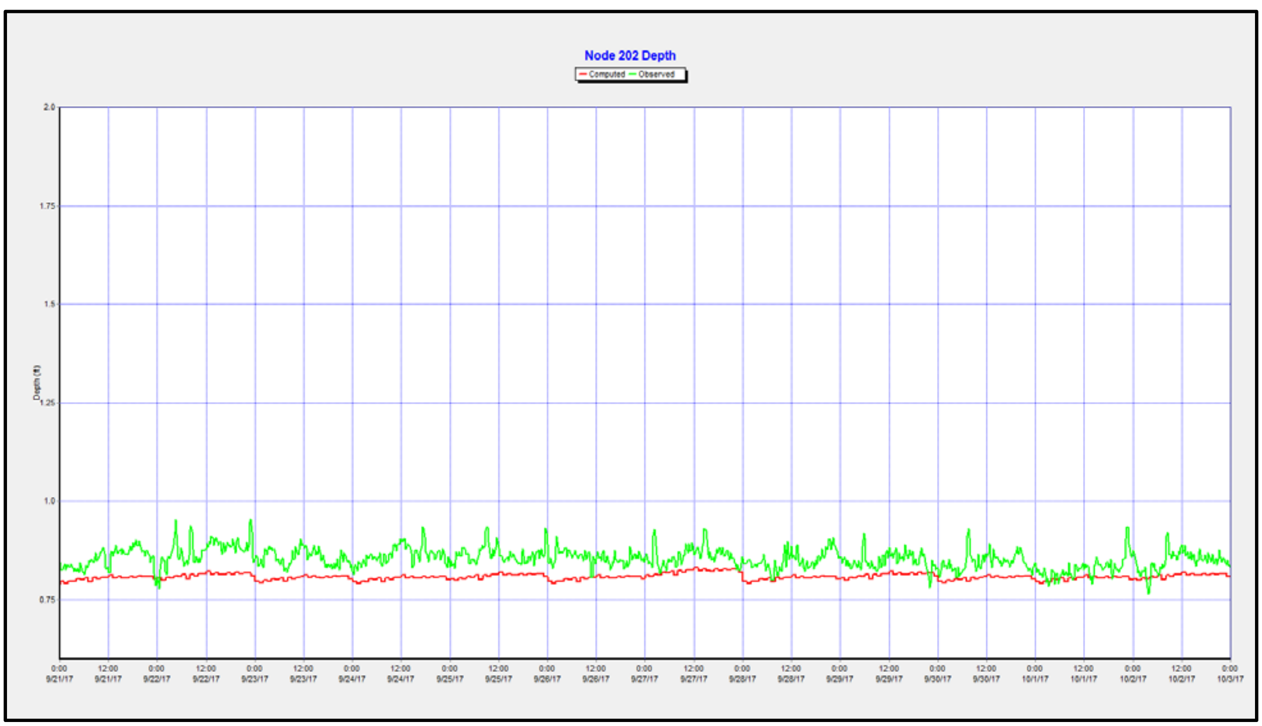
Meter 509 30-inch Effluent: Depth (ft)



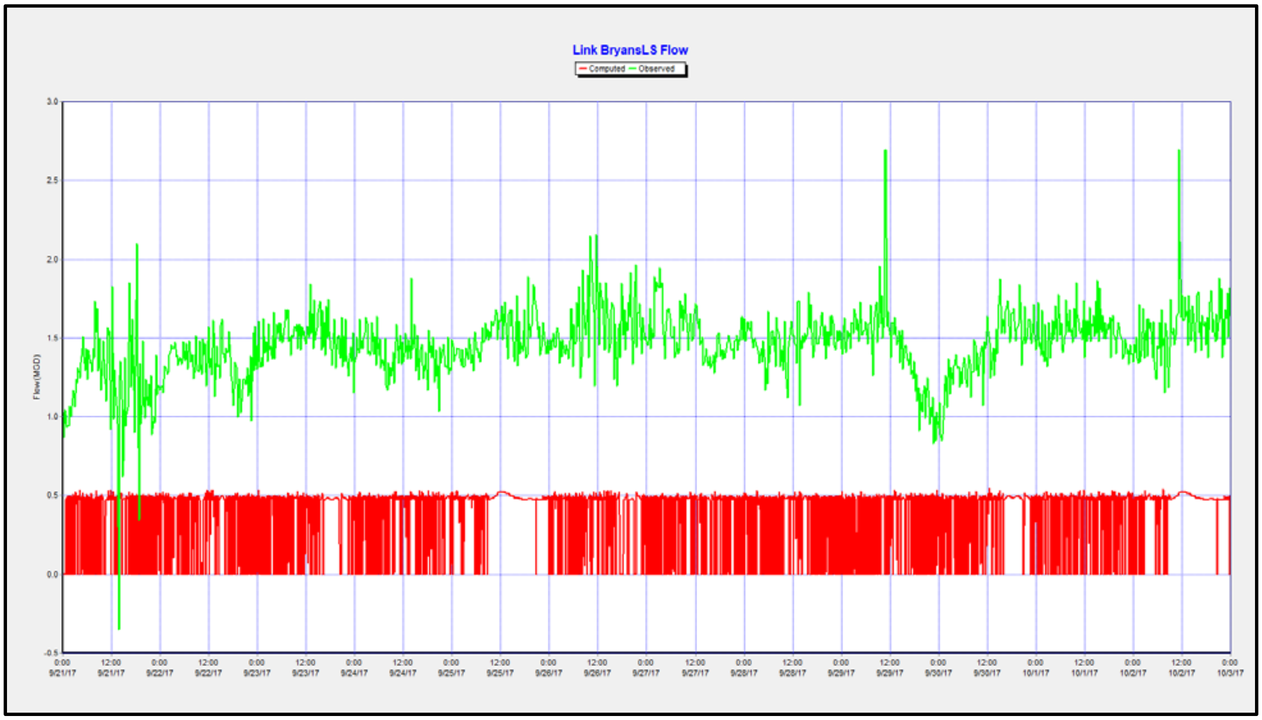
Meter 202 24-inch Influent: Flow (MGD)



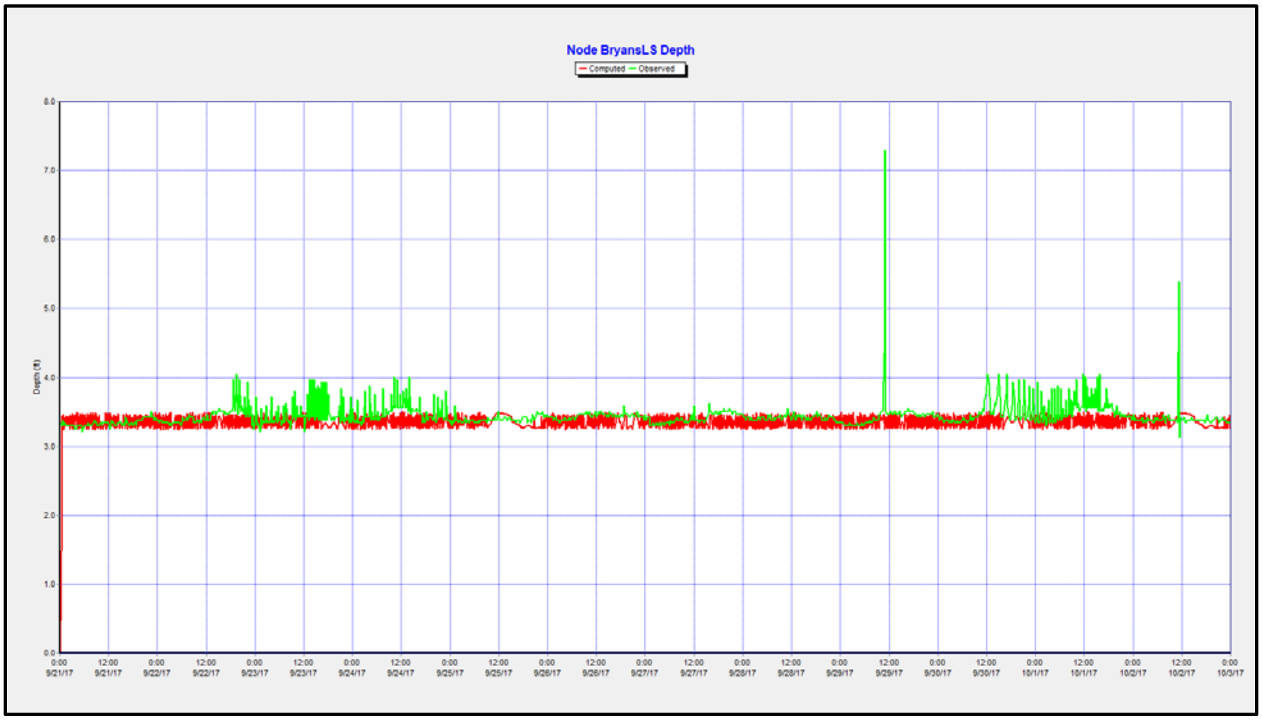
Meter 202 24-inch Influent: Depth (ft)



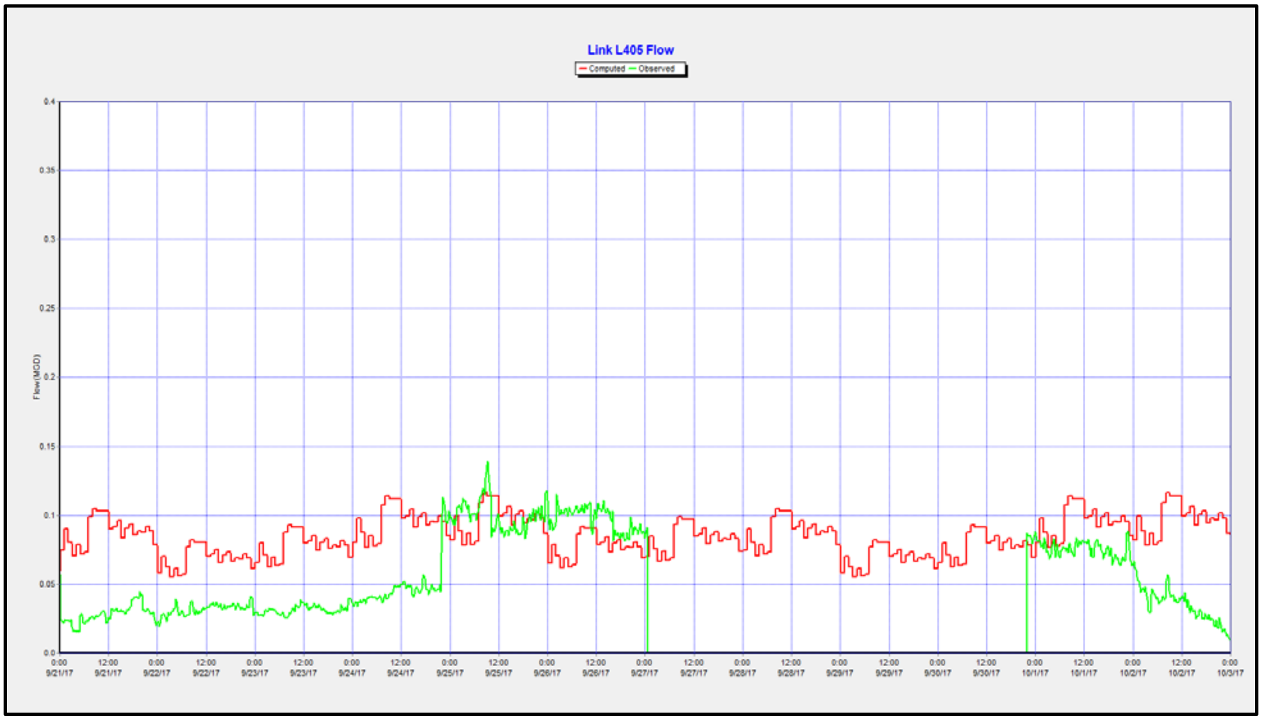
Meter Bryan's Lift Station: Flow (MGD)



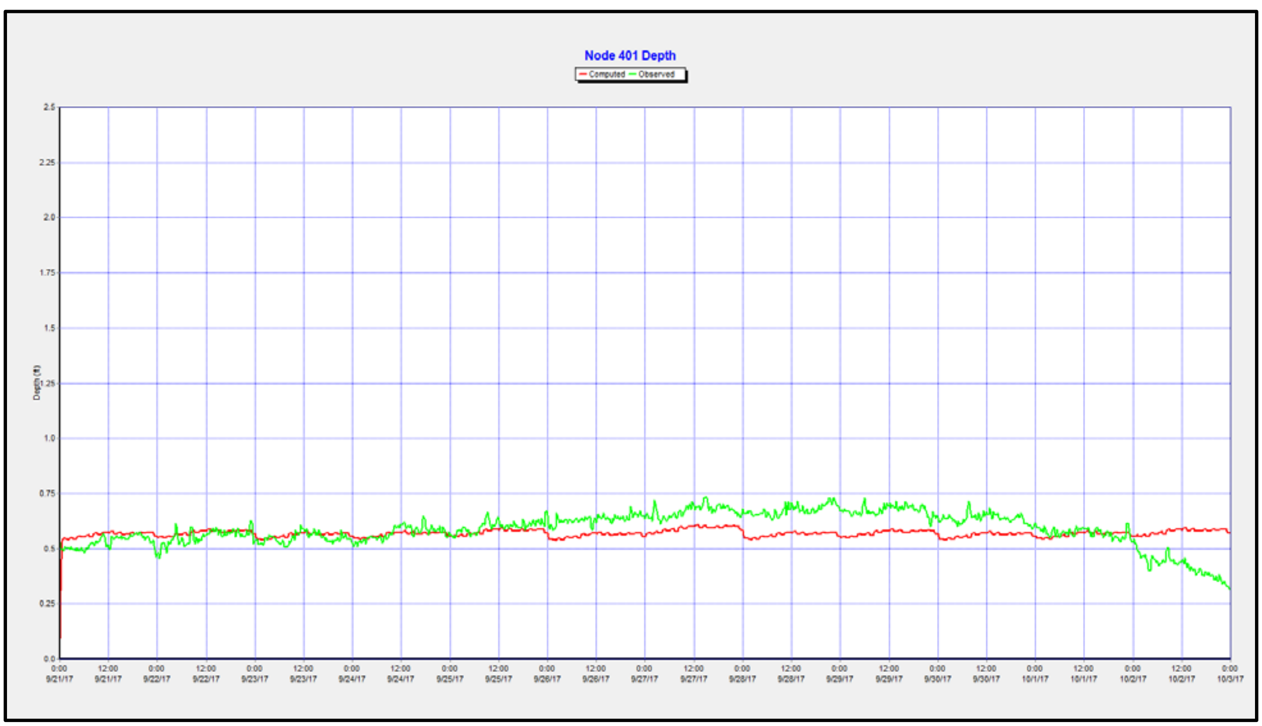
Meter Bryan's Lift Station: Depth (ft)



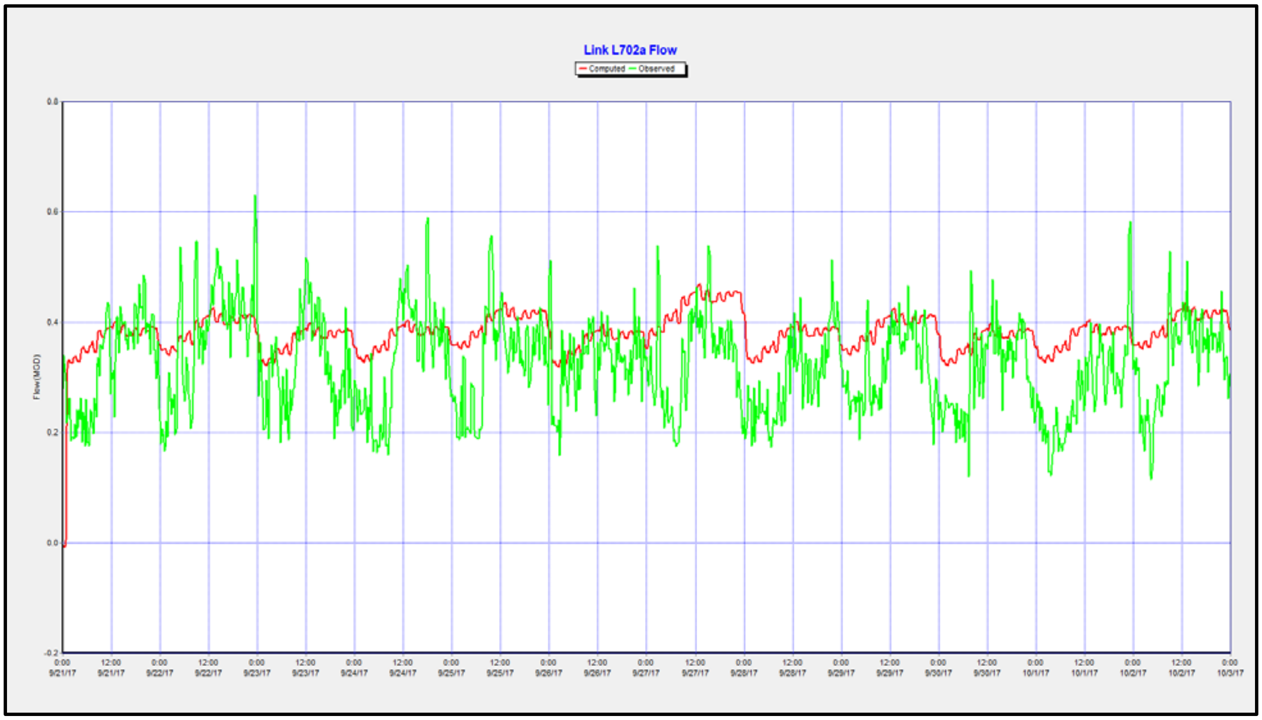
Meter 401 30-inch Influent: Flow (MGD)



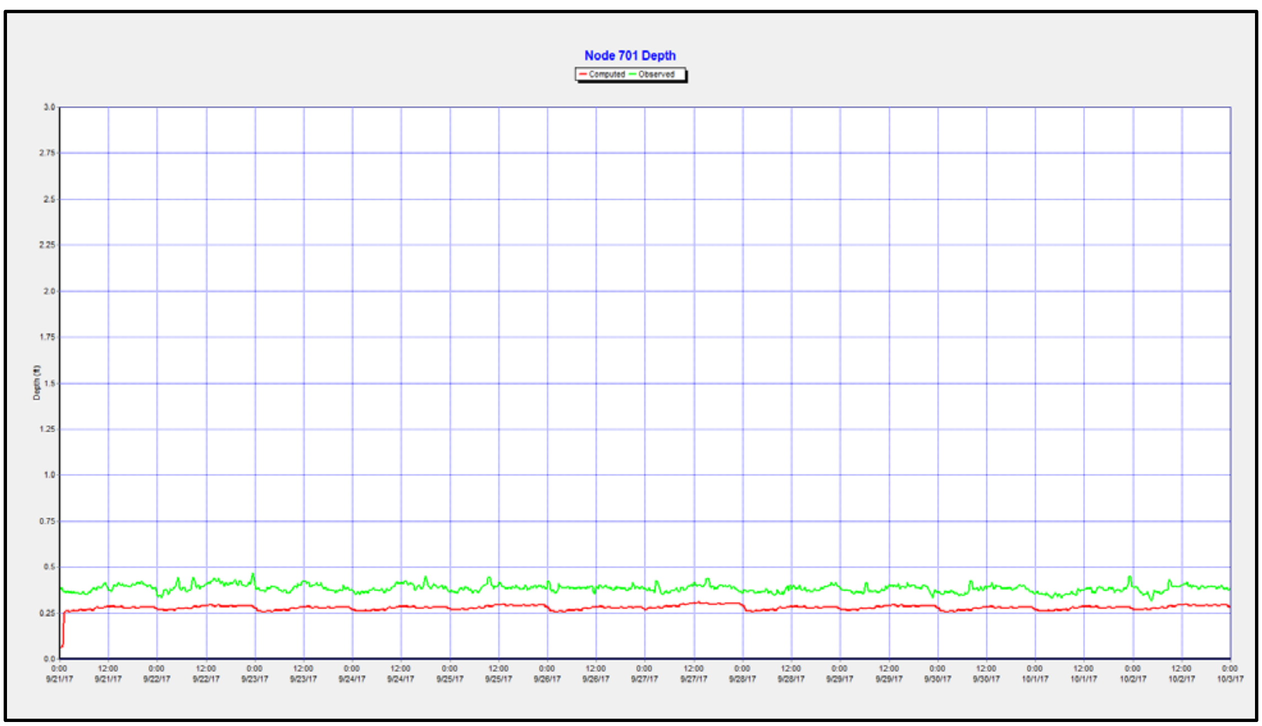
Meter 401 30-inch Influent: Depth (ft)



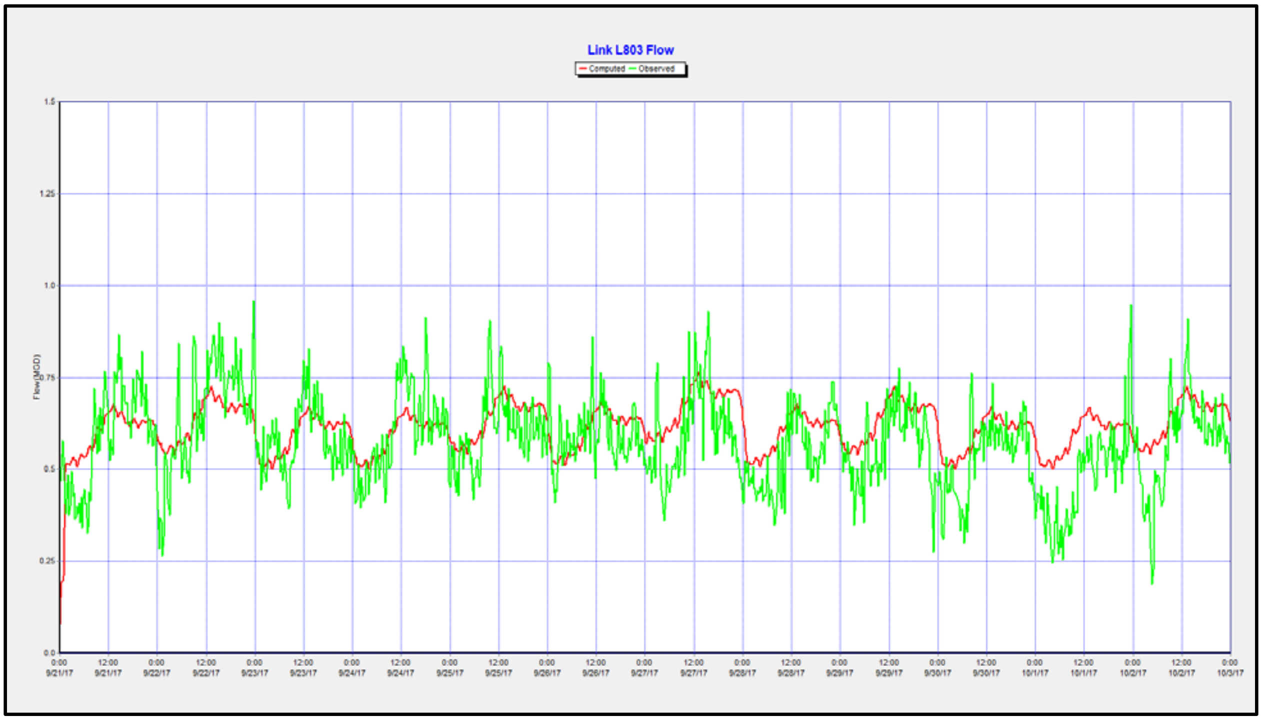
Meter 701 36-inch Influent: Flow (MGD)



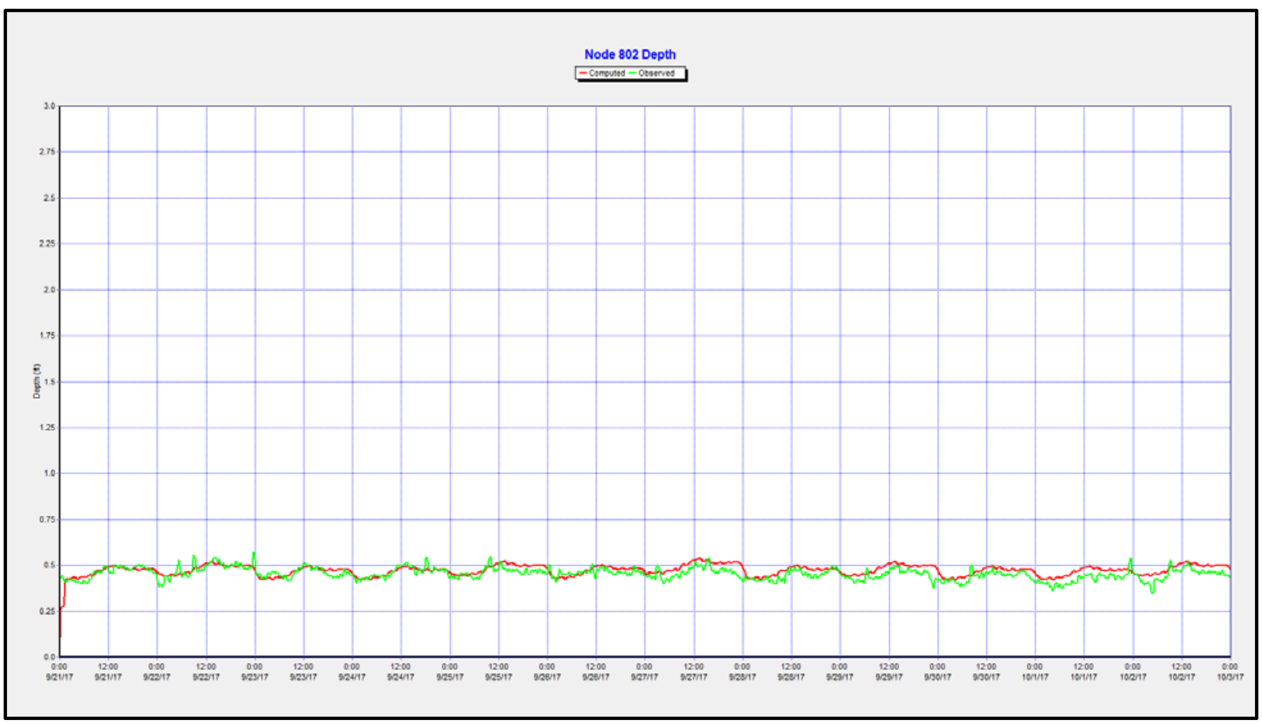
Meter 701 36-inch Influent: Depth (ft)



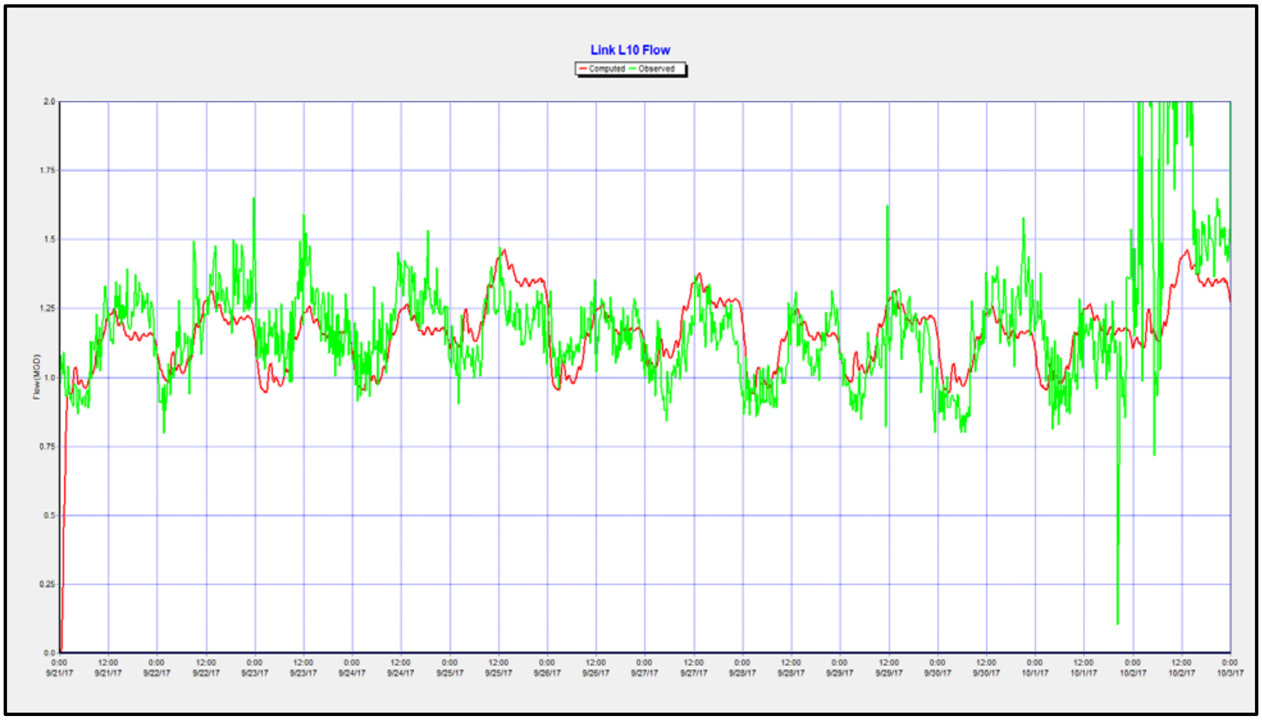
Meter 802 36-inch Influent: Flow (MGD)



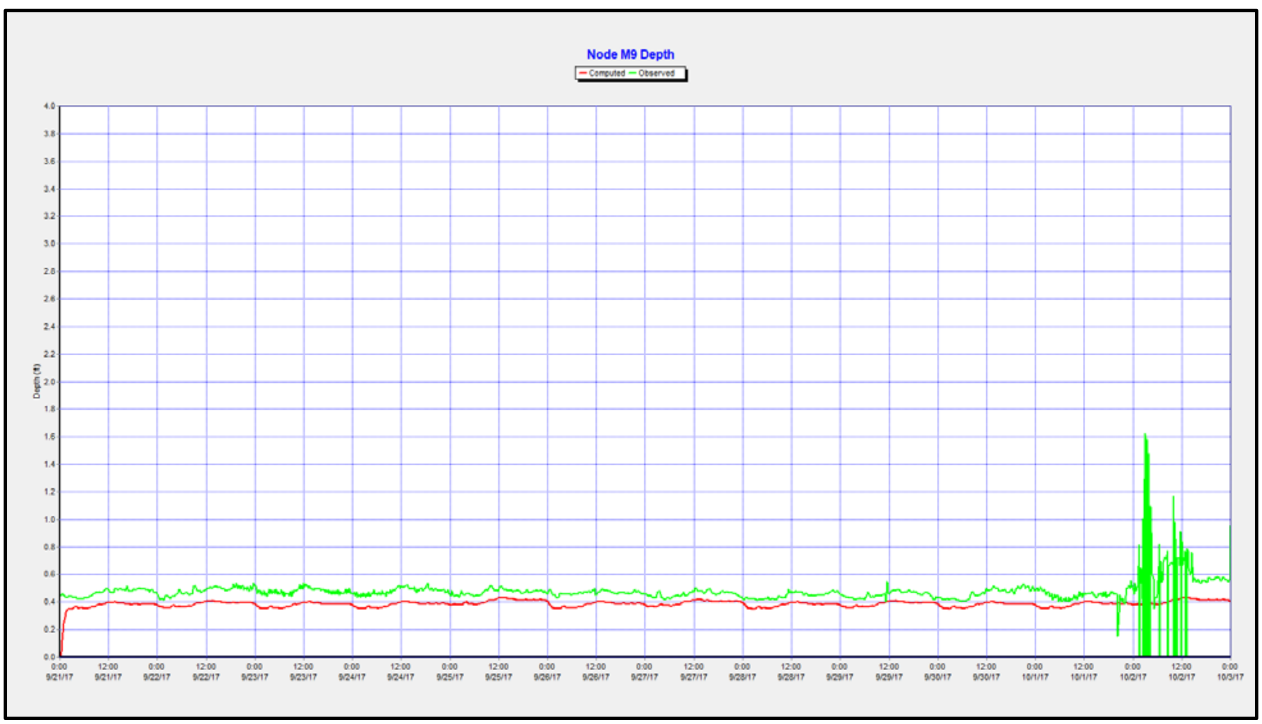
Meter 802 36-inch Influent: Depth (ft)



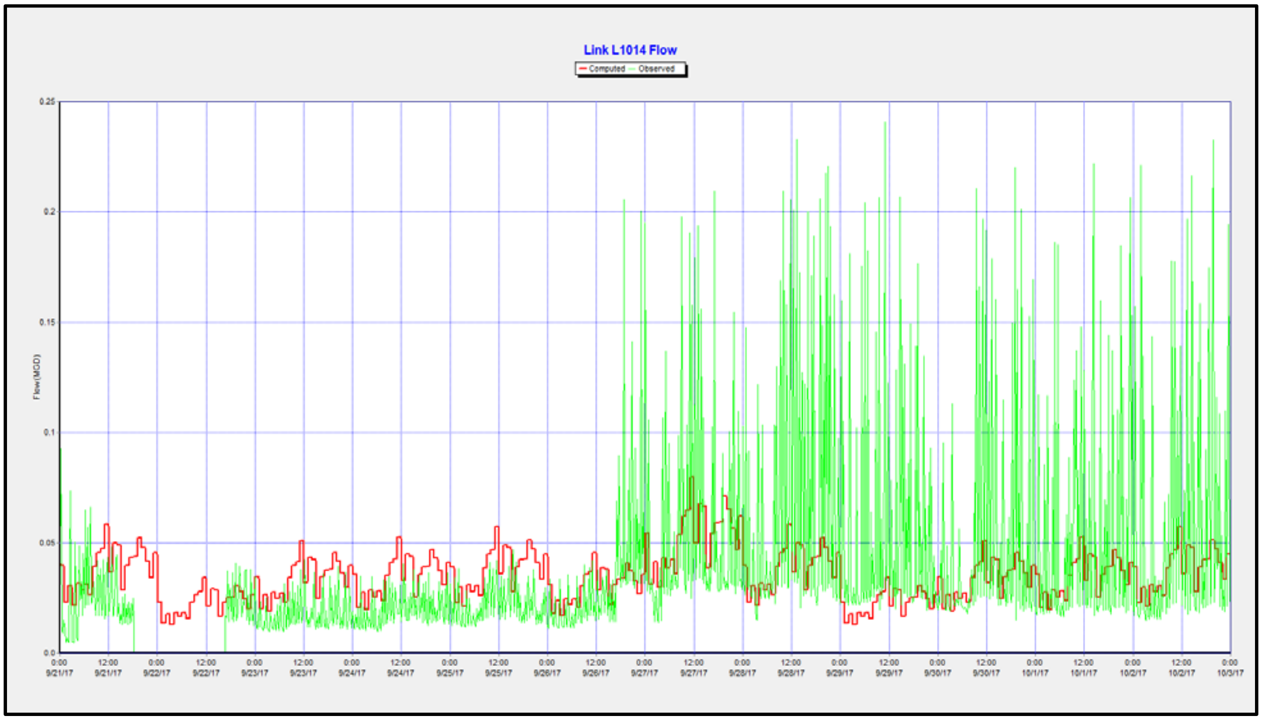
Meter M9 48-inch Influent: Flow (MGD)



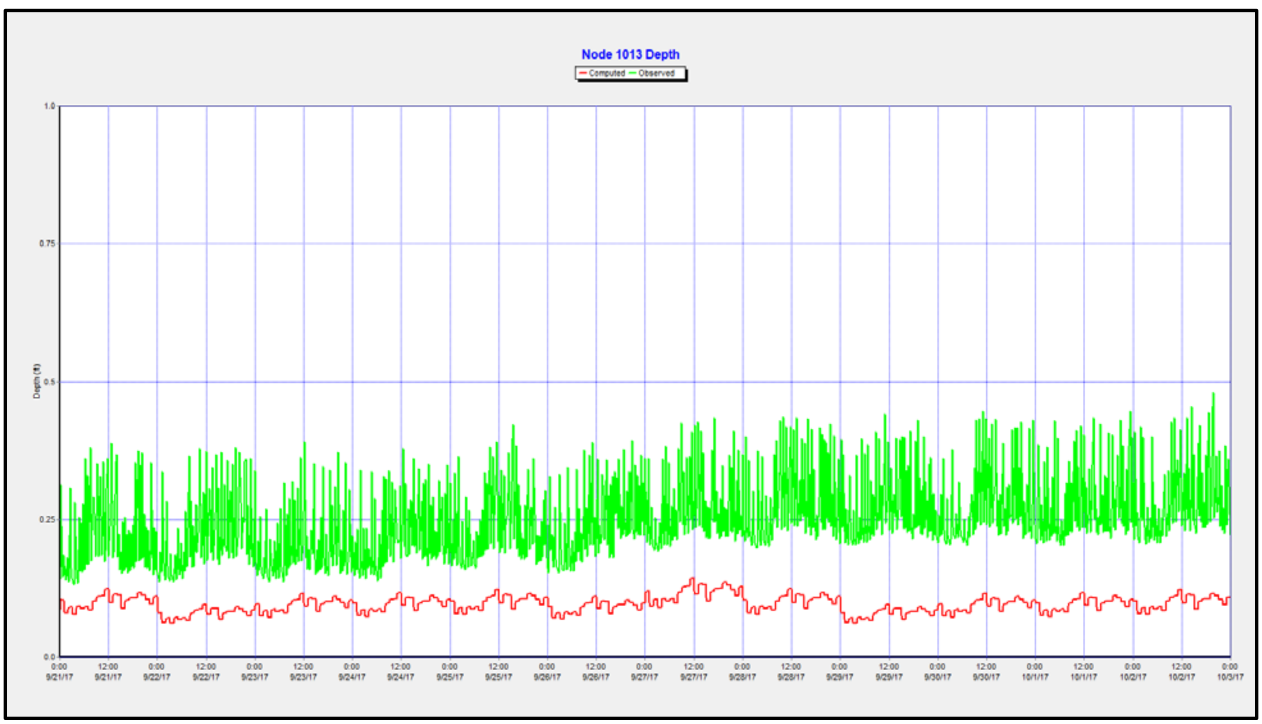
Meter M9 48-inch Influent: Depth (ft)



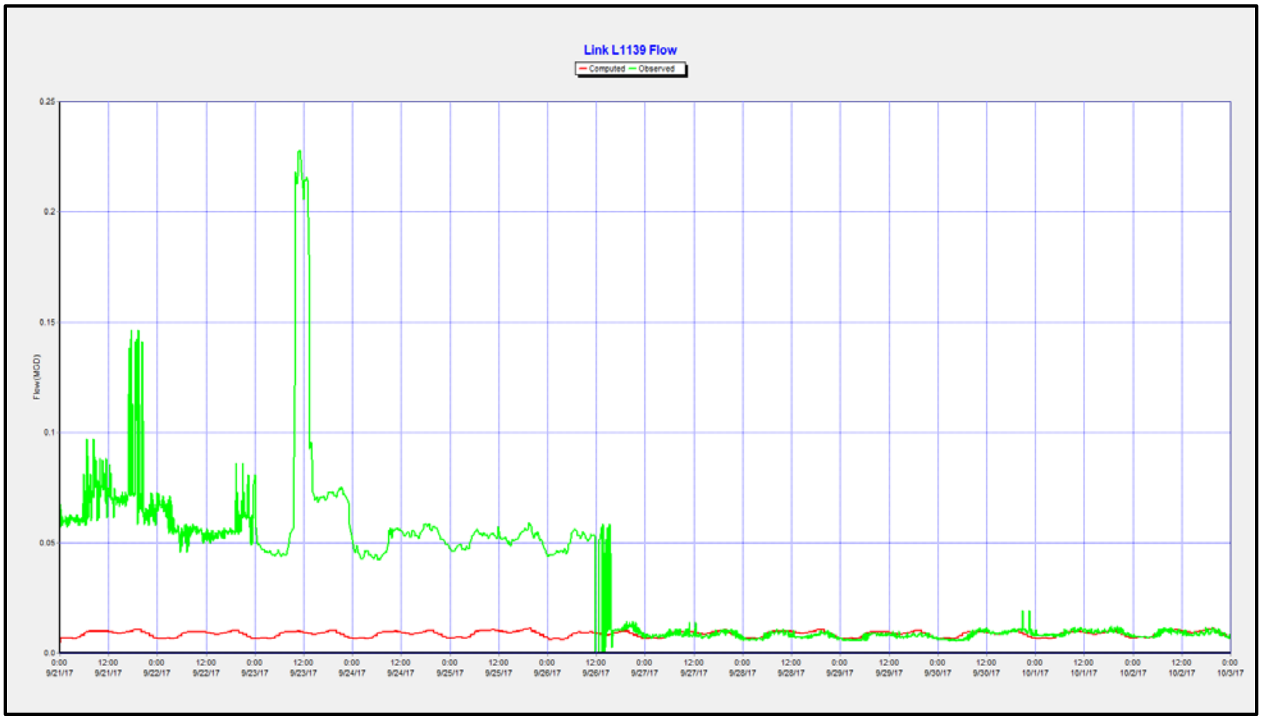
Meter 1013 12-inch Influent: Flow (MGD)



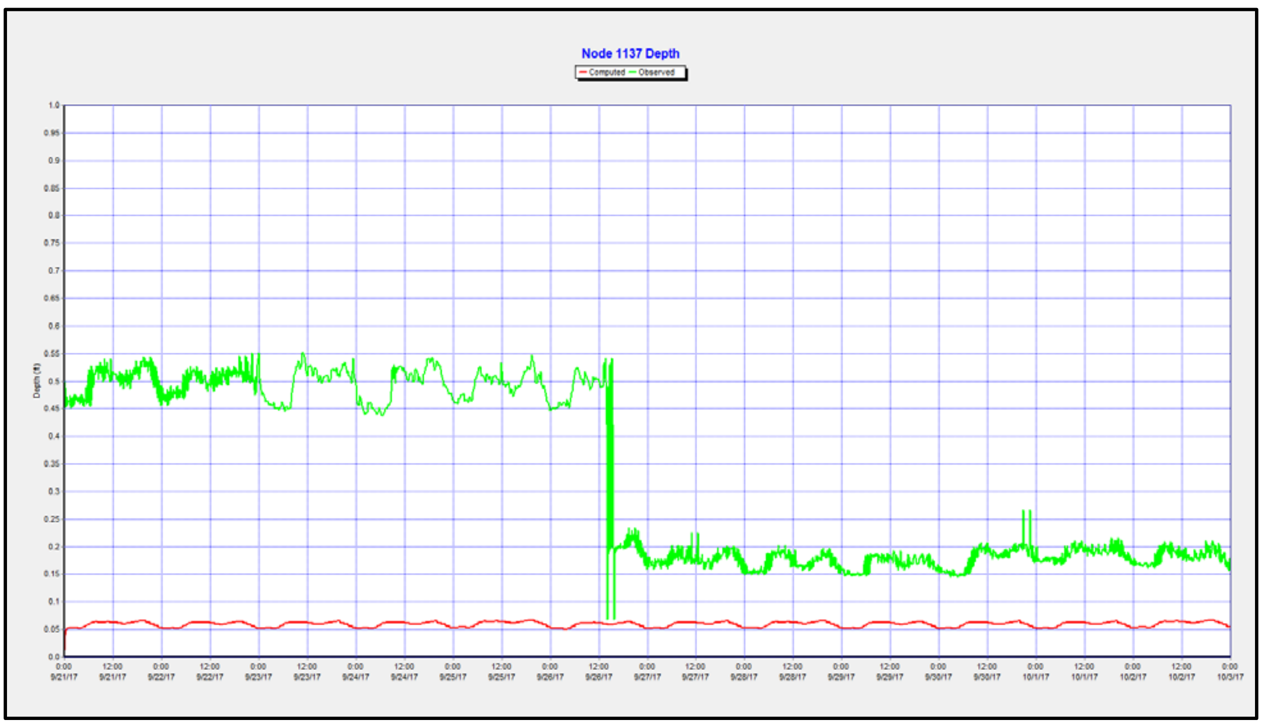
Meter 1013 12-inch Influent: Depth (ft)



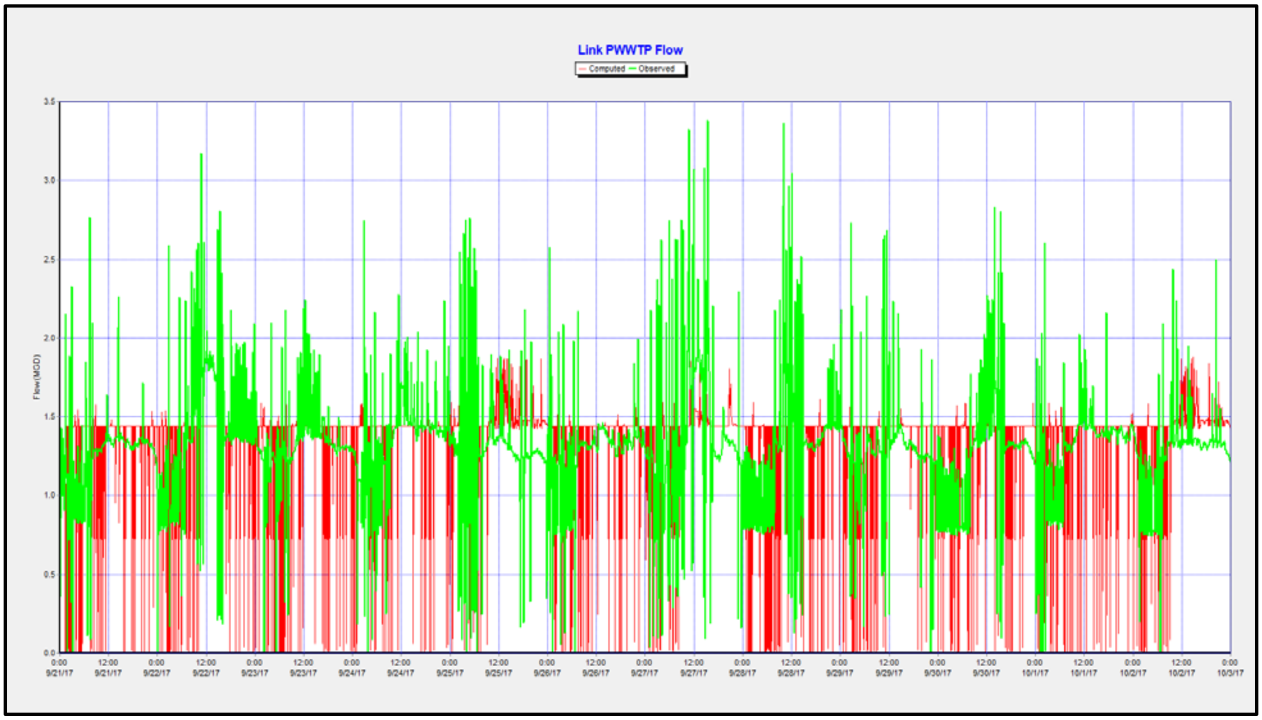
Meter 1137 12-inch Influent: Flow (MGD)



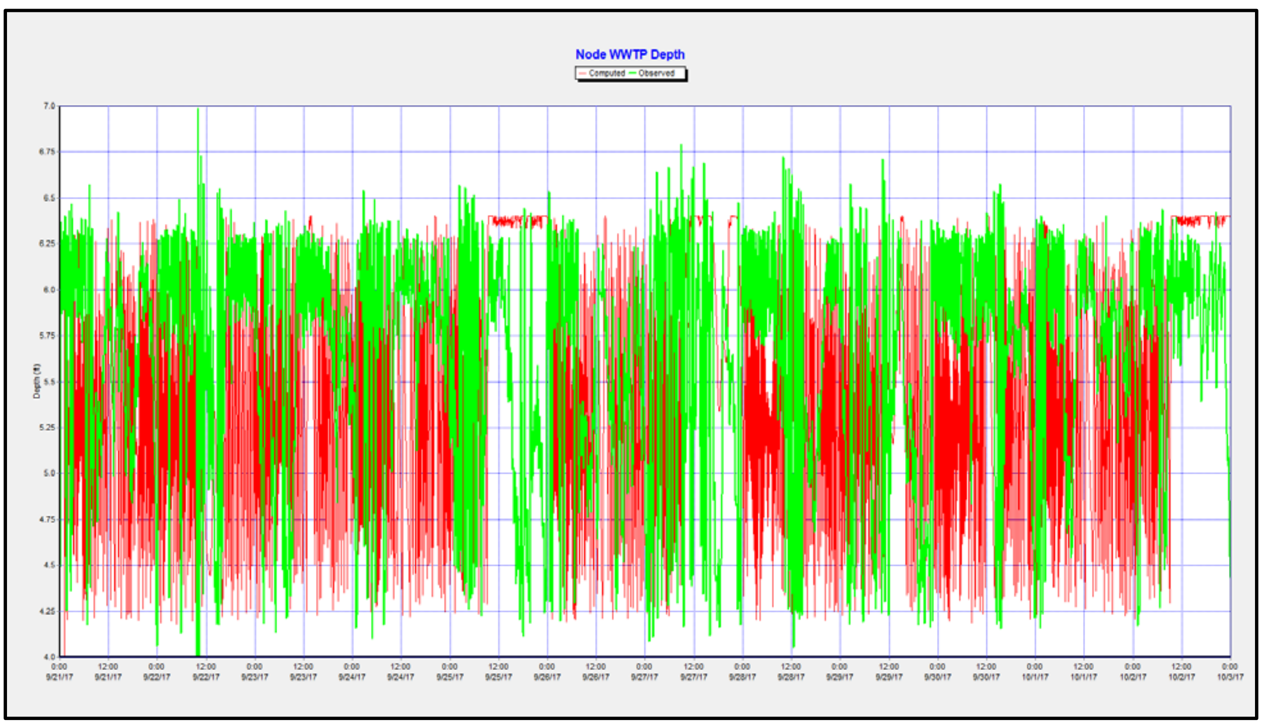
Meter 1137 12-inch Influent: Depth (ft)



Meter WWTP Influent: Flow (MGD)



Meter WWTP Influent: Depth (ft)



Meter CSO 001: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 001: Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 002: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 002 Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 003: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 003: Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 004: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 004: Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 105: Flow (MGD)

Dry weather flow data not available for this meter.

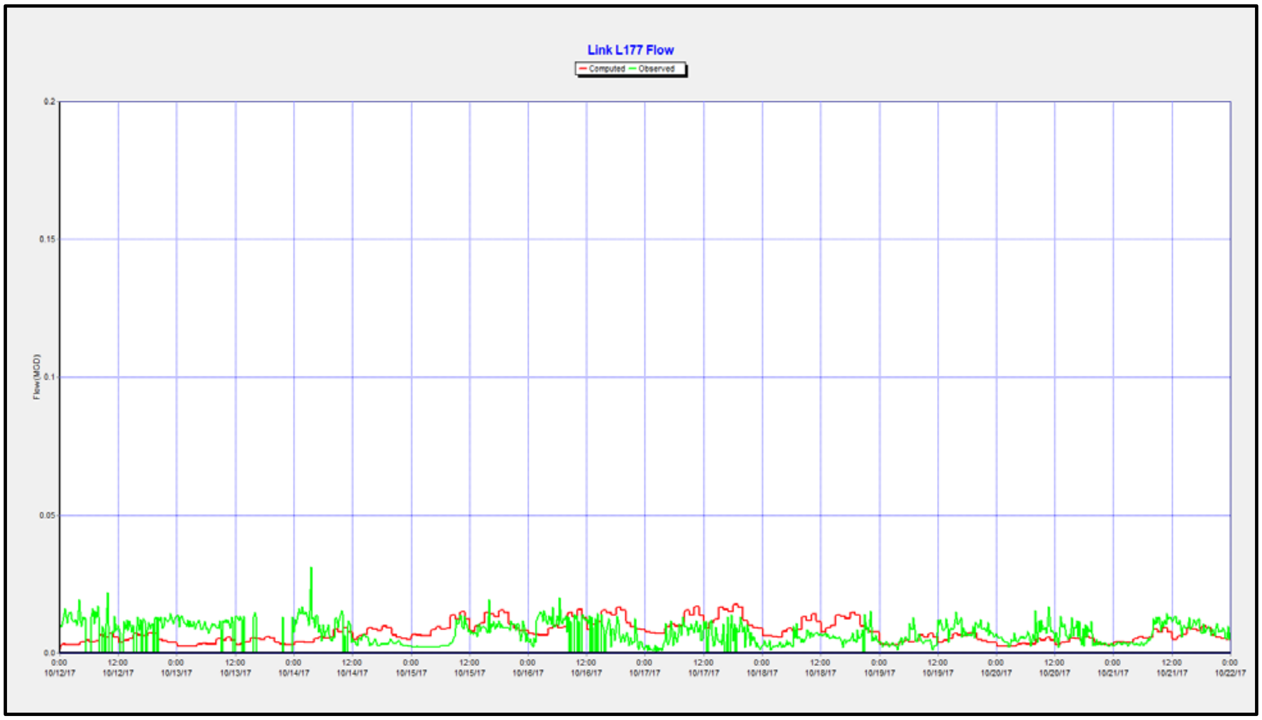
Meter CSO 105: Depth (ft)

Dry weather depth data not available for this meter.

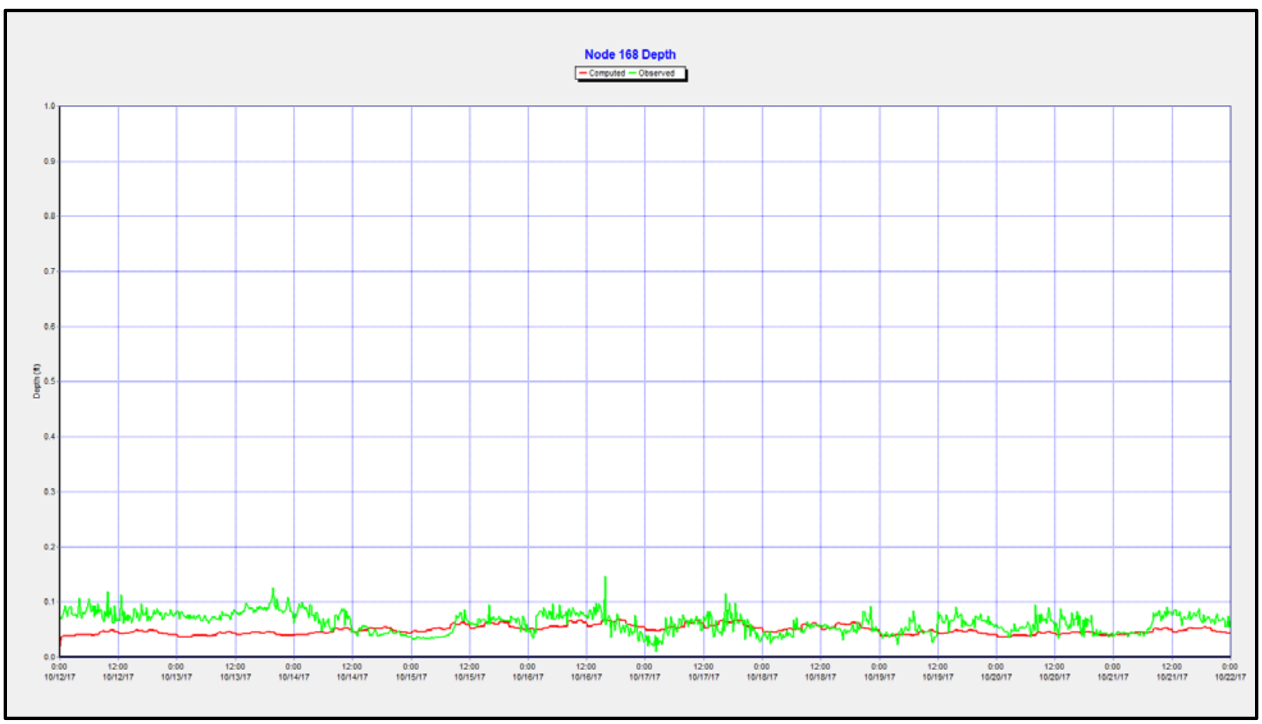
Validation Event

October 12, 2017 to October 21, 2017

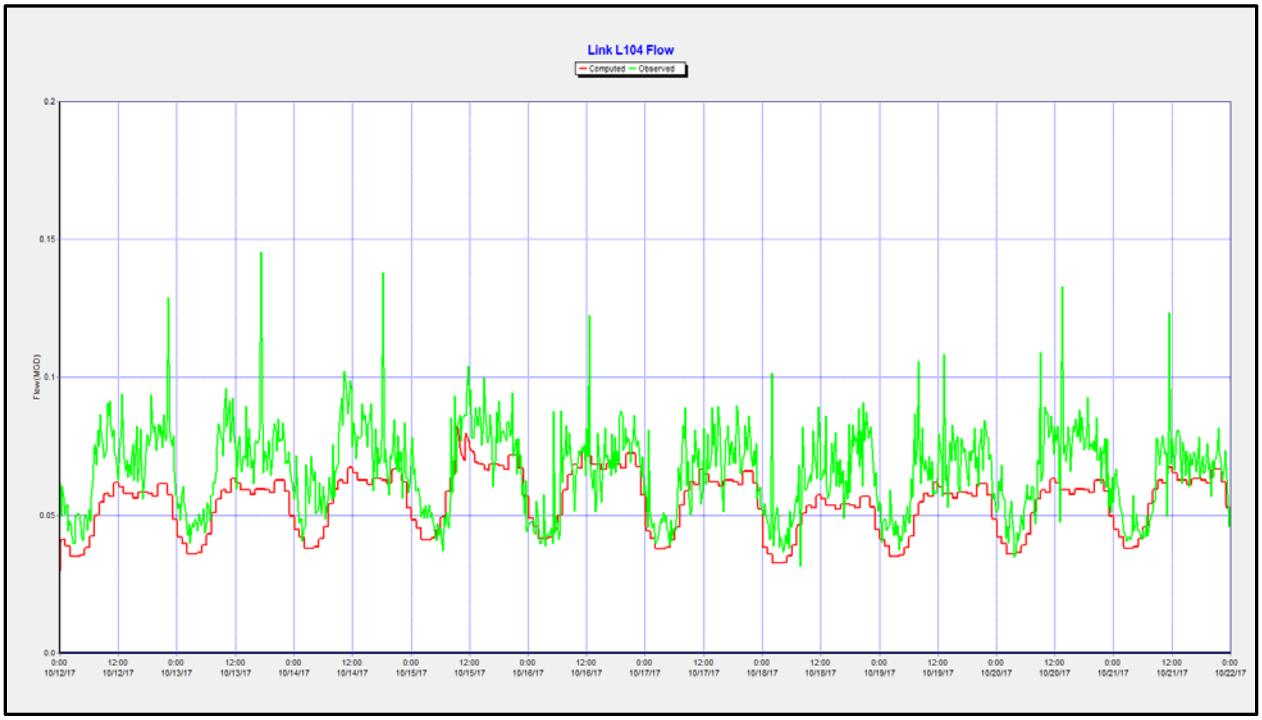
Meter 168 10-inch Influent: Flow (MGD)



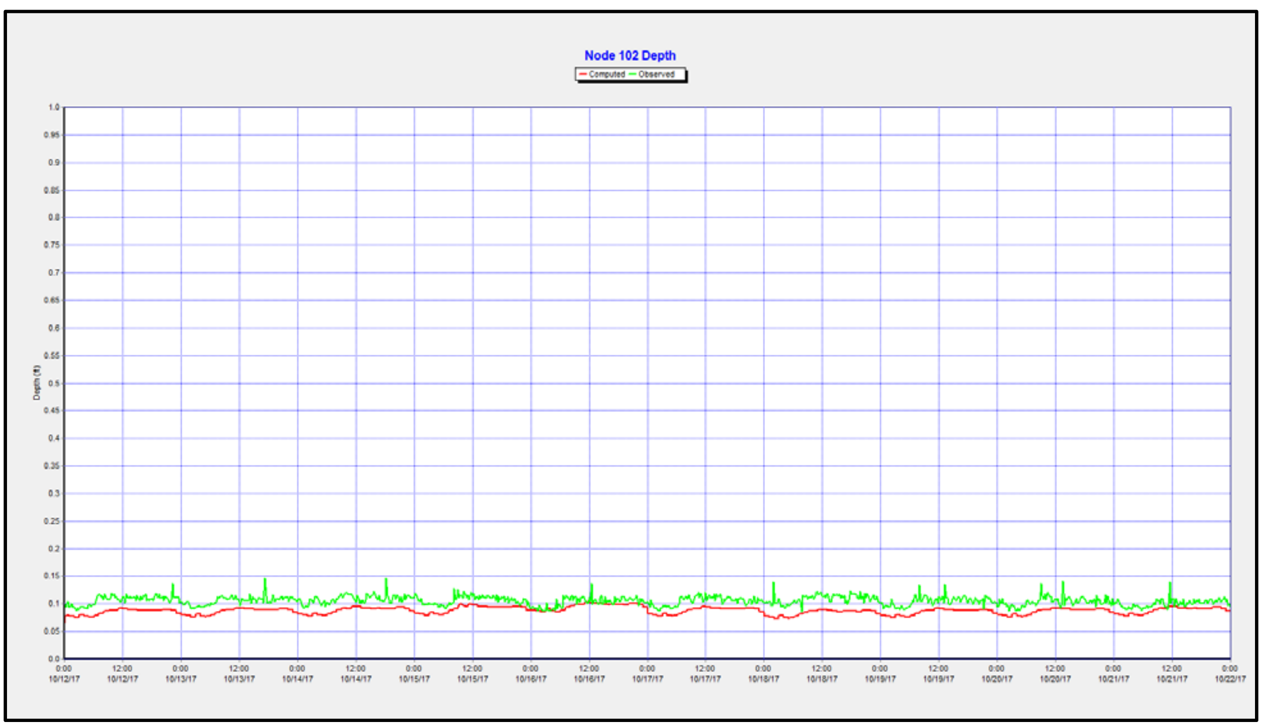
Meter 168 10-inch Influent: Depth (ft)



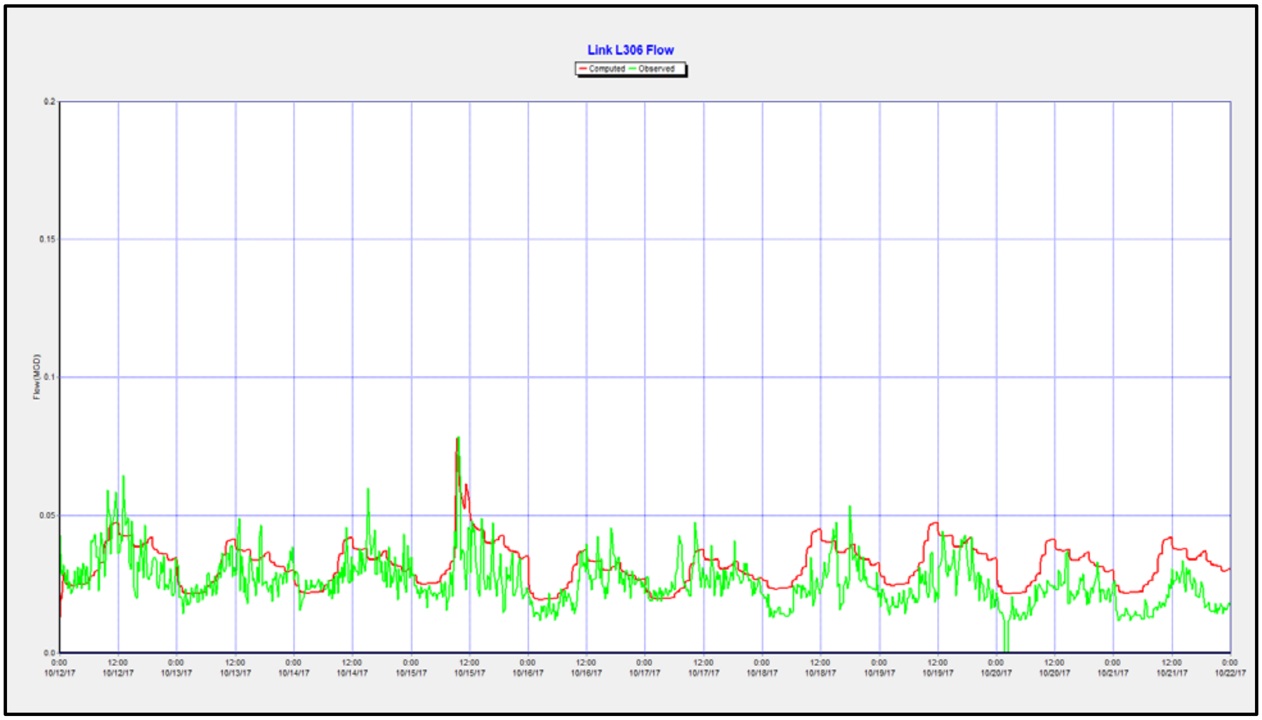
Meter 102 12-inch Influent: Flow (MGD)



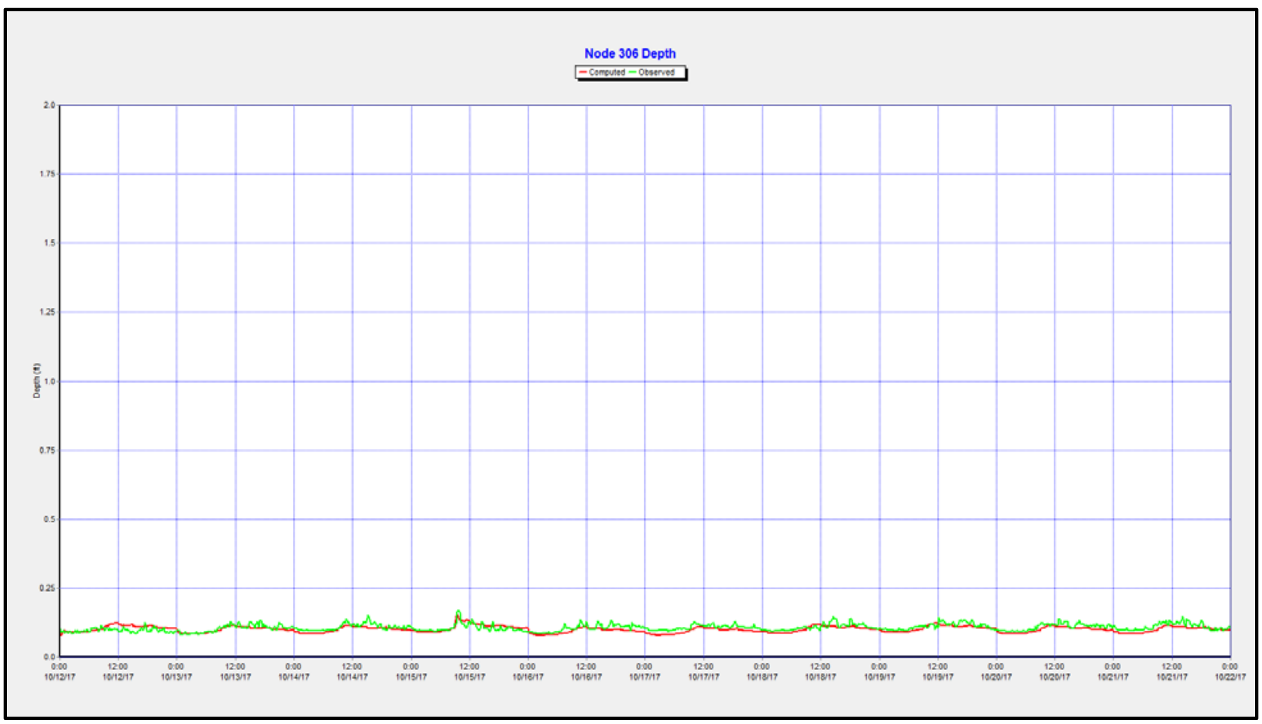
Meter 102 12-inch Influent: Depth (ft)



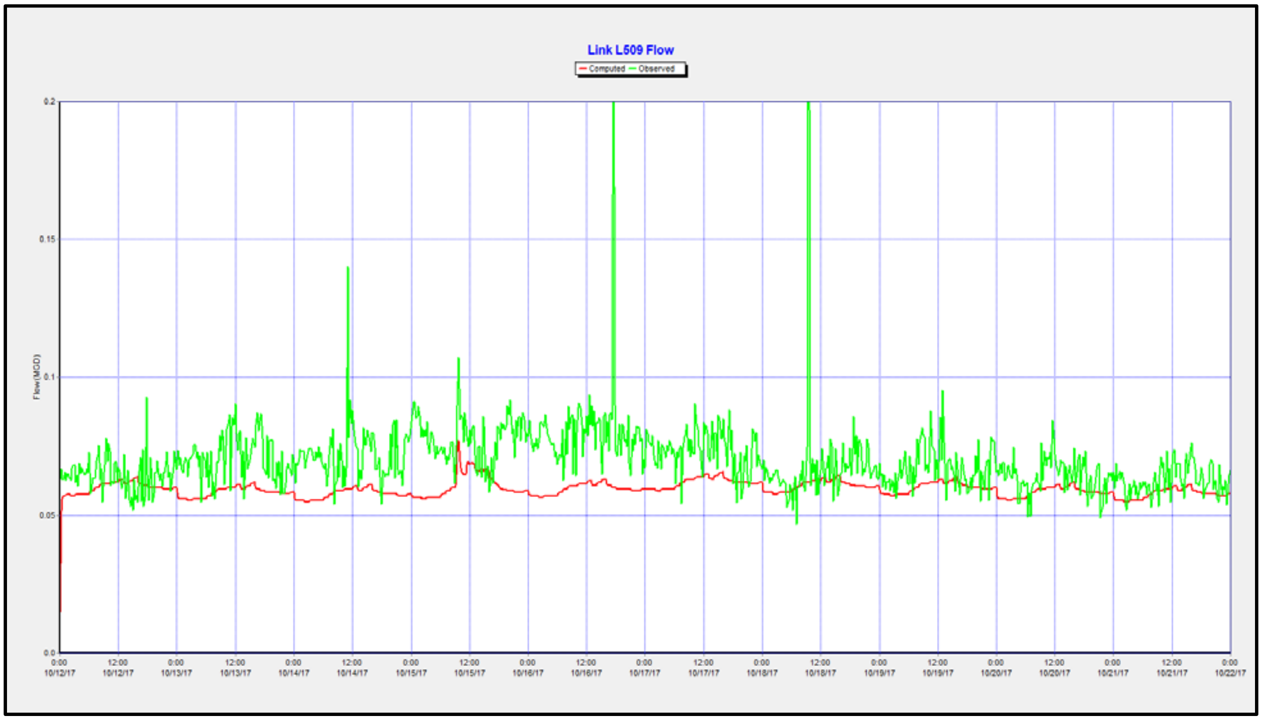
Meter 306 24-inch Effluent: Flow (MGD)



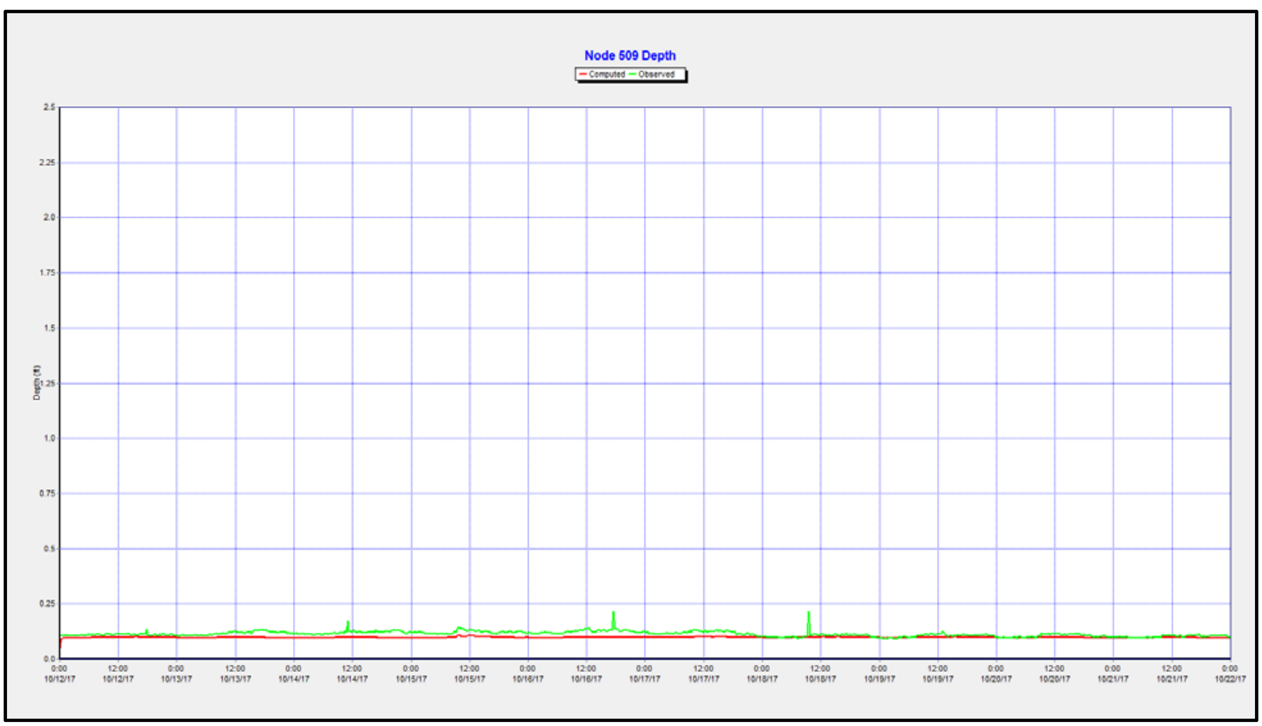
Meter 306 24-inch Effluent: Depth (ft)



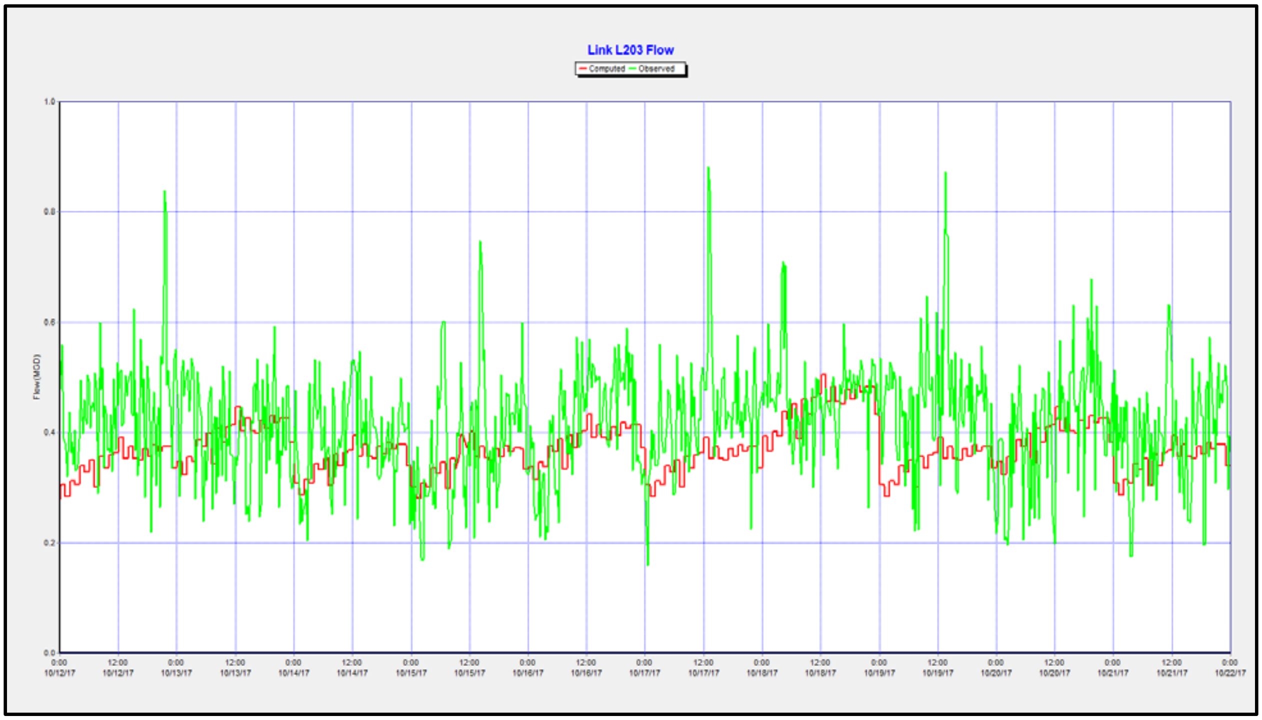
Meter 509 30-inch Effluent: Flow (MGD)



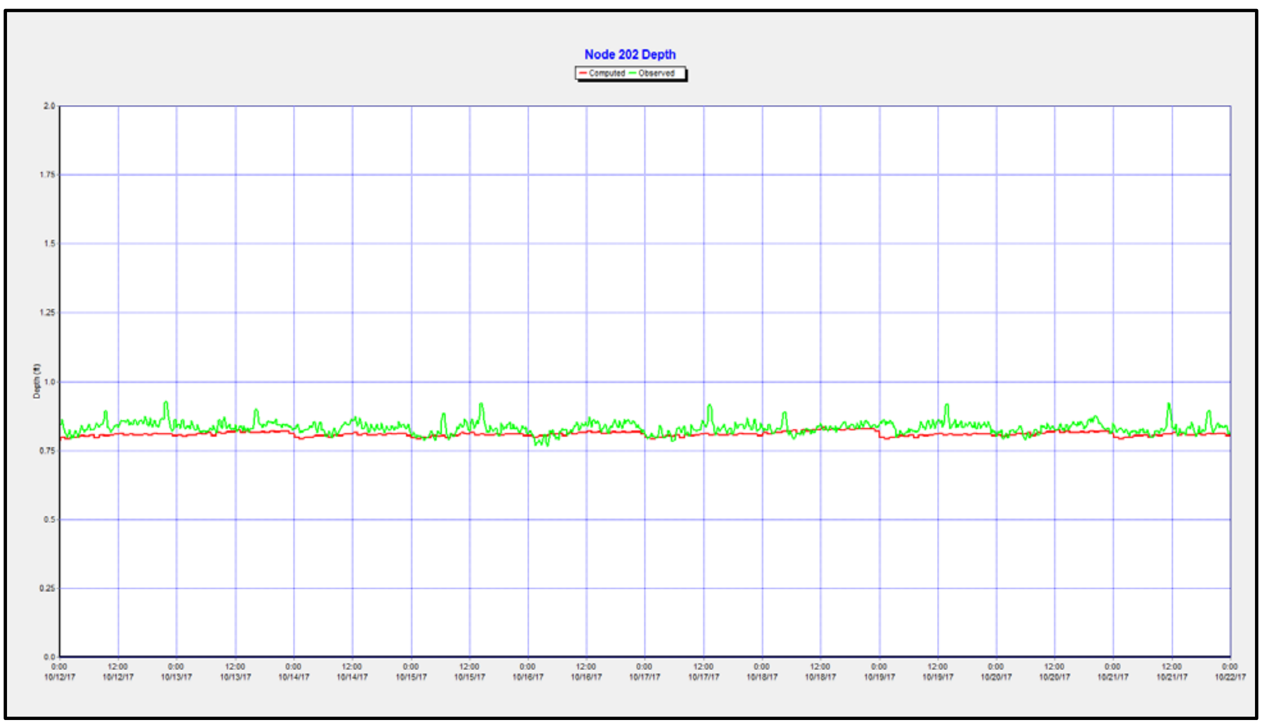
Meter 509 30-inch Effluent: Depth (ft)



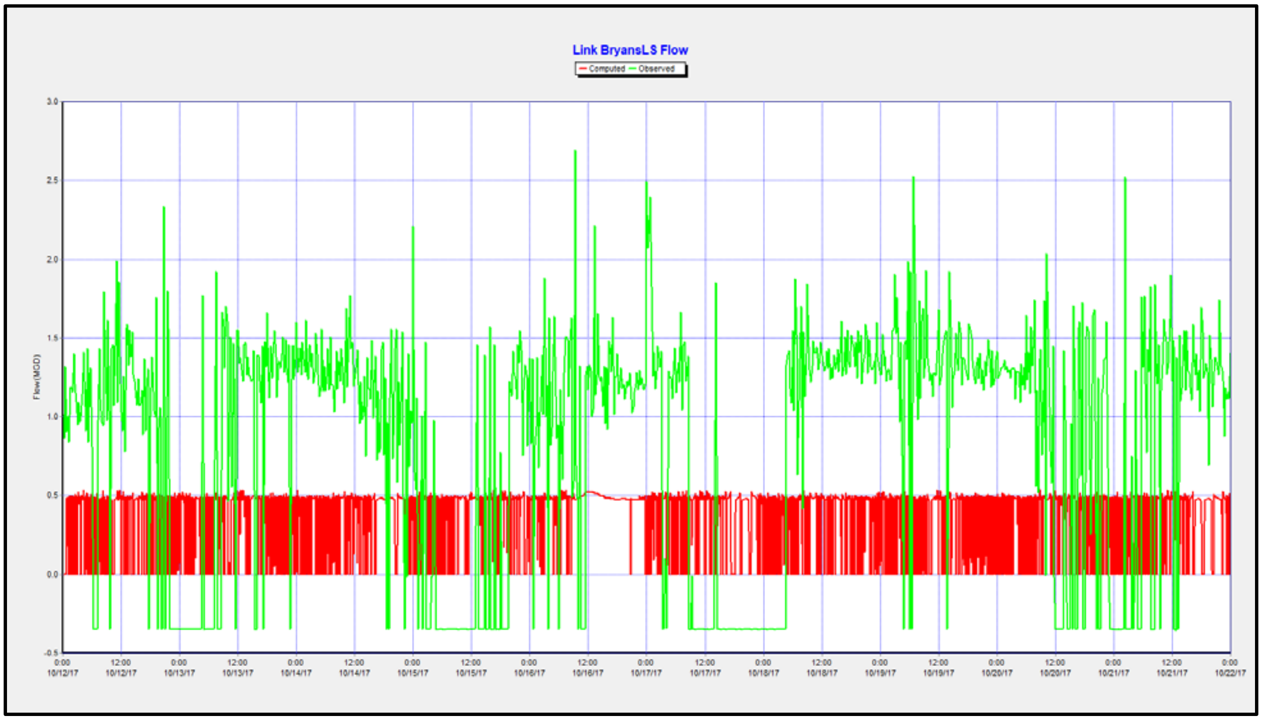
Meter 202 24-inch Influent: Flow (MGD)



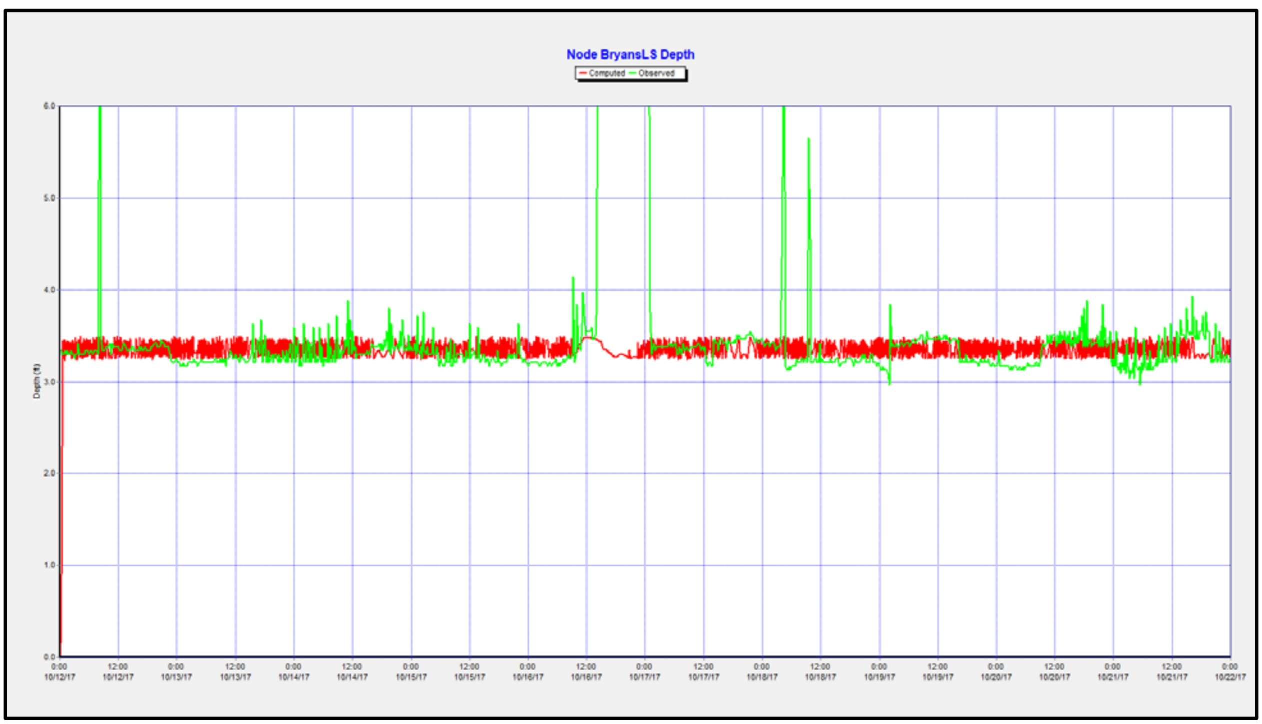
Meter 202 24-inch Influent: Depth (ft)



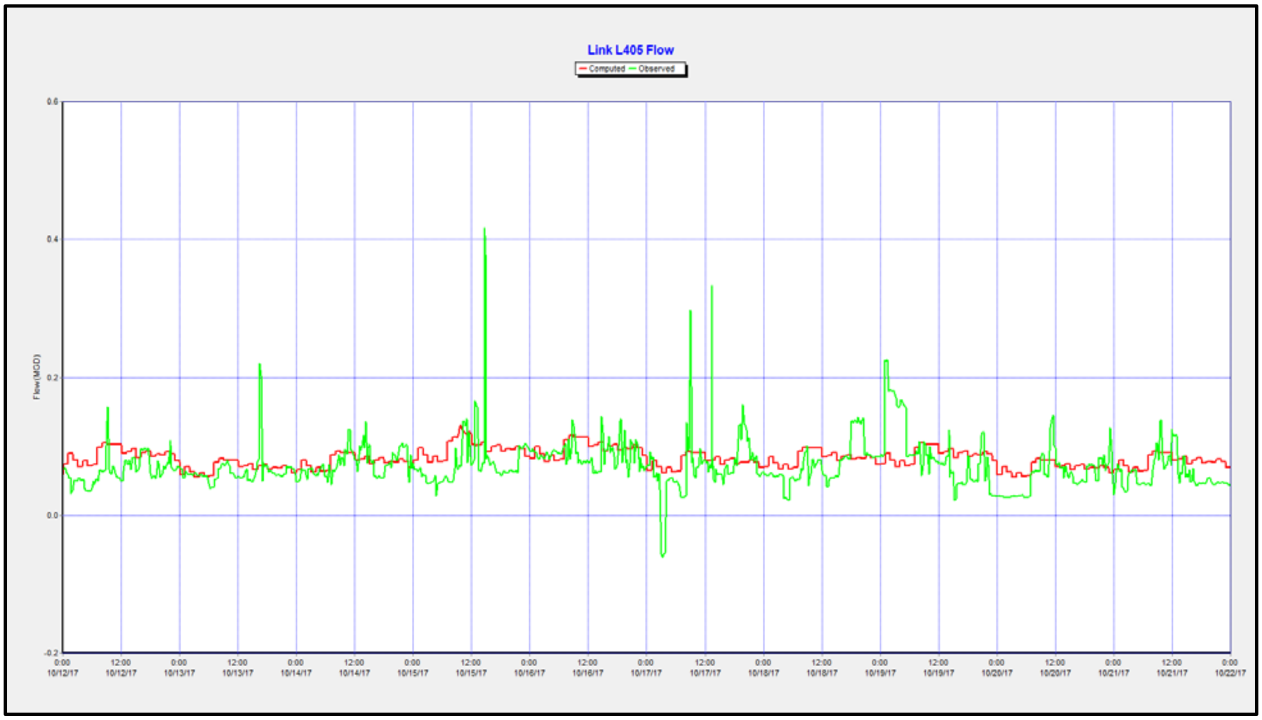
Meter Bryan's Lift Station: Flow (MGD)



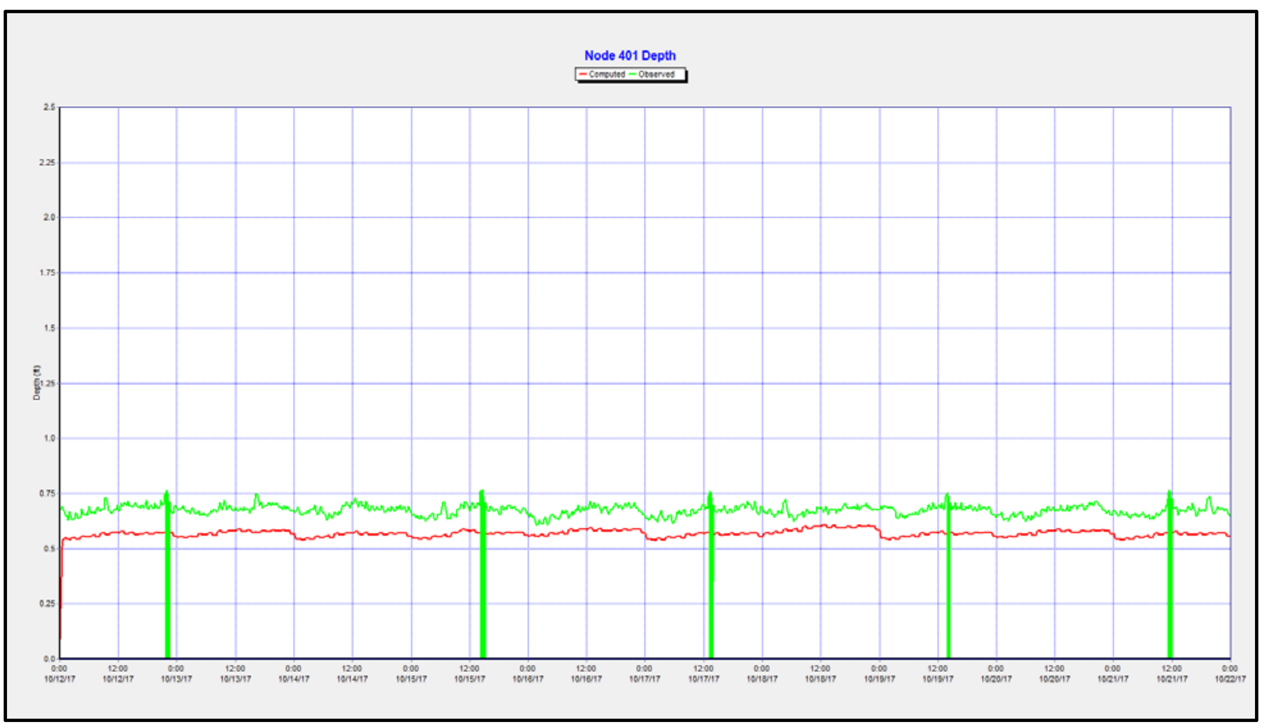
Meter Bryan's Lift Station: Depth (ft)



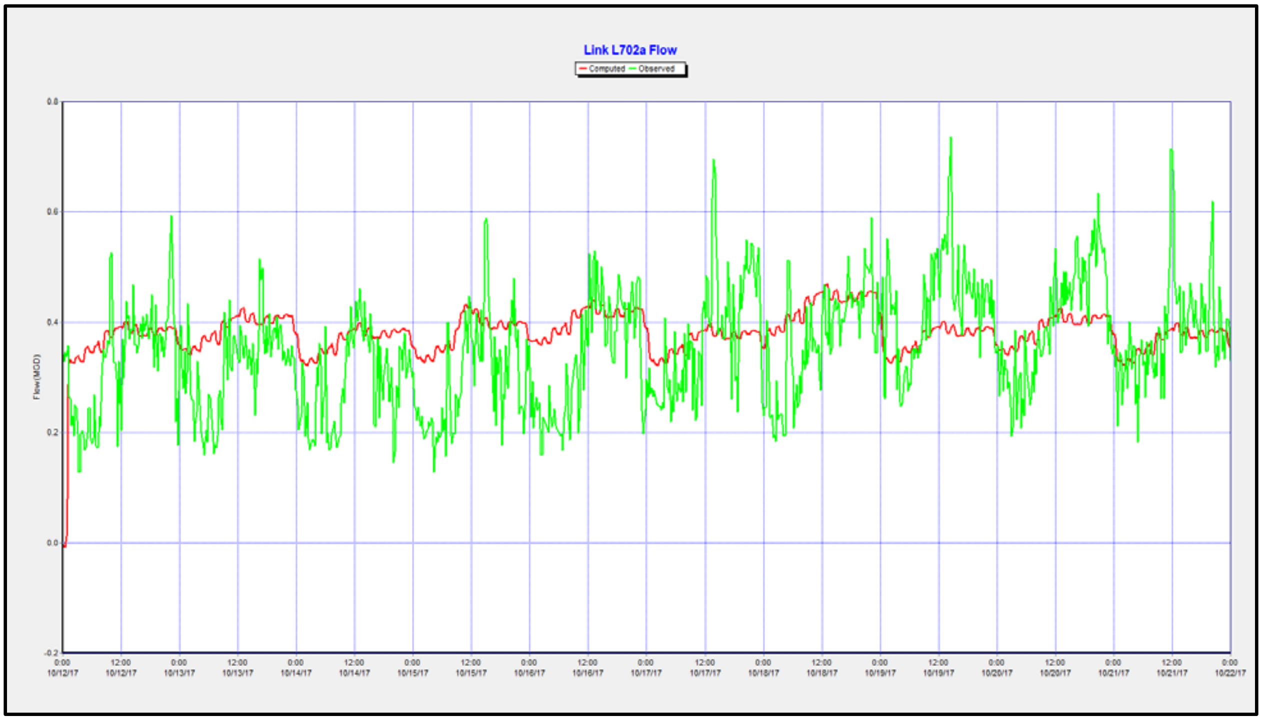
Meter 401 30-inch Influent: Flow (MGD)



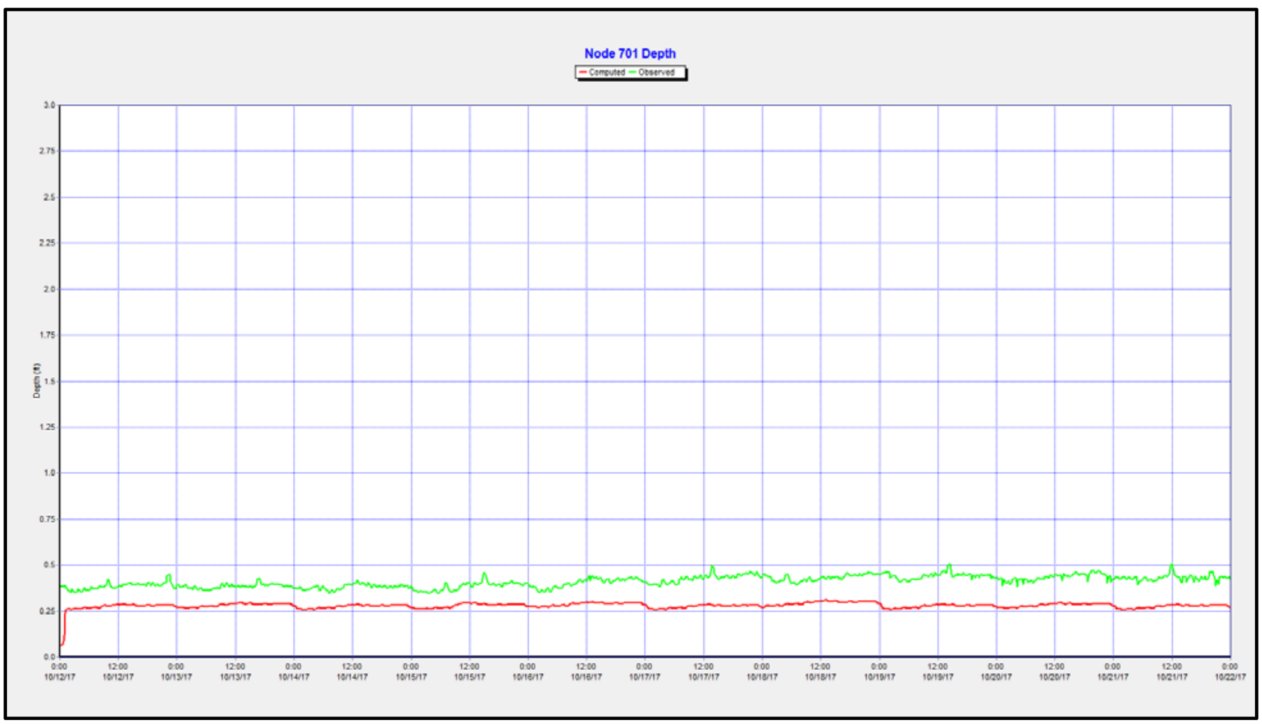
Meter 401 30-inch Influent: Depth (ft)



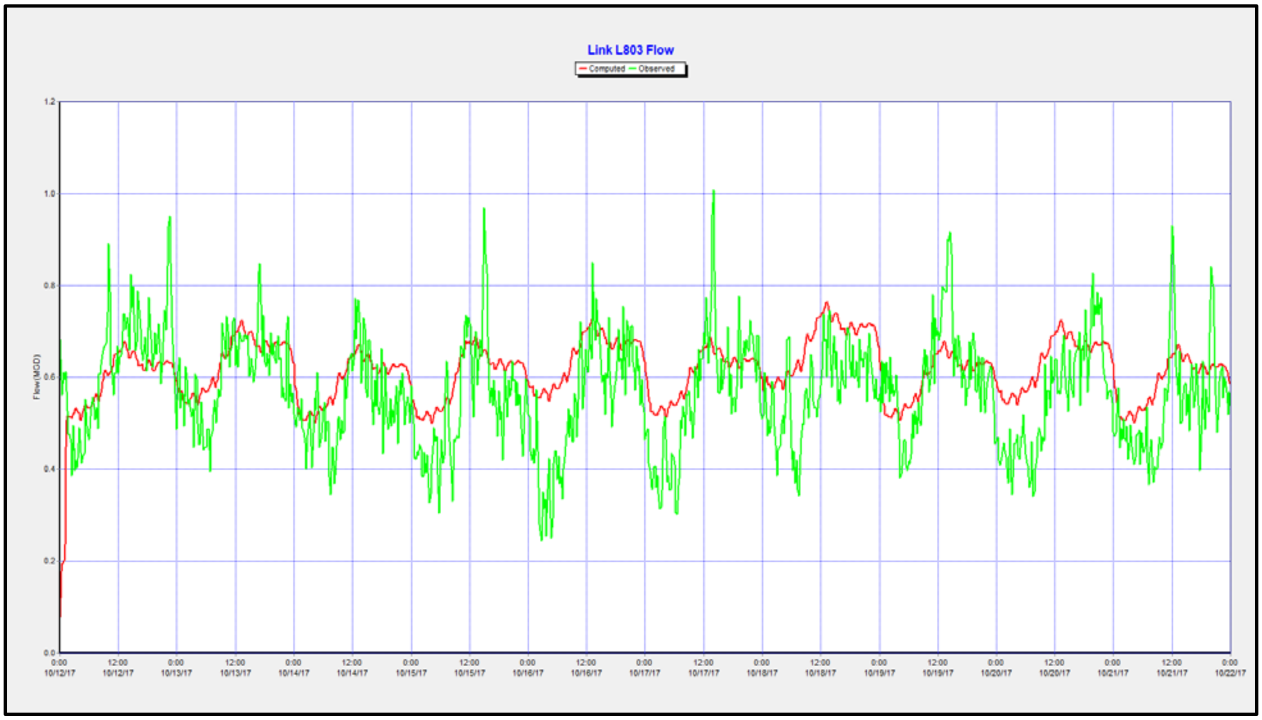
Meter 701 36-inch Influent: Flow (MGD)



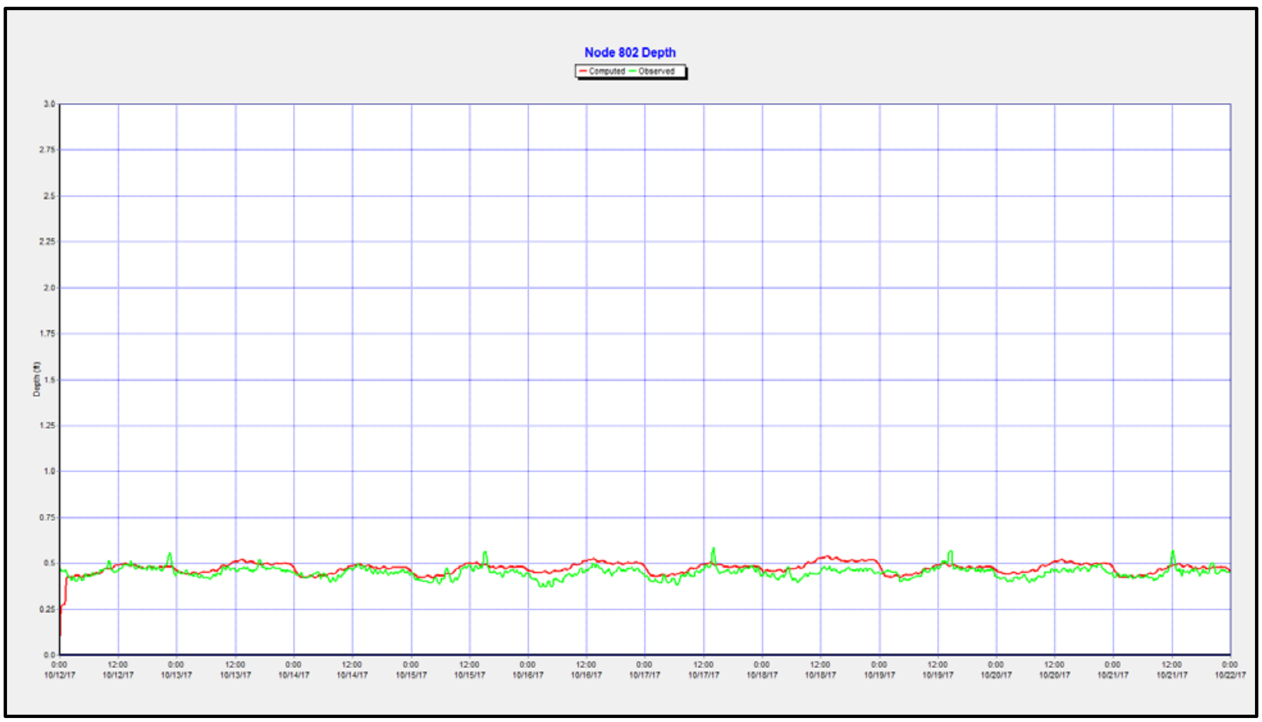
Meter 701 36-inch Influent: Depth (ft)



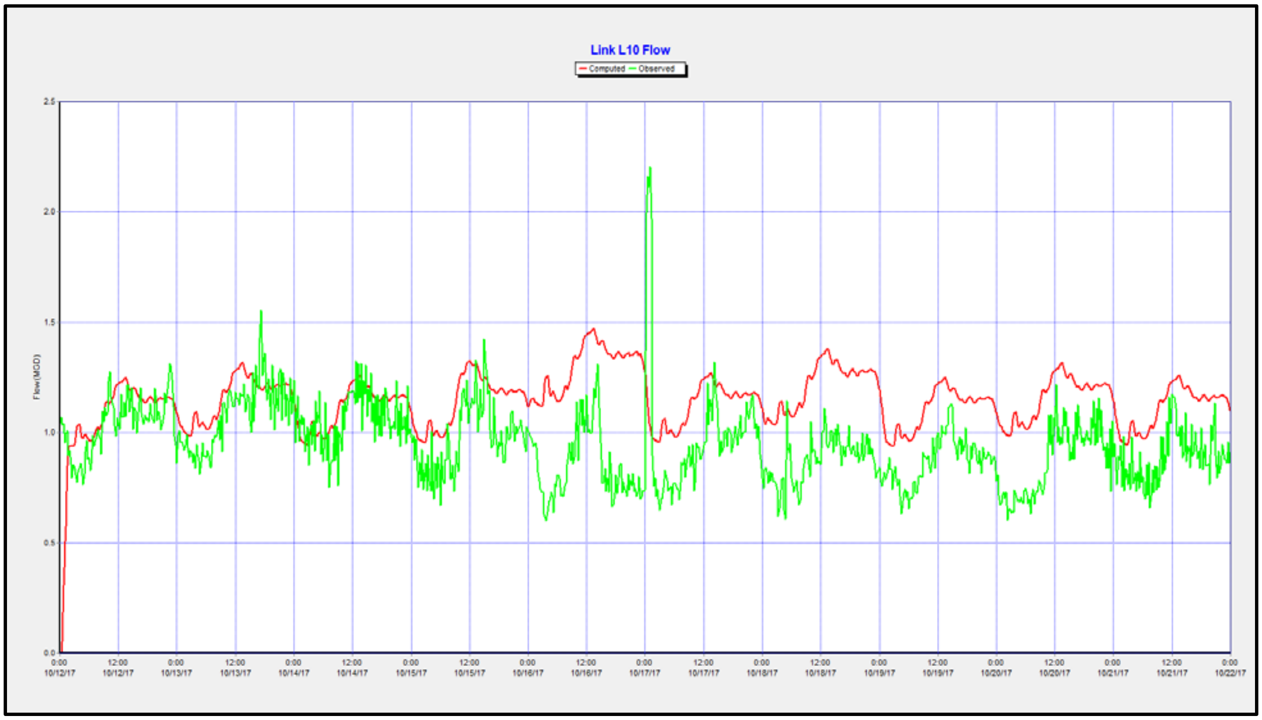
Meter 802 36-inch Influent: Flow (MGD)



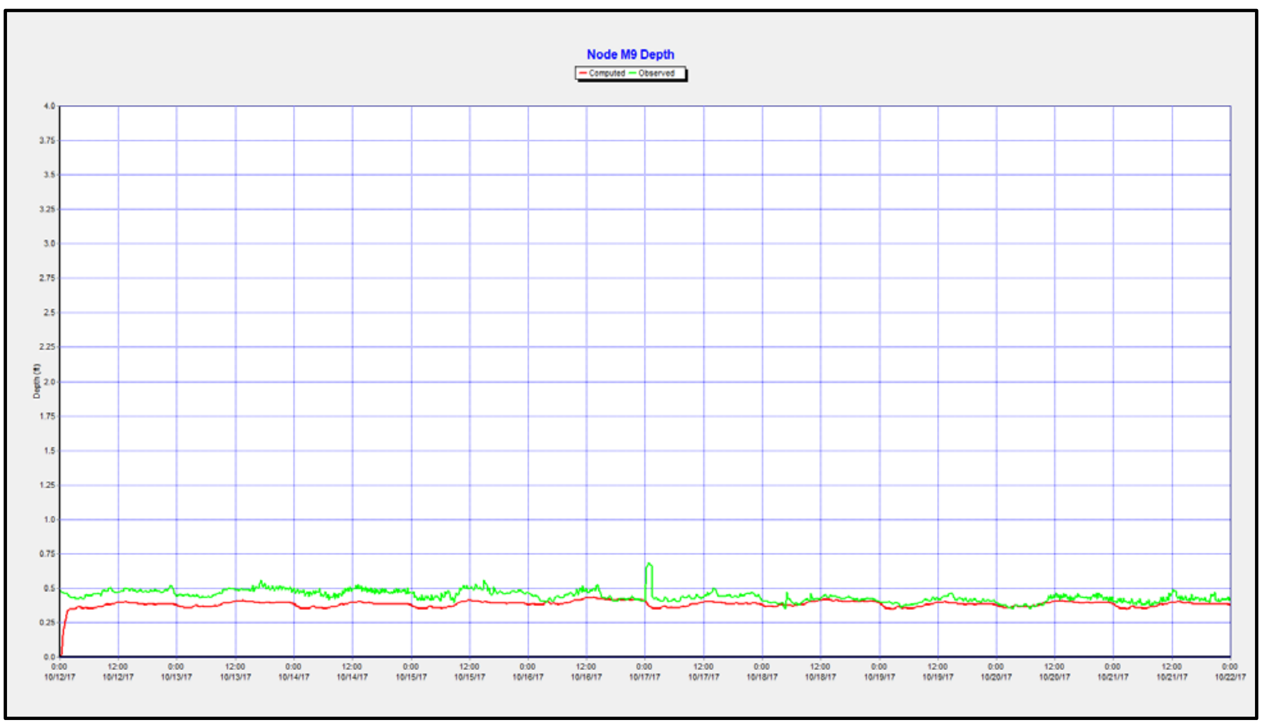
Meter 802 36-inch Influent: Depth (ft)



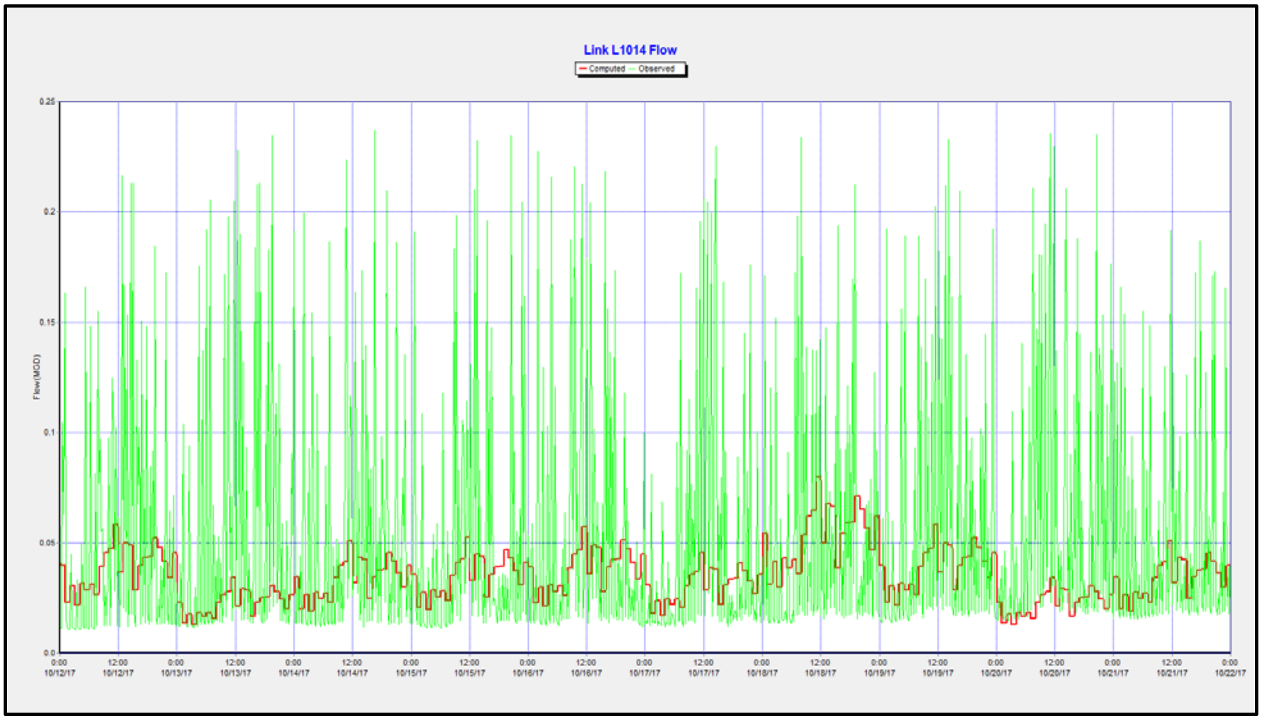
Meter M9 48-inch Influent: Flow (MGD)



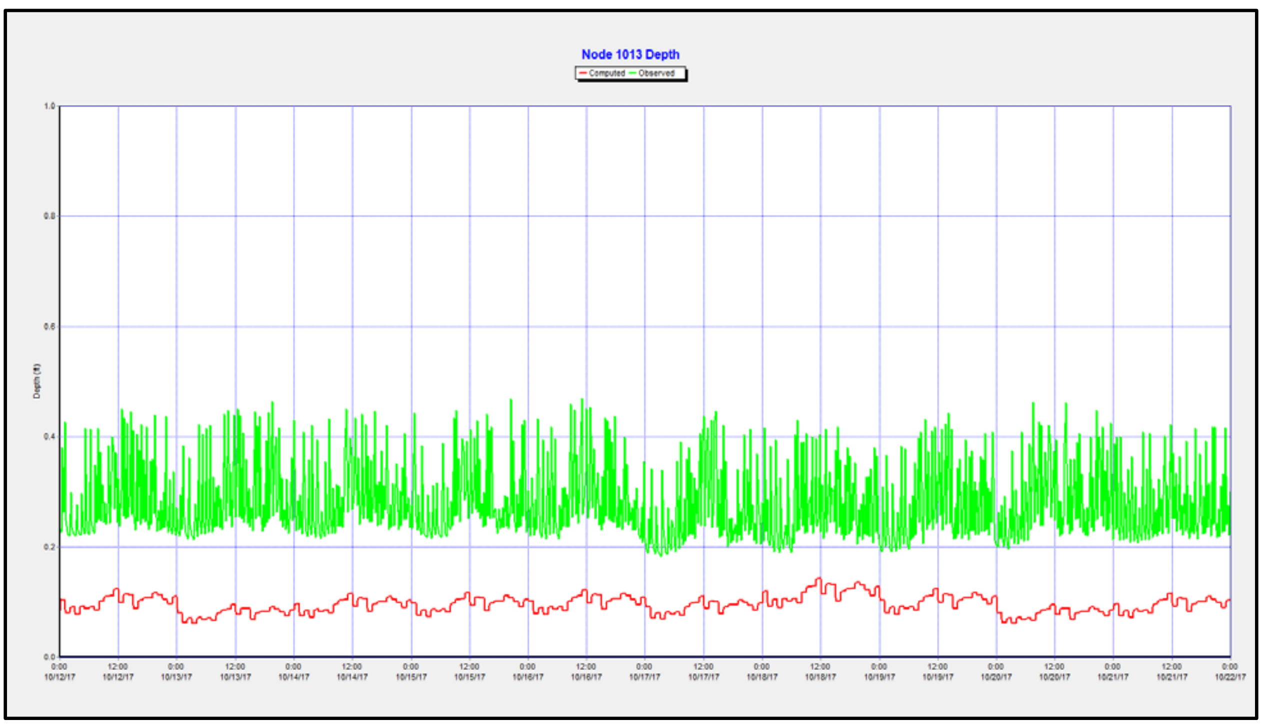
Meter M9 48-inch Influent: Depth (ft)



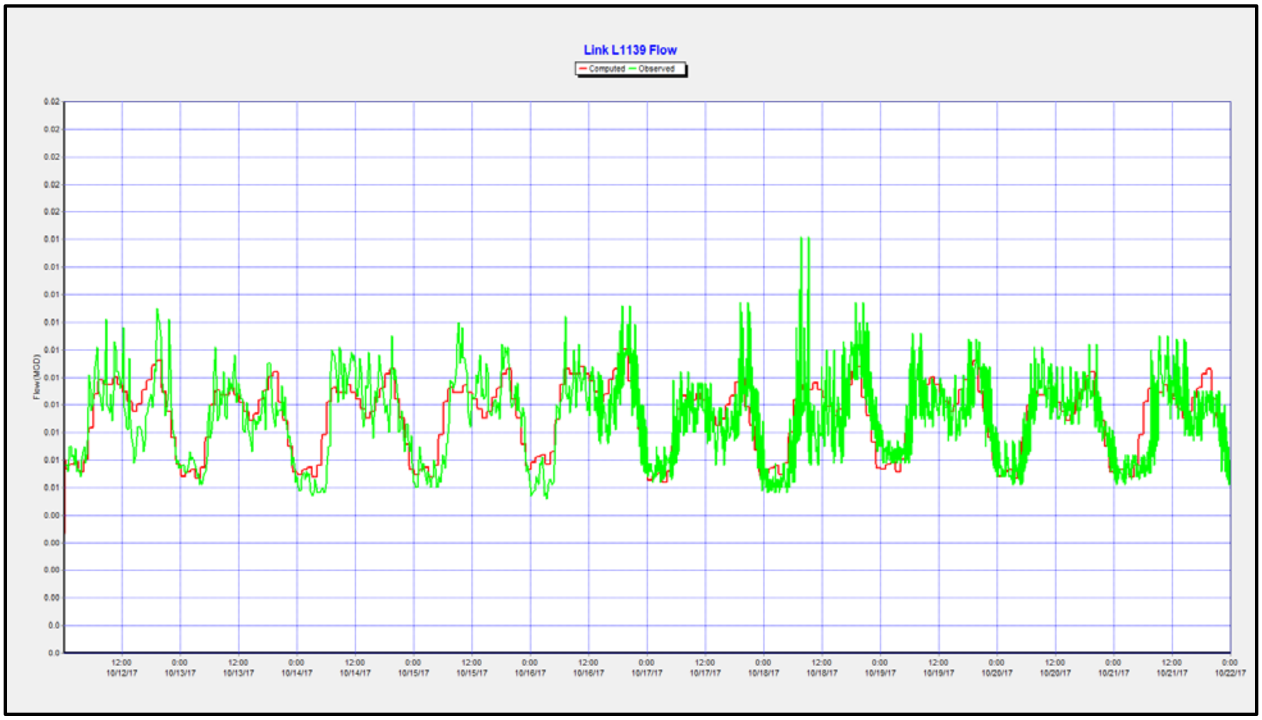
Meter 1013 12-inch Influent: Flow (MGD)



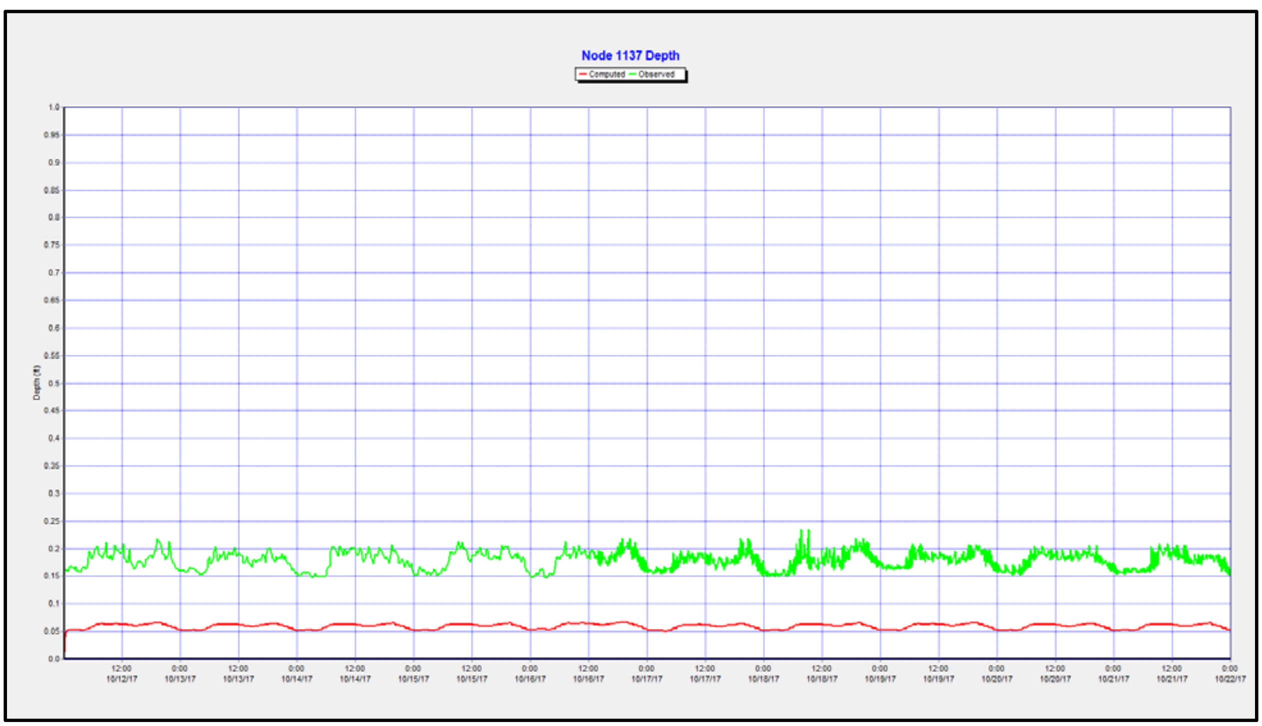
Meter 1013 12-inch Influent: Depth (ft)



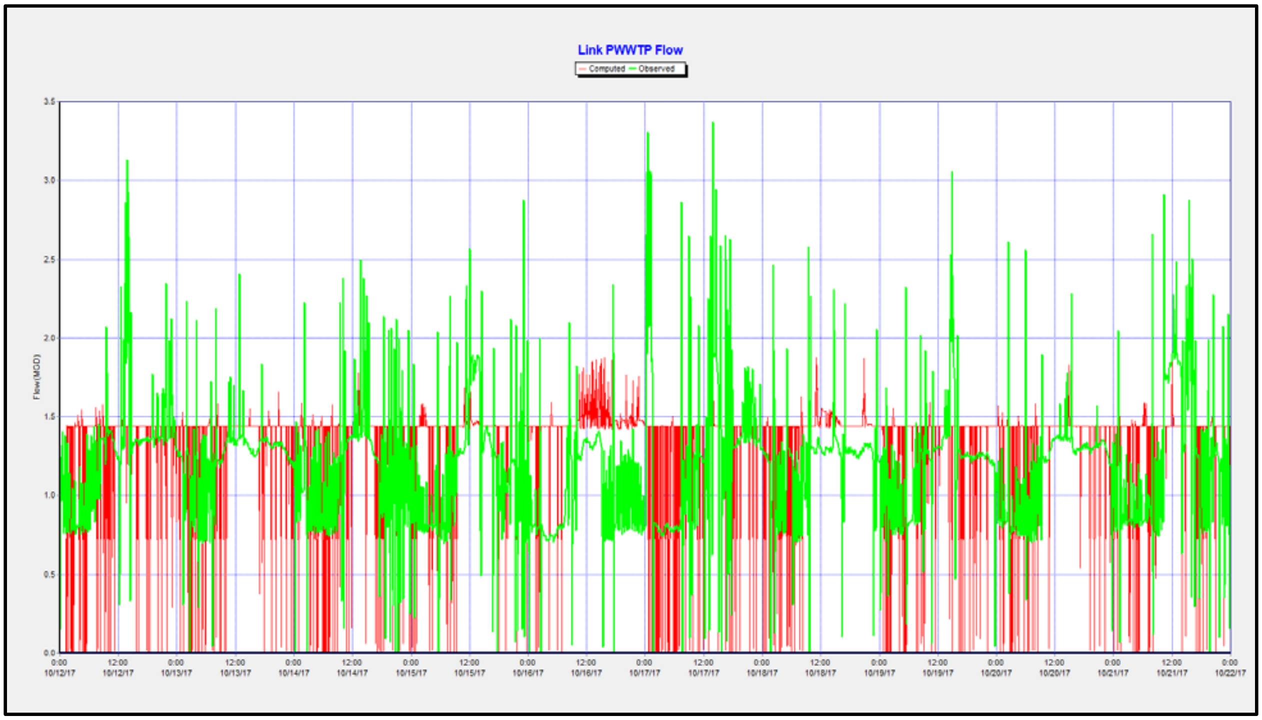
Meter 1137 12-inch Influent: Flow (MGD)



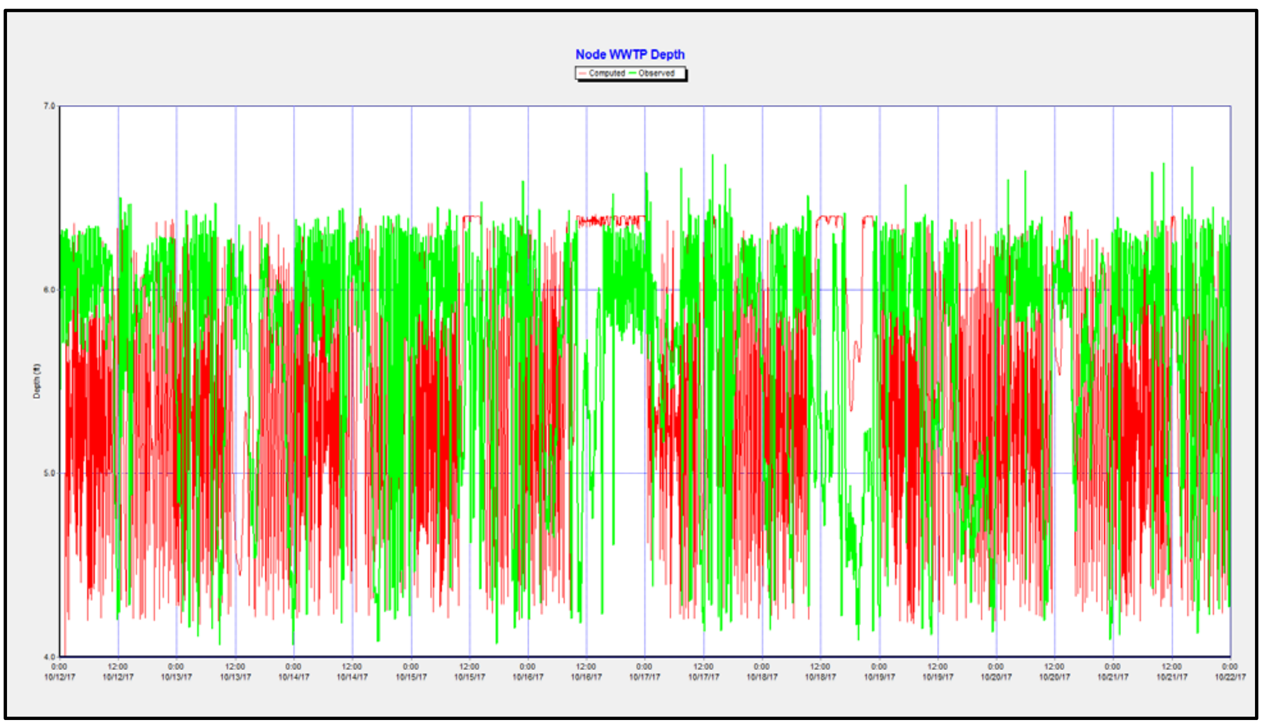
Meter 1137 12-inch Influent: Depth (ft)



Meter WWTP Influent: Flow (MGD)



Meter WWTP Influent: Depth (ft)



Meter CSO 001: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 001: Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 002: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 002 Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 003: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 003: Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 004: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 004: Depth (ft)

Dry weather depth data not available for this meter.

Meter CSO 105: Flow (MGD)

Dry weather flow data not available for this meter.

Meter CSO 105: Depth (ft)

Dry weather depth data not available for this meter.

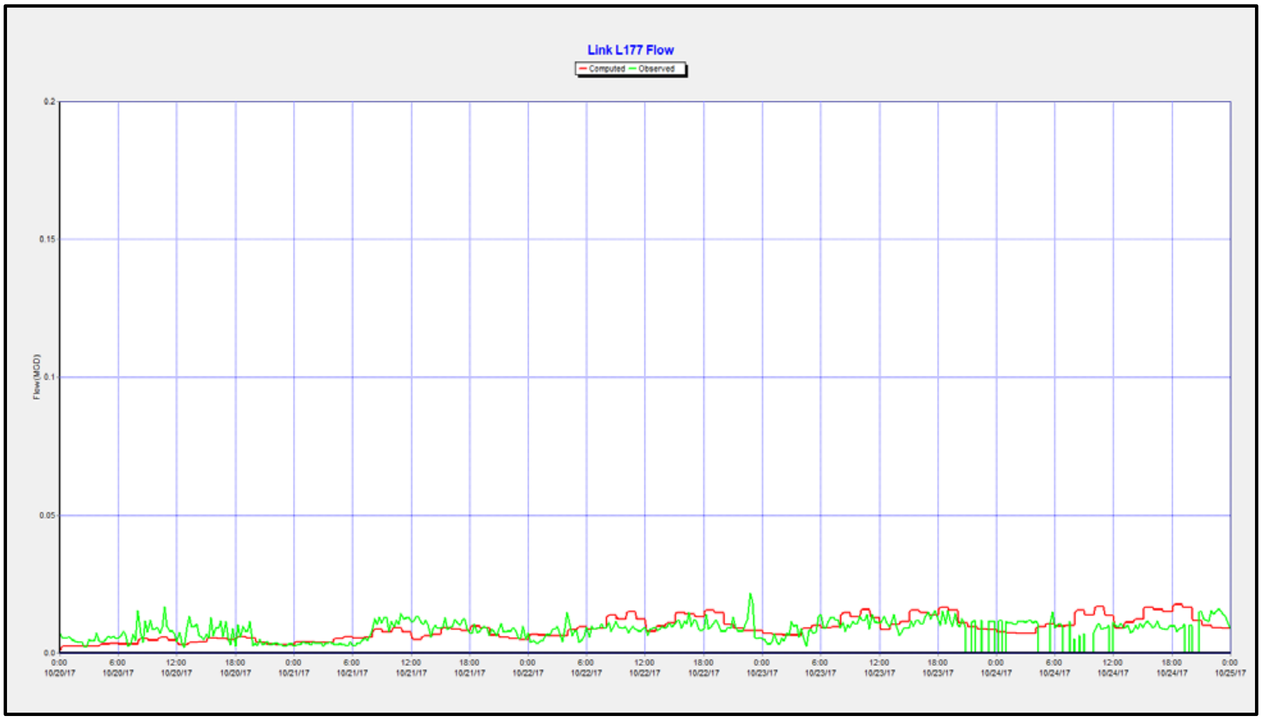
Attachment 3

Wet Weather Calibration & Validation Figures

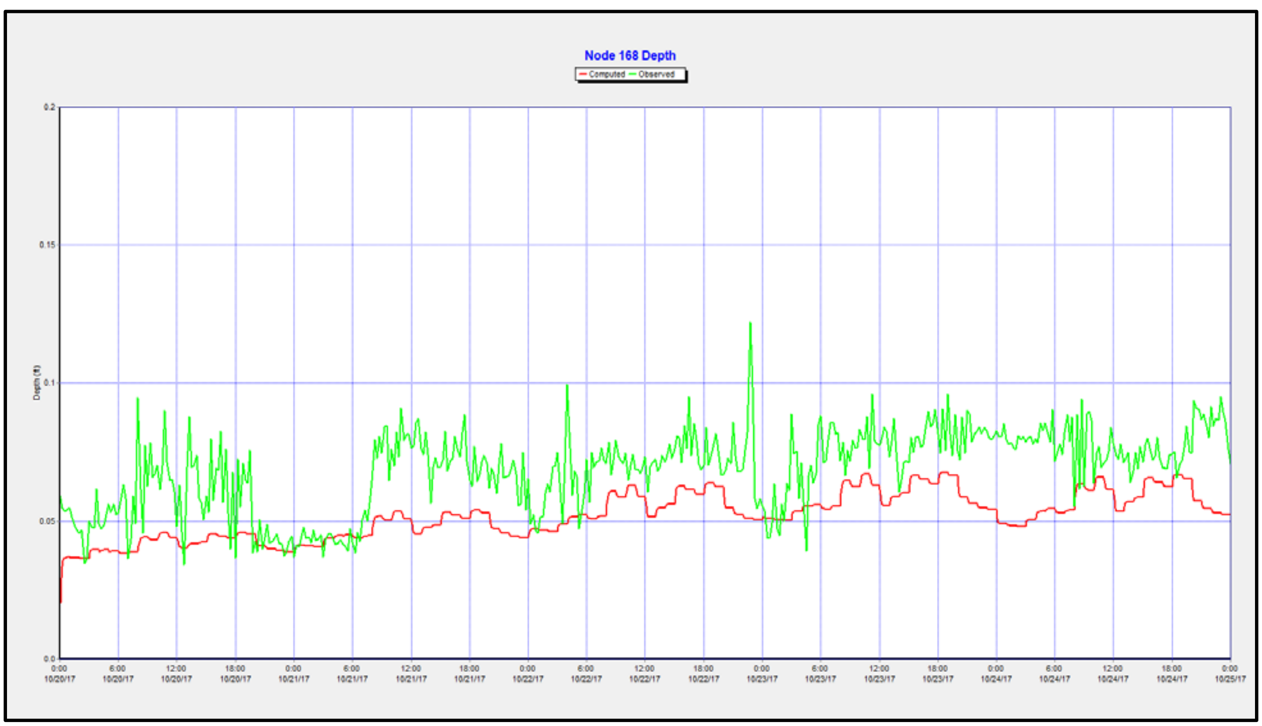
Calibration Event

October 23, 2017

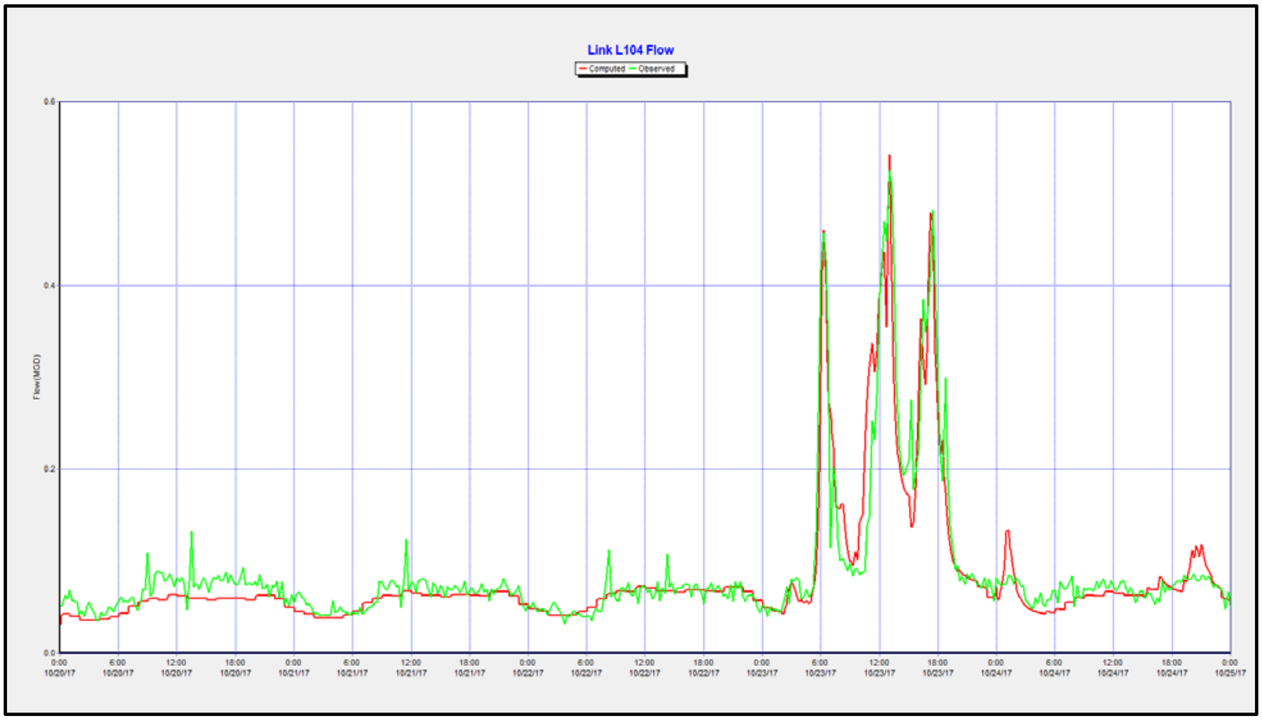
Meter 168 10-inch Influent: Flow (MGD)



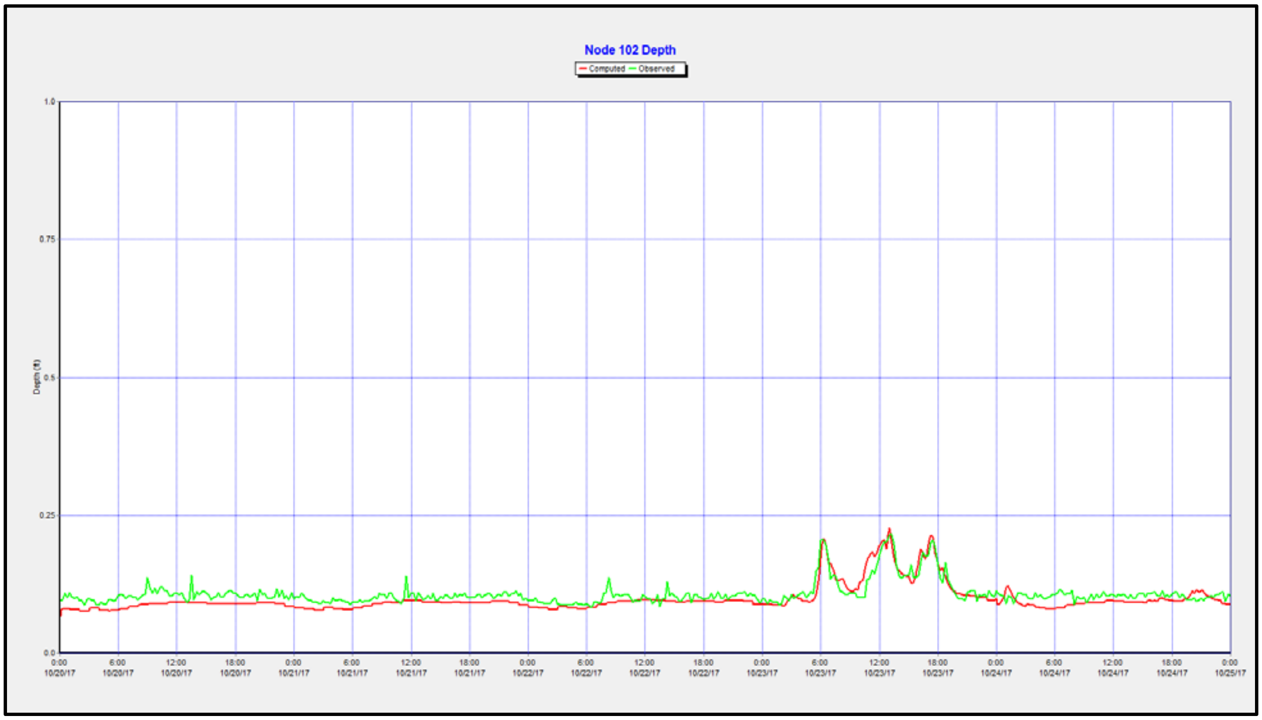
Meter 168 10-inch Influent: Depth (ft)



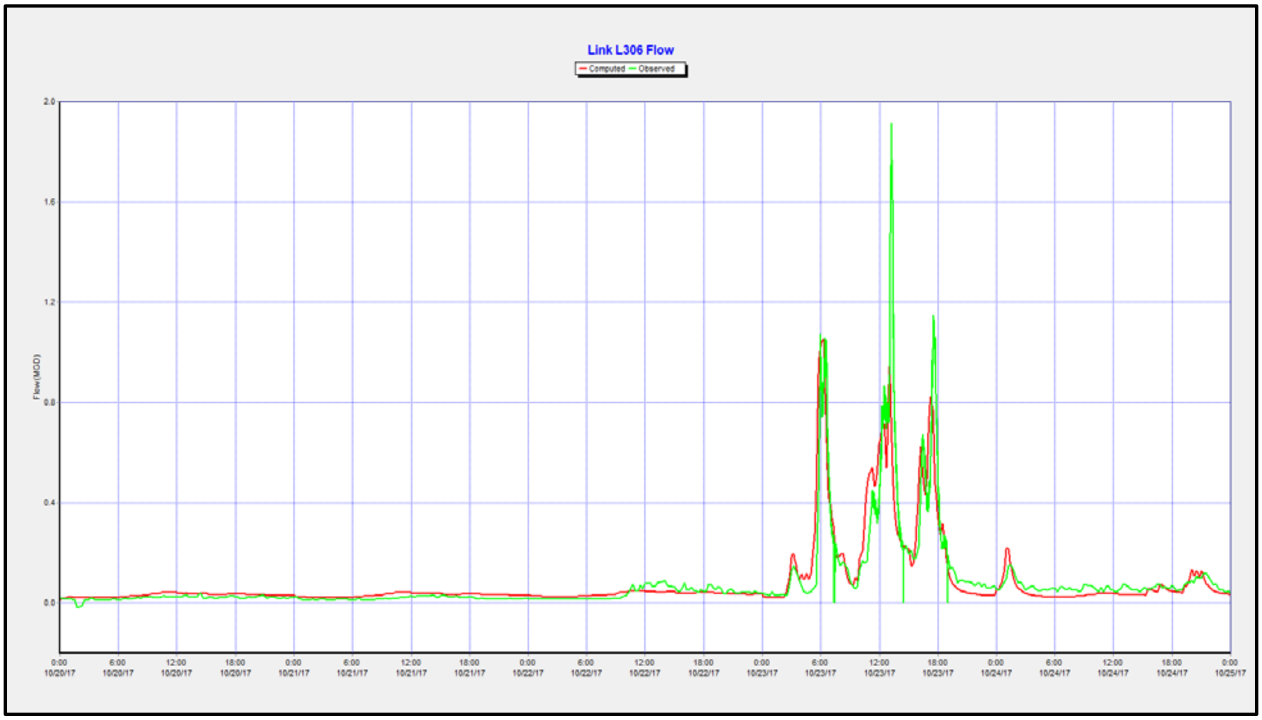
Meter 102 12-inch Influent: Flow (MGD)



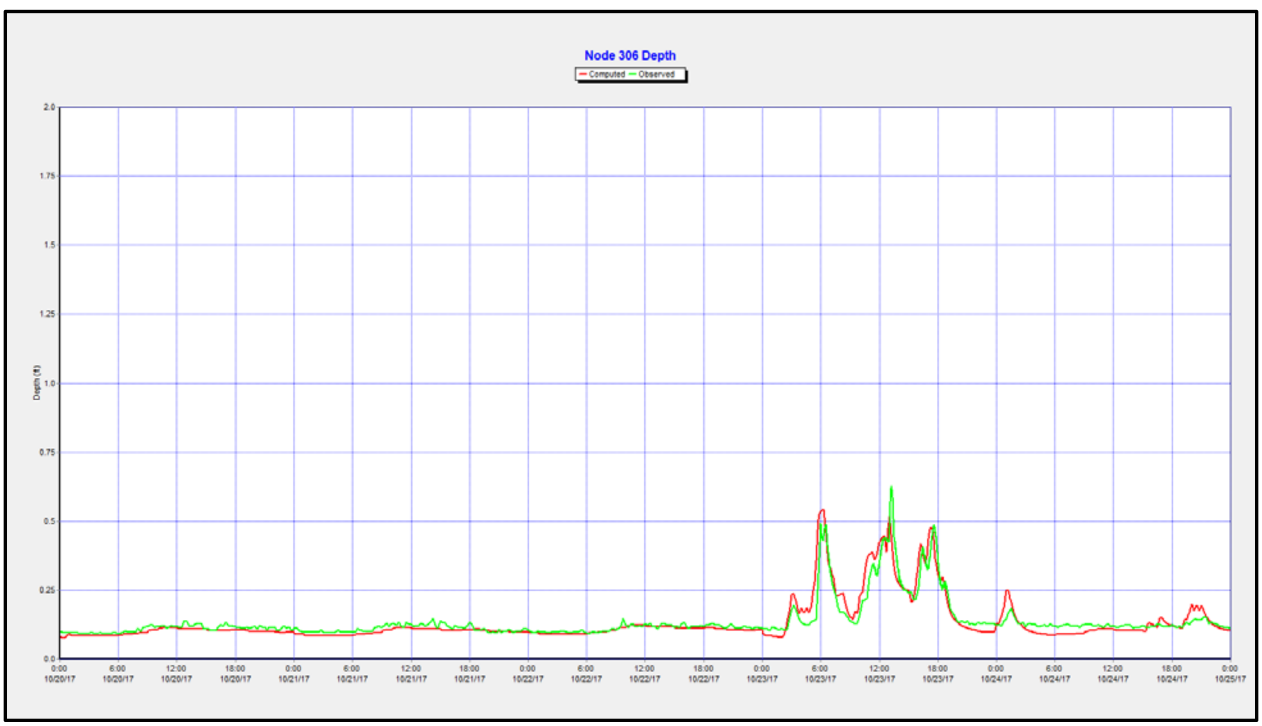
Meter 102 12-inch Influent: Depth (ft)



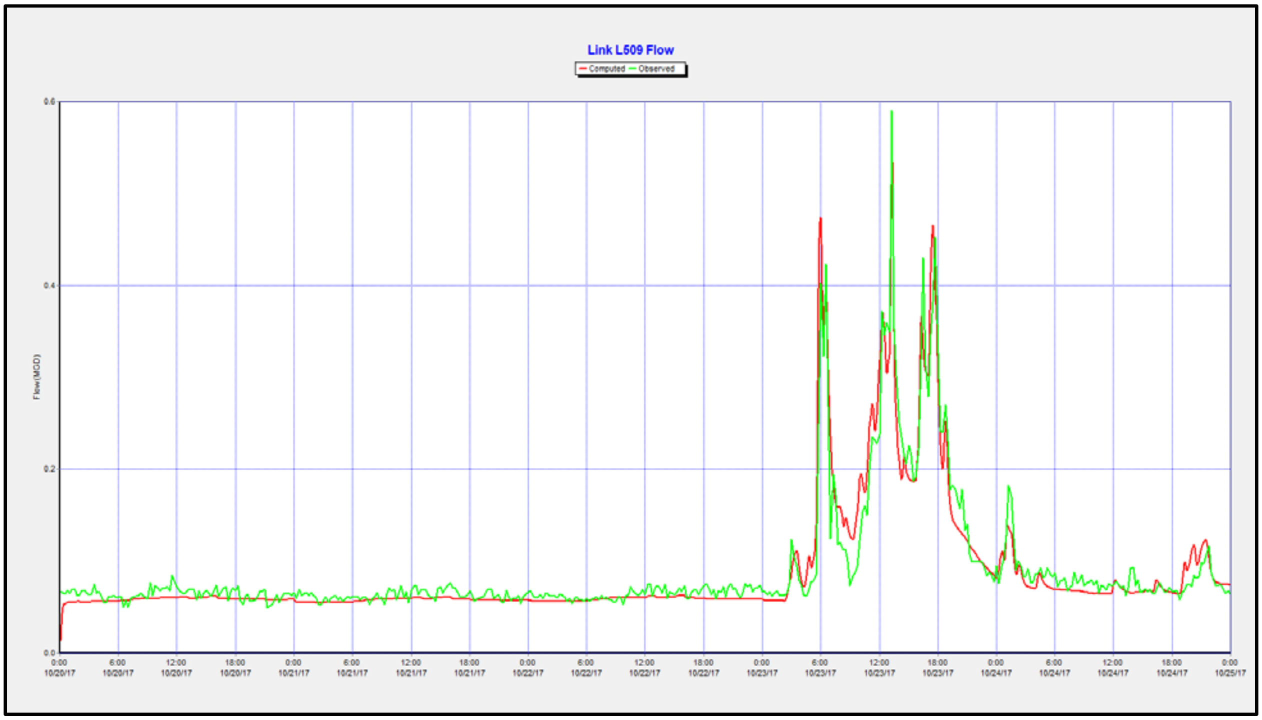
Meter 306 24-inch Effluent: Flow (MGD)



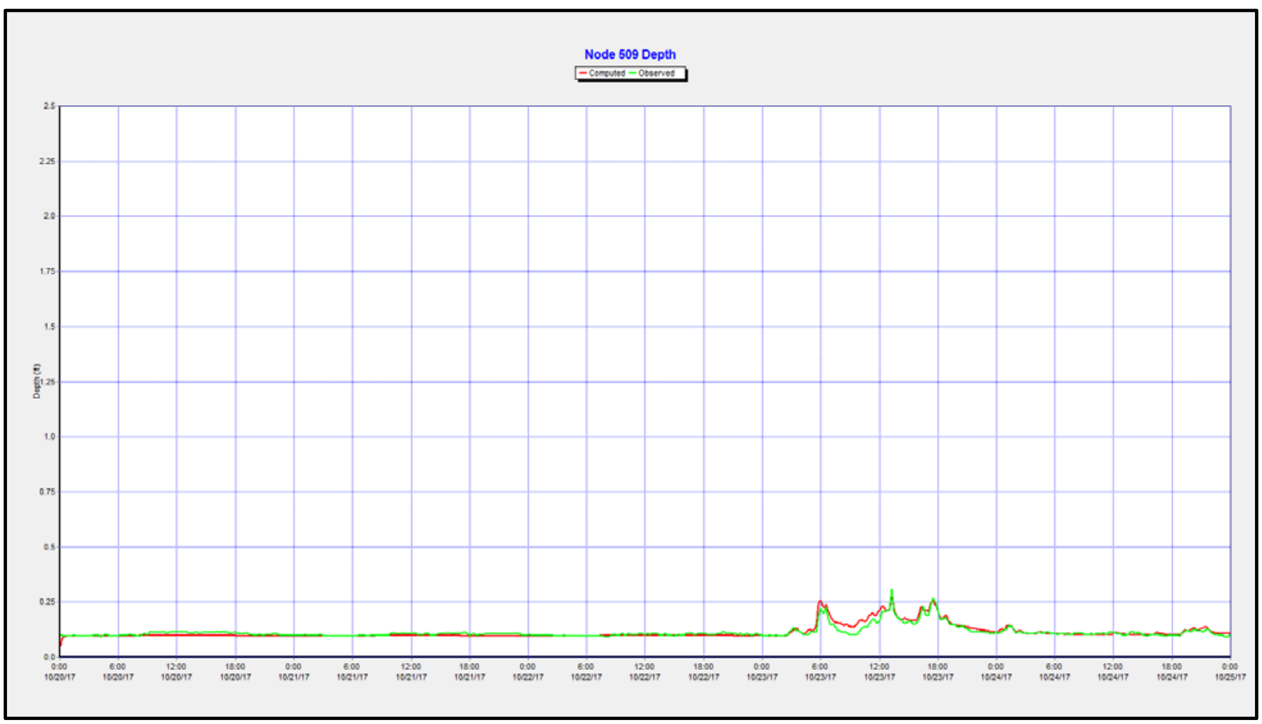
Meter 306 24-inch Effluent: Depth (ft)



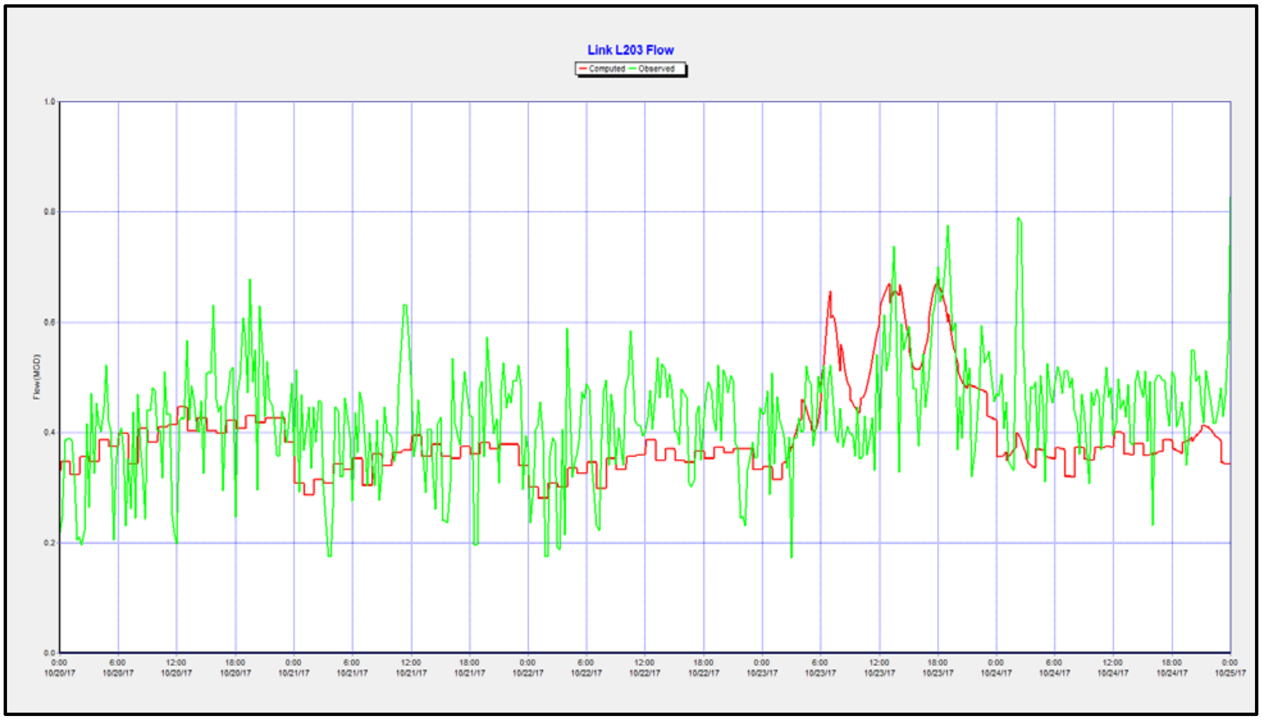
Meter 509 30-inch Effluent: Flow (MGD)



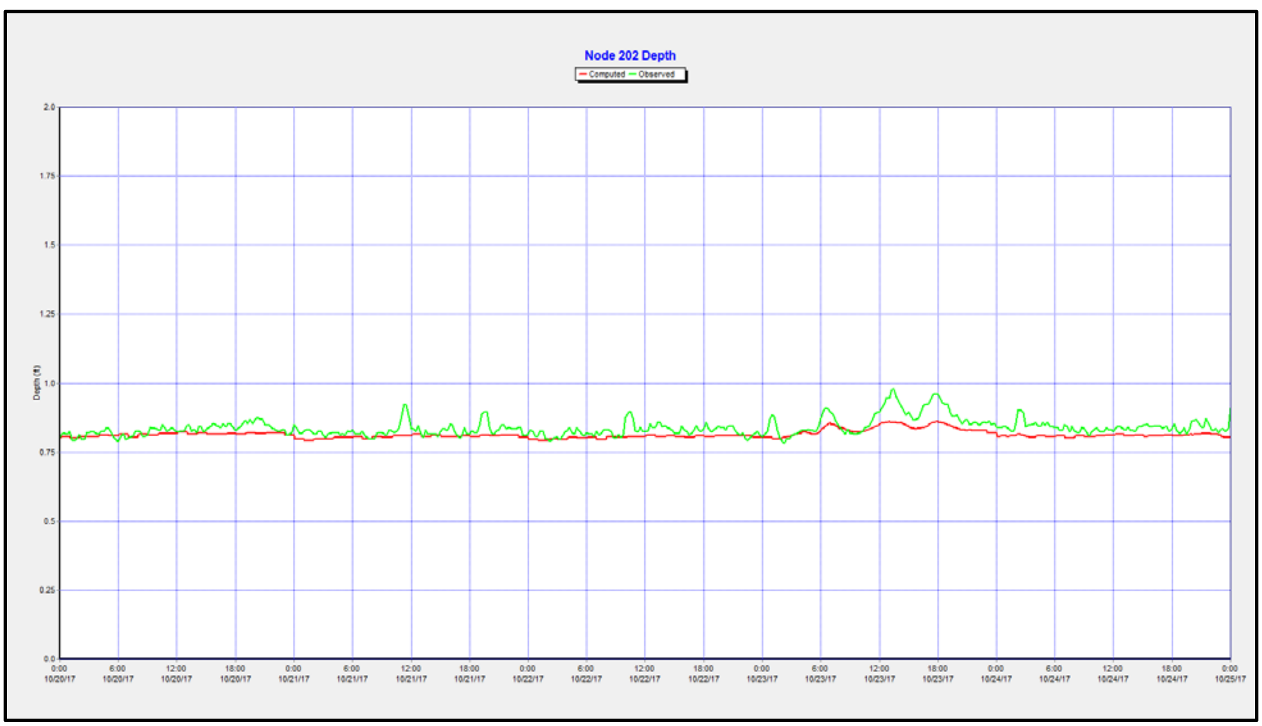
Meter 509 30-inch Effluent: Depth (ft)



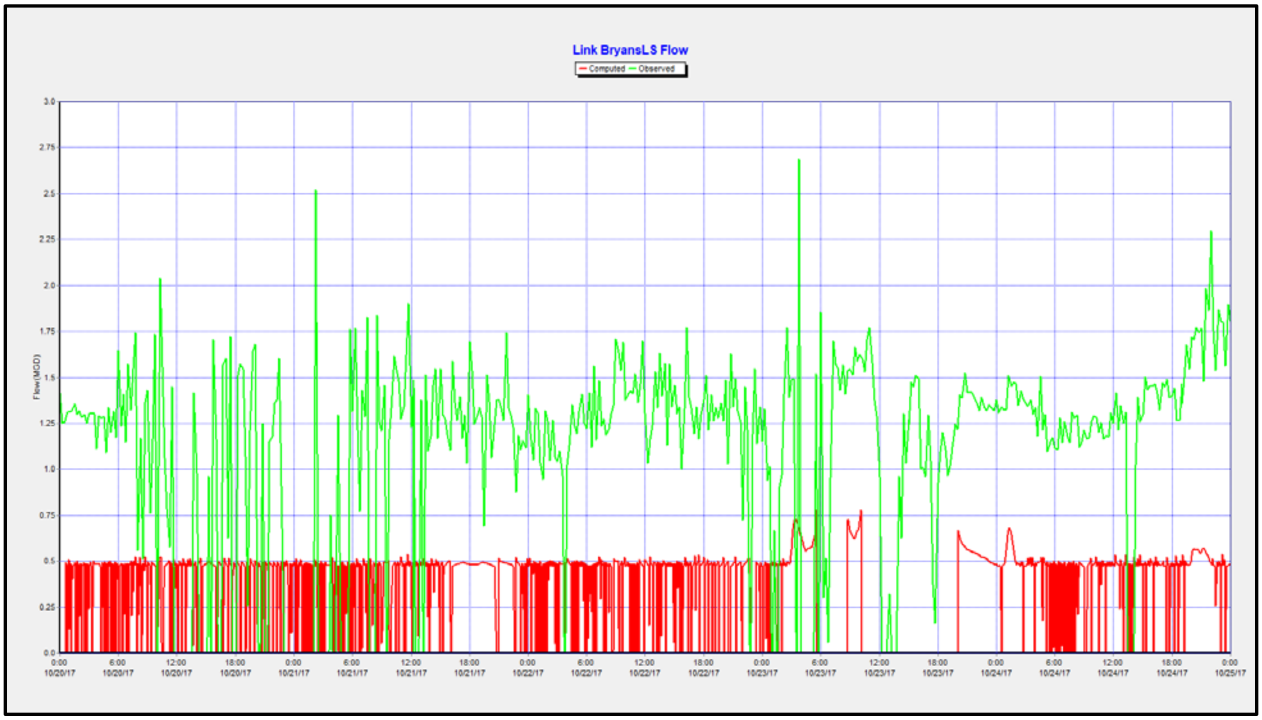
Meter 202 24-inch Influent: Flow (MGD)



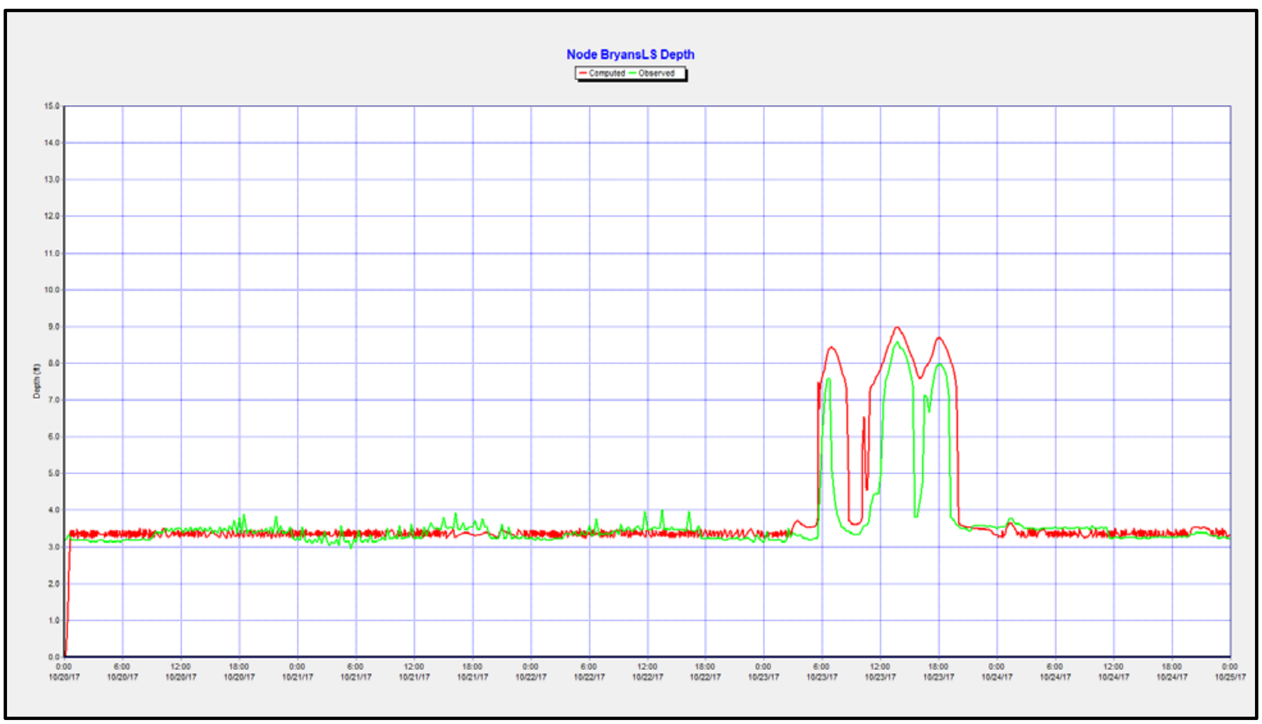
Meter 202 24-inch Influent: Depth (ft)



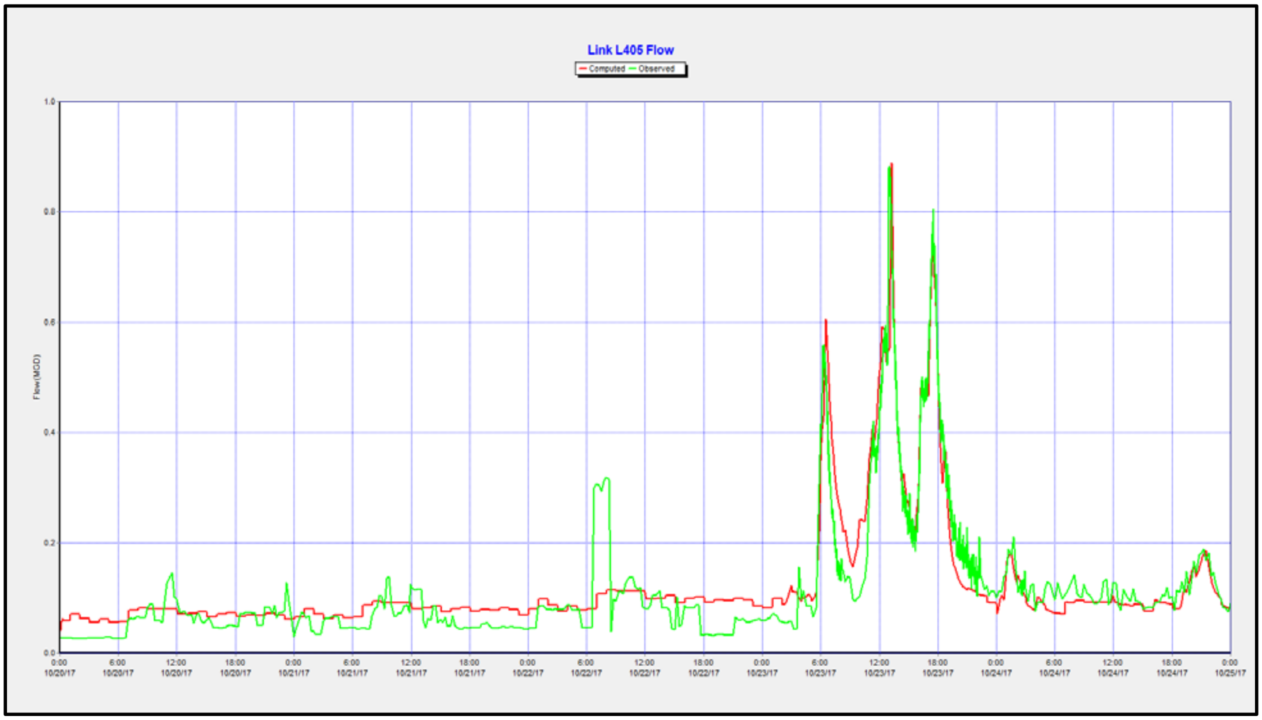
Meter Bryan's Lift Station: Flow (MGD)



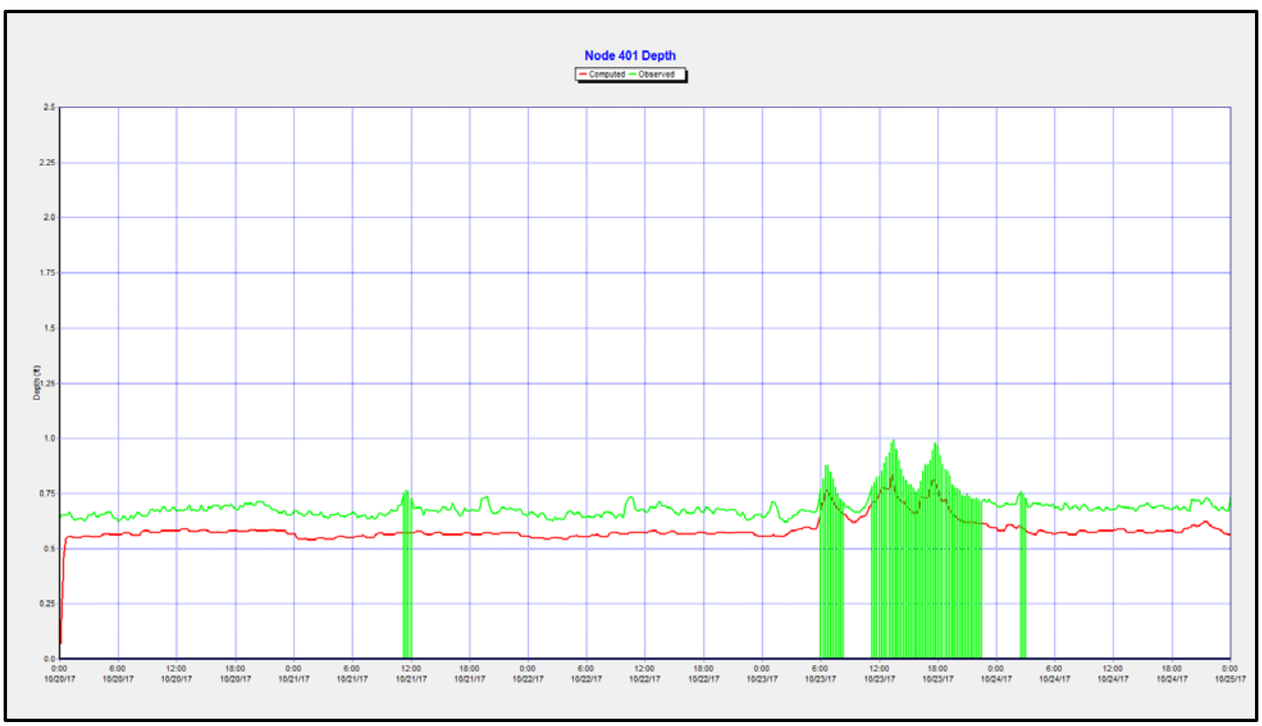
Meter Bryan's Lift Station: Depth (ft)



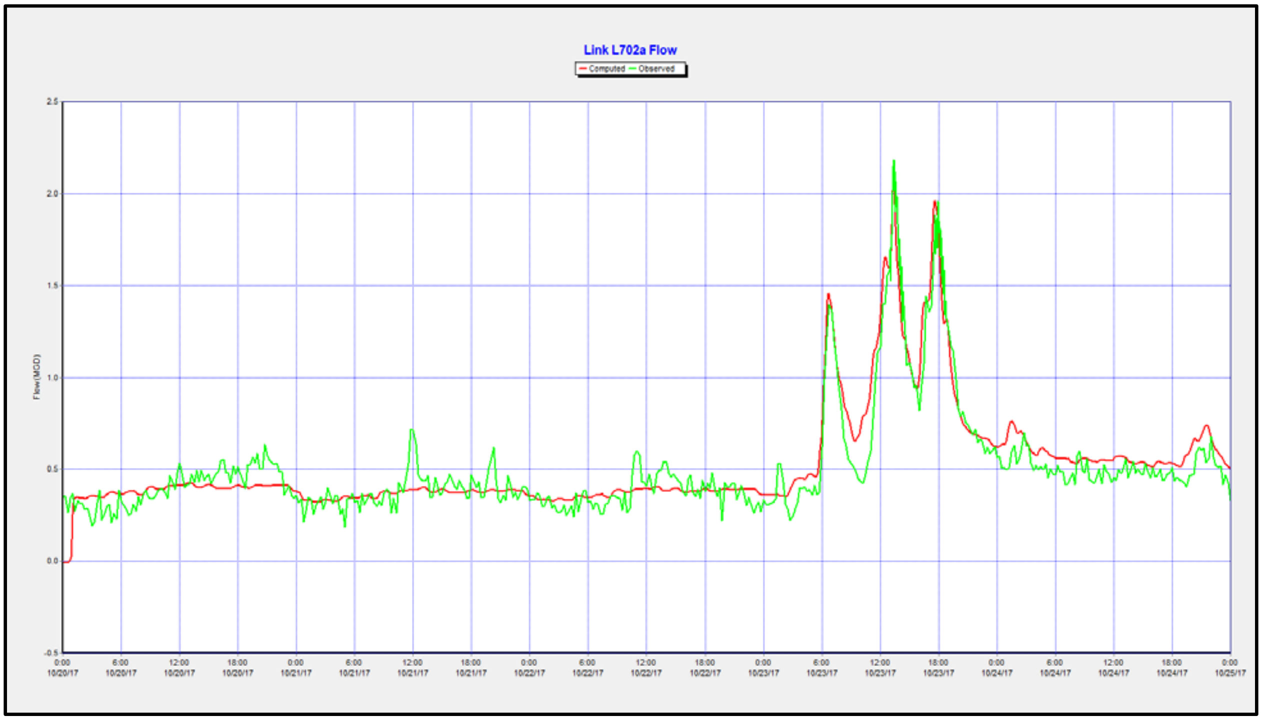
Meter 401 30-inch Influent: Flow (MGD)



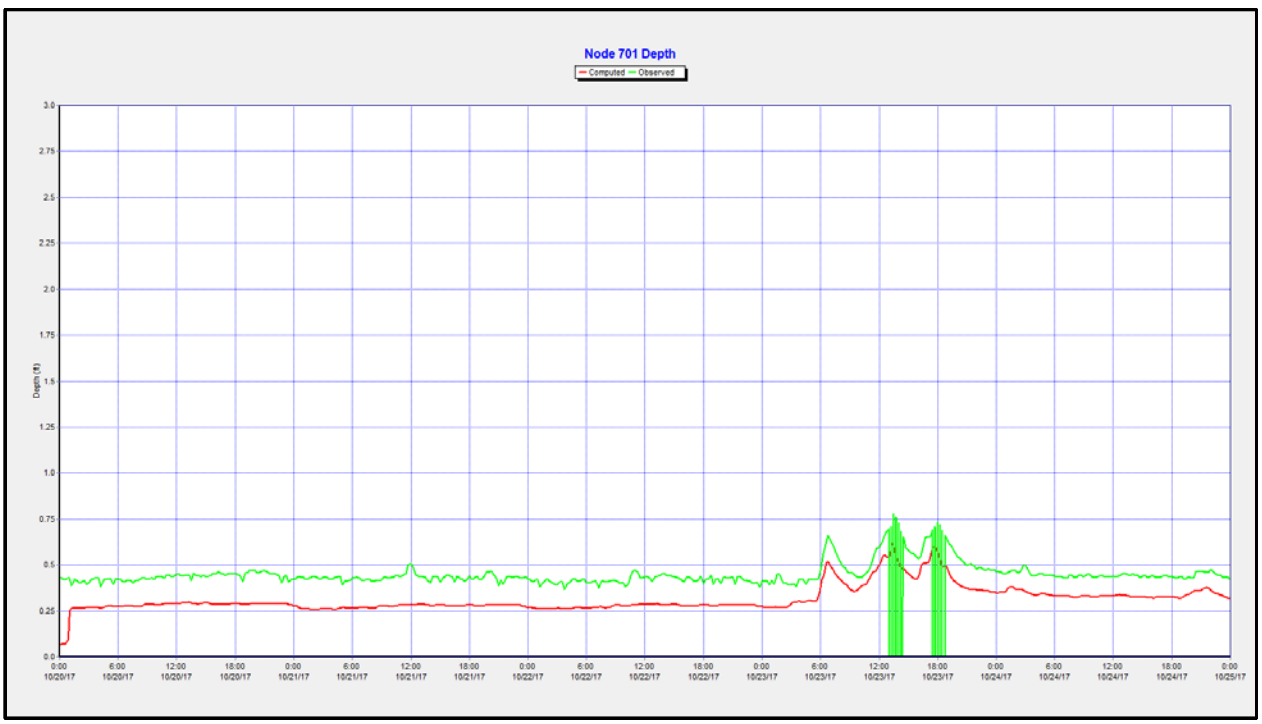
Meter 401 30-inch Influent: Depth (ft)



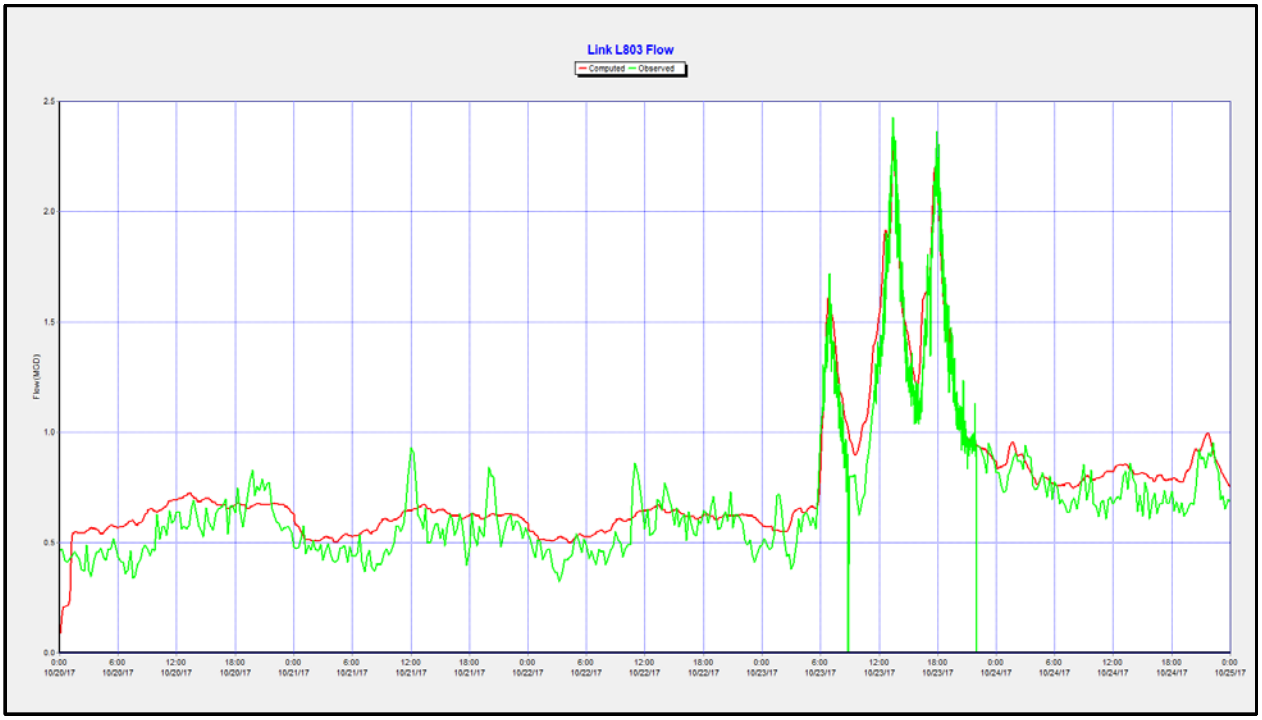
Meter 701 36-inch Influent: Flow (MGD)



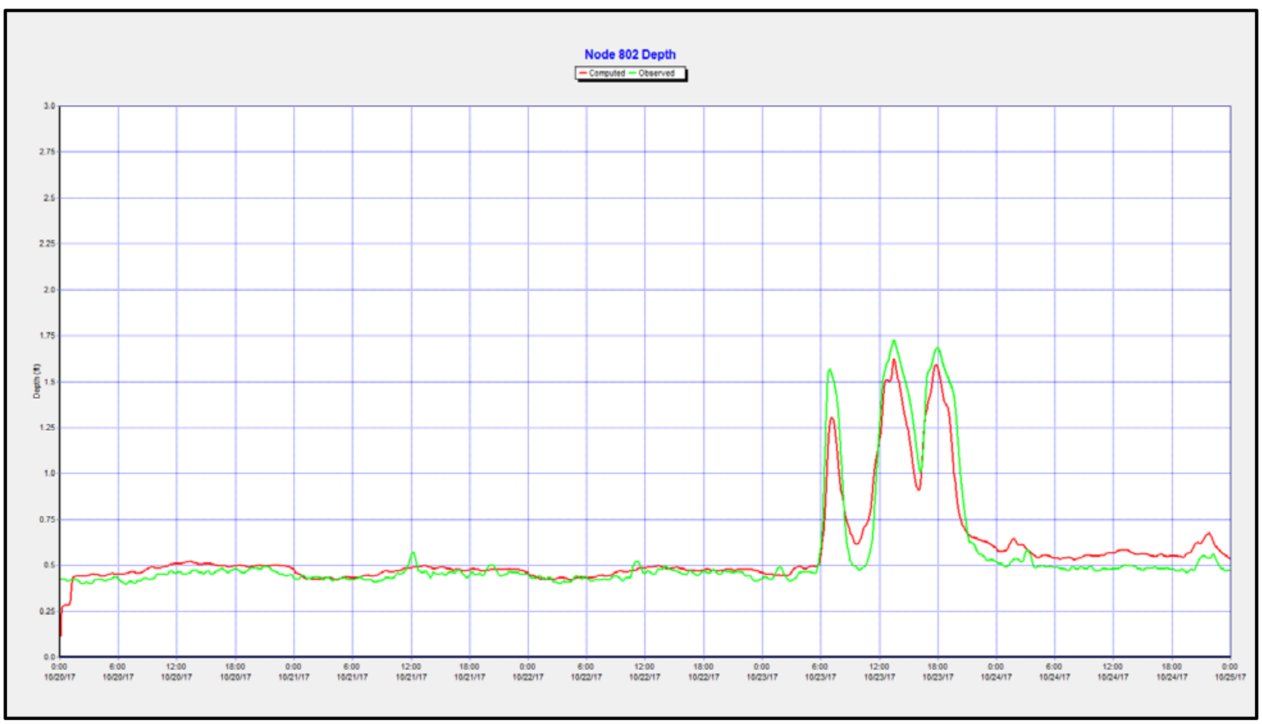
Meter 701 36-inch Influent: Depth (ft)



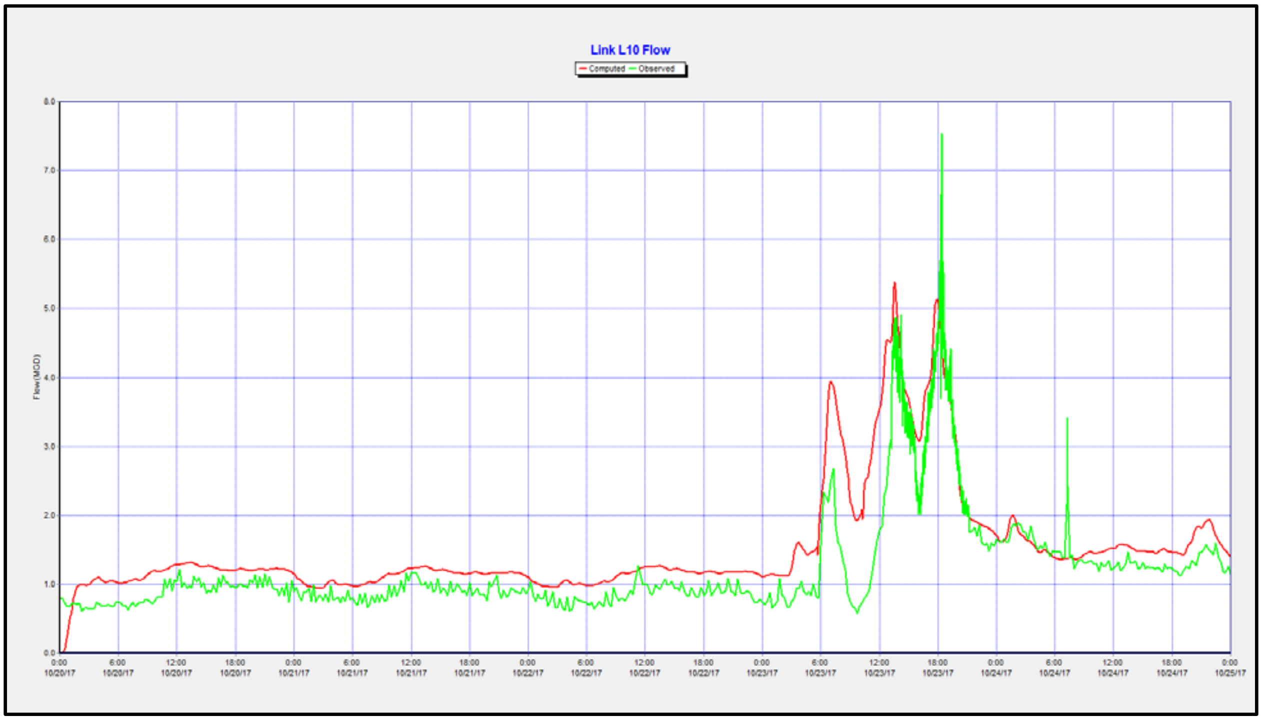
Meter 802 36-inch Influent: Flow (MGD)



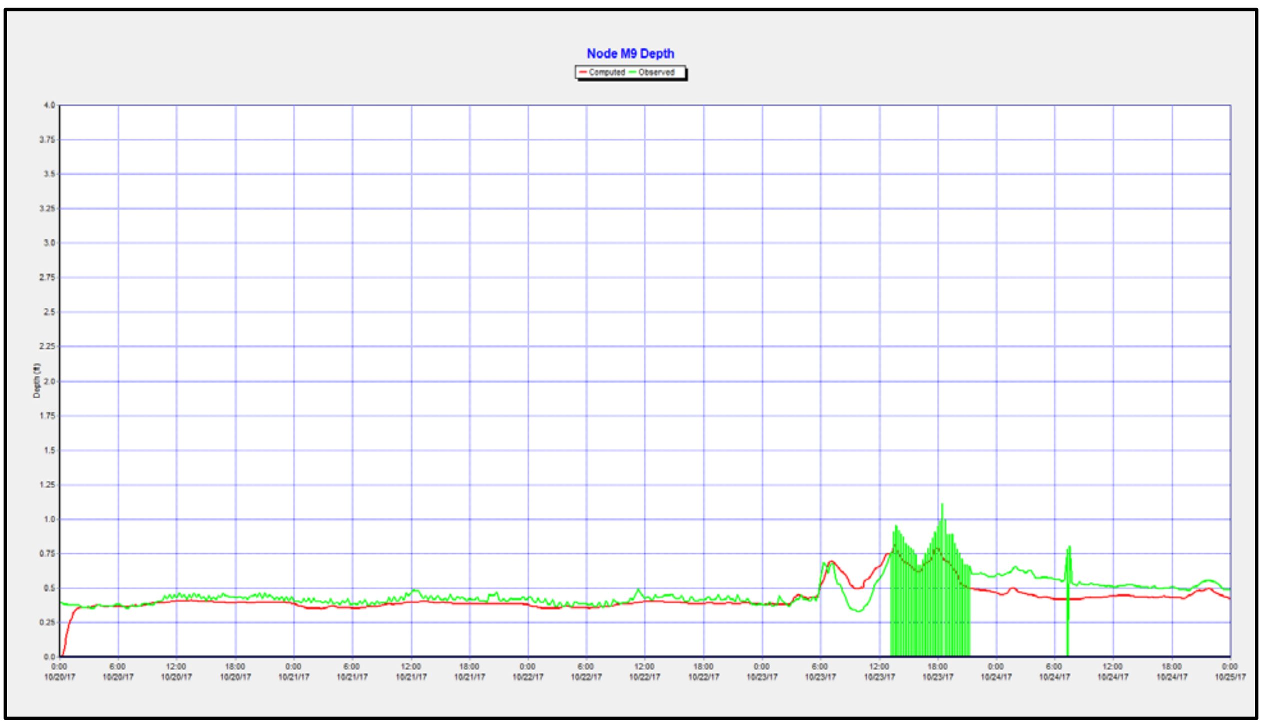
Meter 802 36-inch Influent: Depth (ft)



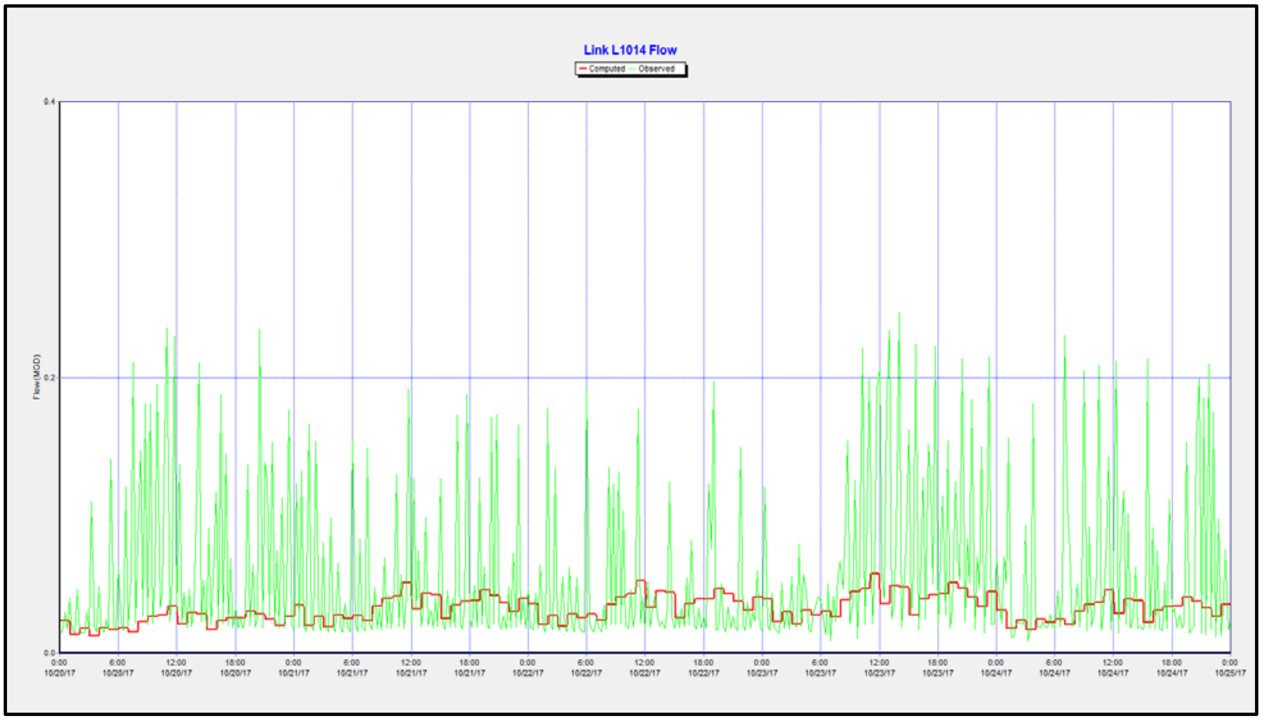
Meter M9 48-inch Influent: Flow (MGD)



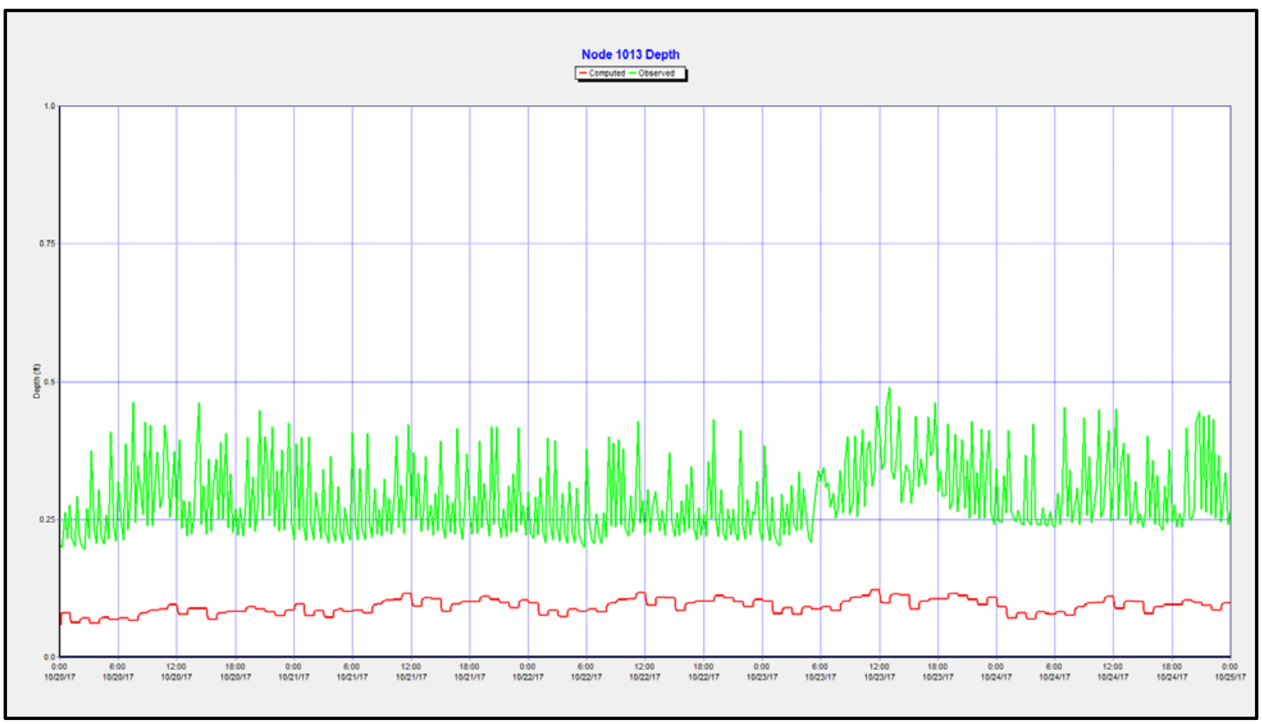
Meter M9 48-inch Influent: Depth (ft)



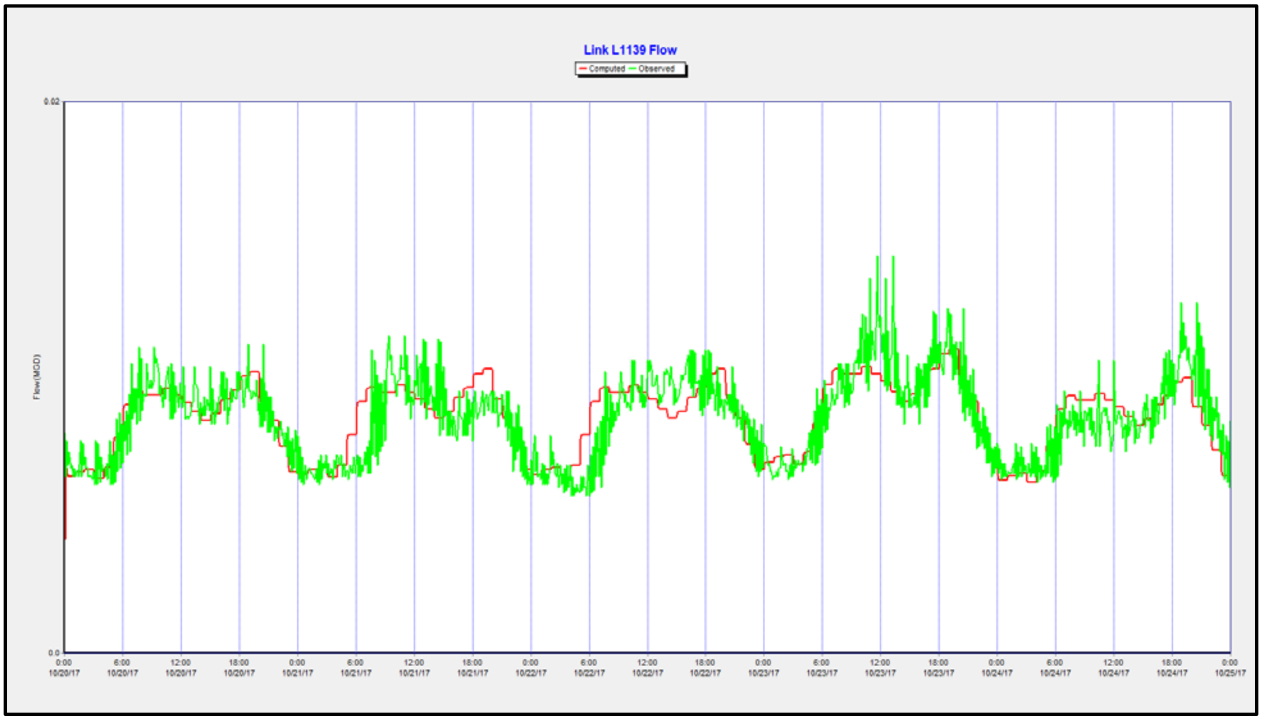
Meter 1013 12-inch Influent: Flow (MGD)



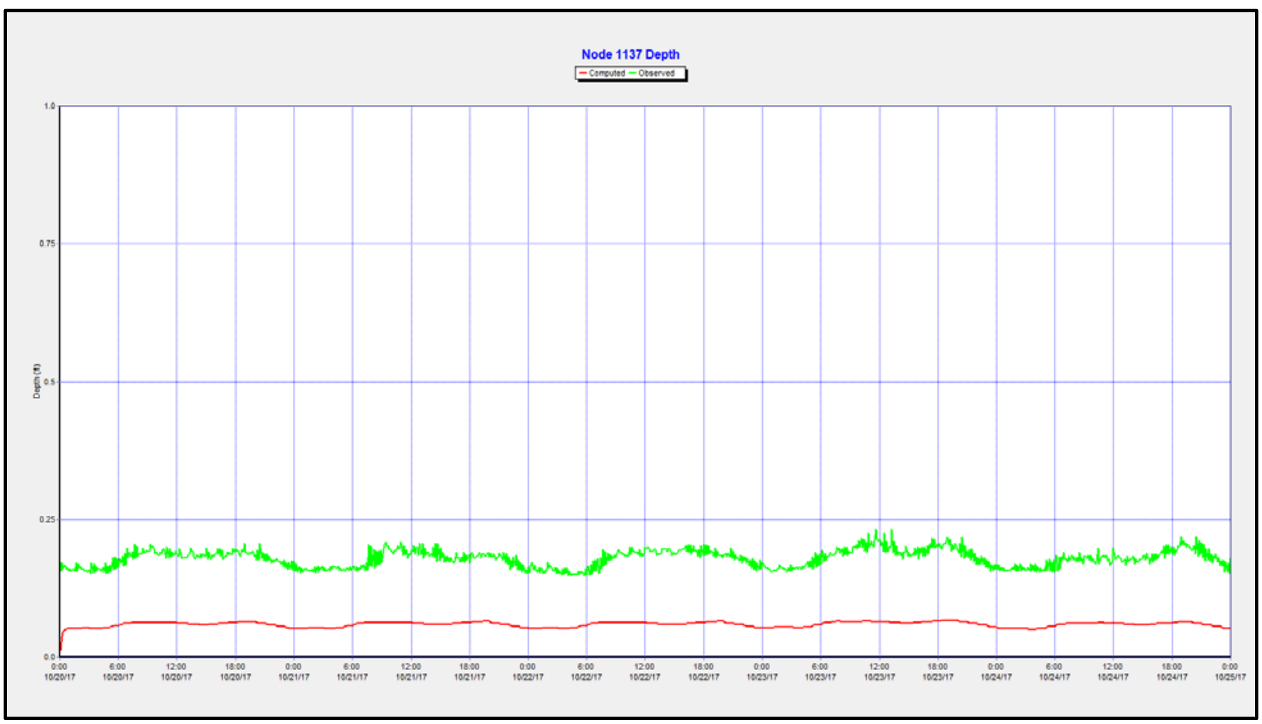
Meter 1013 12-inch Influent: Depth (ft)



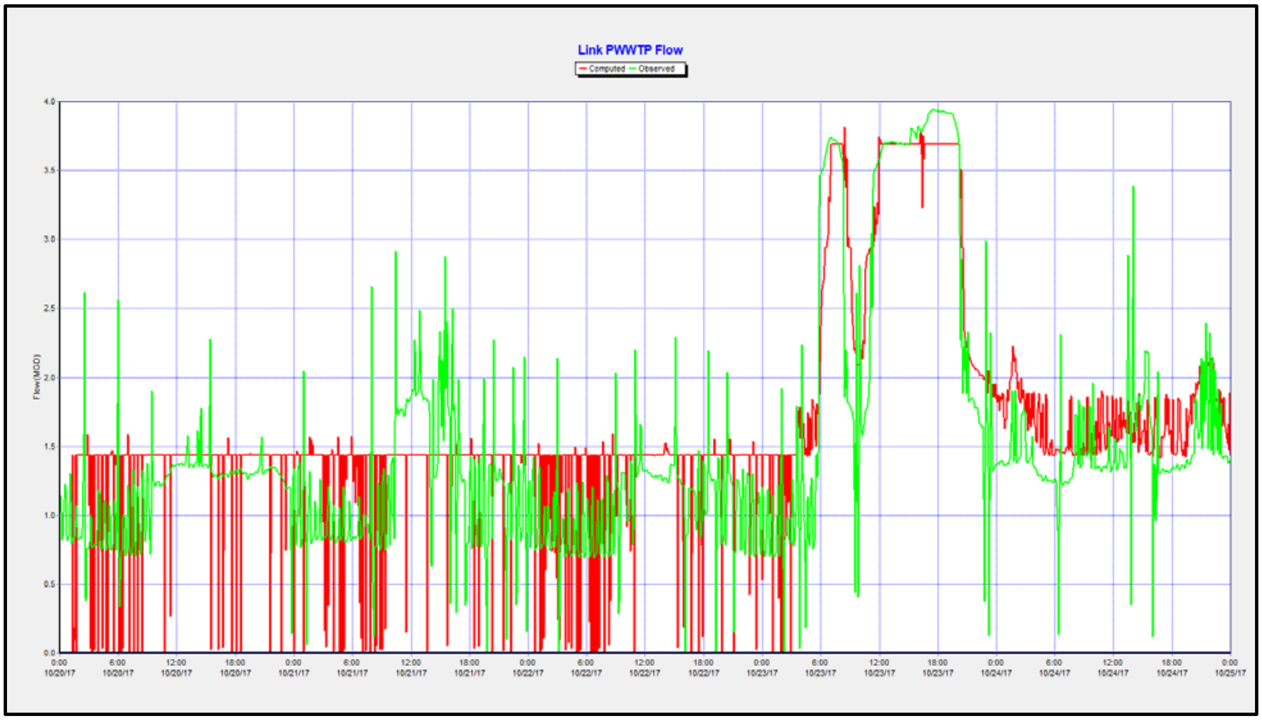
Meter 1137 12-inch Influent: Flow (MGD)



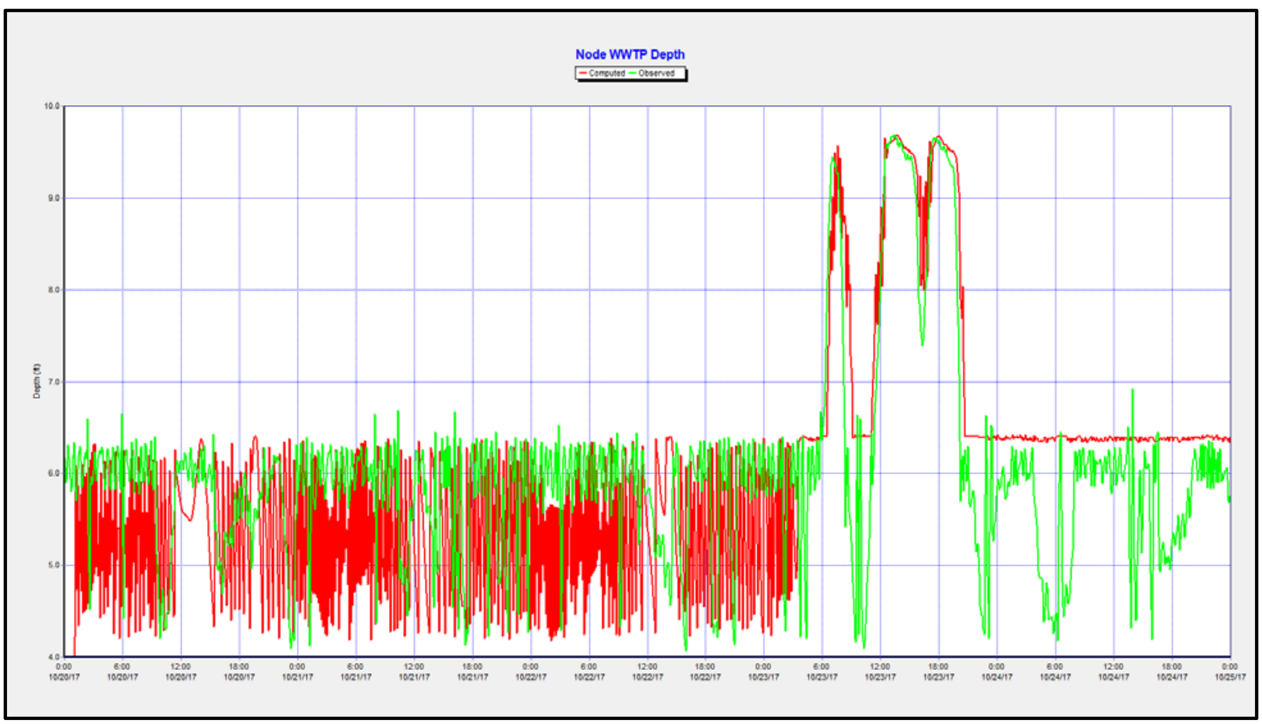
Meter 1137 12-inch Influent: Depth (ft)



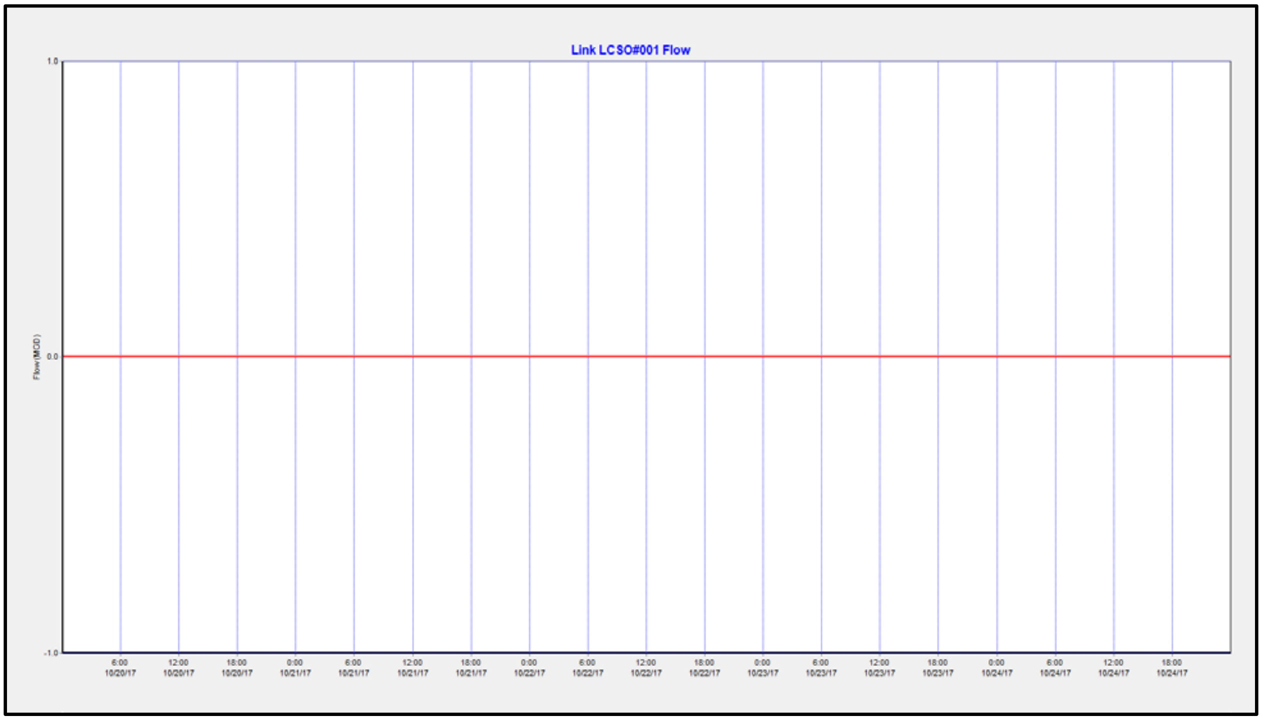
Meter WWTP Influent: Flow (MGD)



Meter WWTP Influent: Depth (ft)



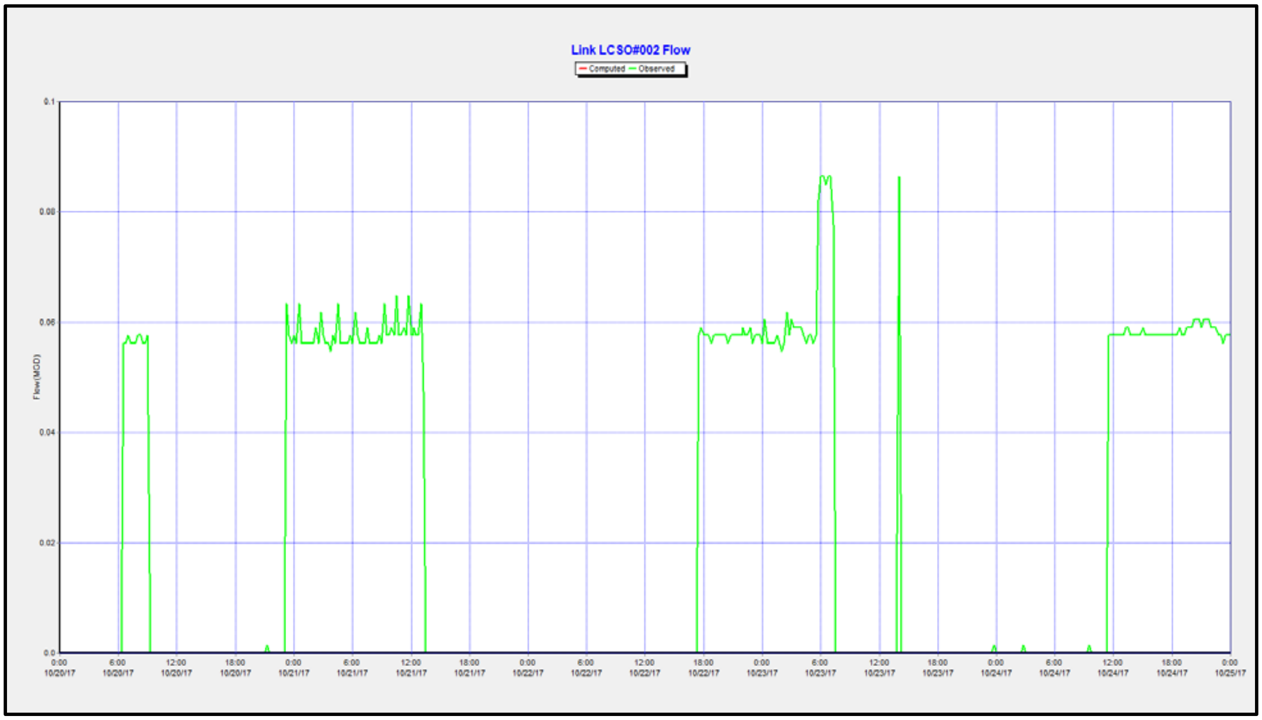
Meter CSO 001: Flow (MGD)



Meter CSO 001: Depth (ft)

Depth data not available for this meter.

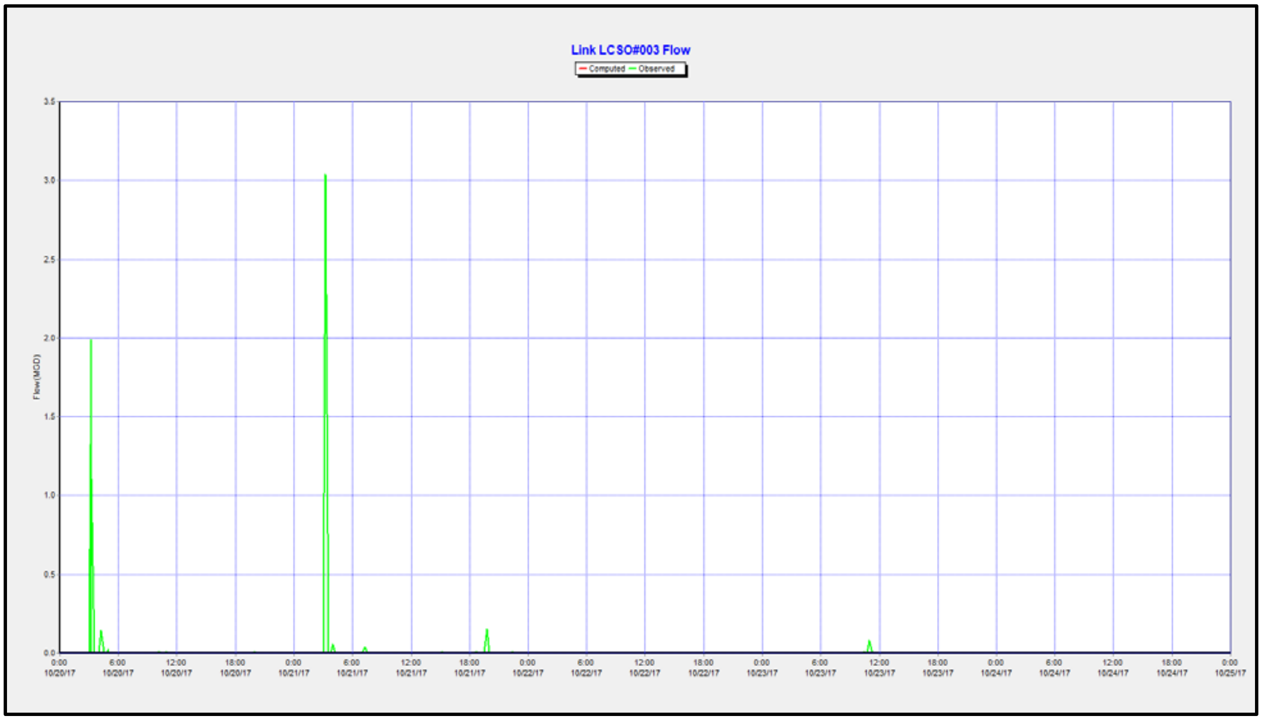
Meter CSO 002: Flow (MGD)



Meter CSO 002 Depth (ft)

Depth data not available for this meter.

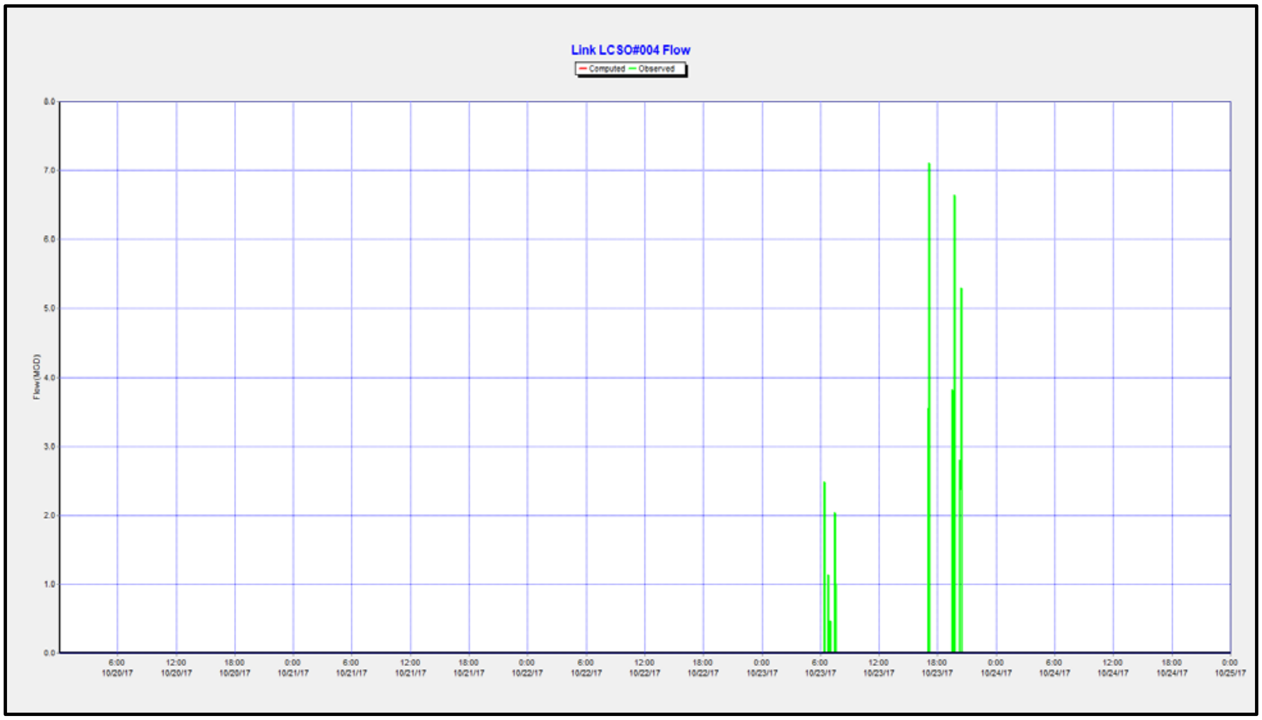
Meter CSO 003: Flow (MGD)



Meter CSO 003: Depth (ft)

Depth data not available for this meter.

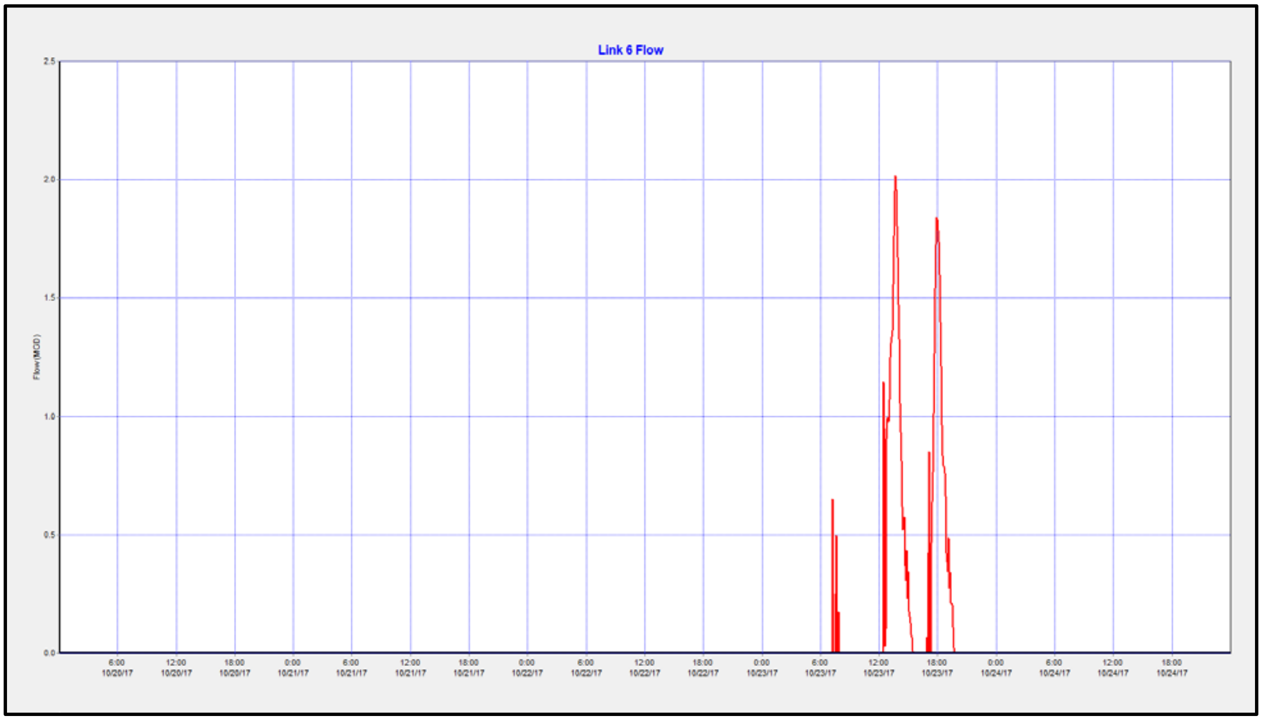
Meter CSO 004: Flow (MGD)



Meter CSO 004: Depth (ft)

Depth data not available for this meter.

Meter CSO 105: Flow (MGD)



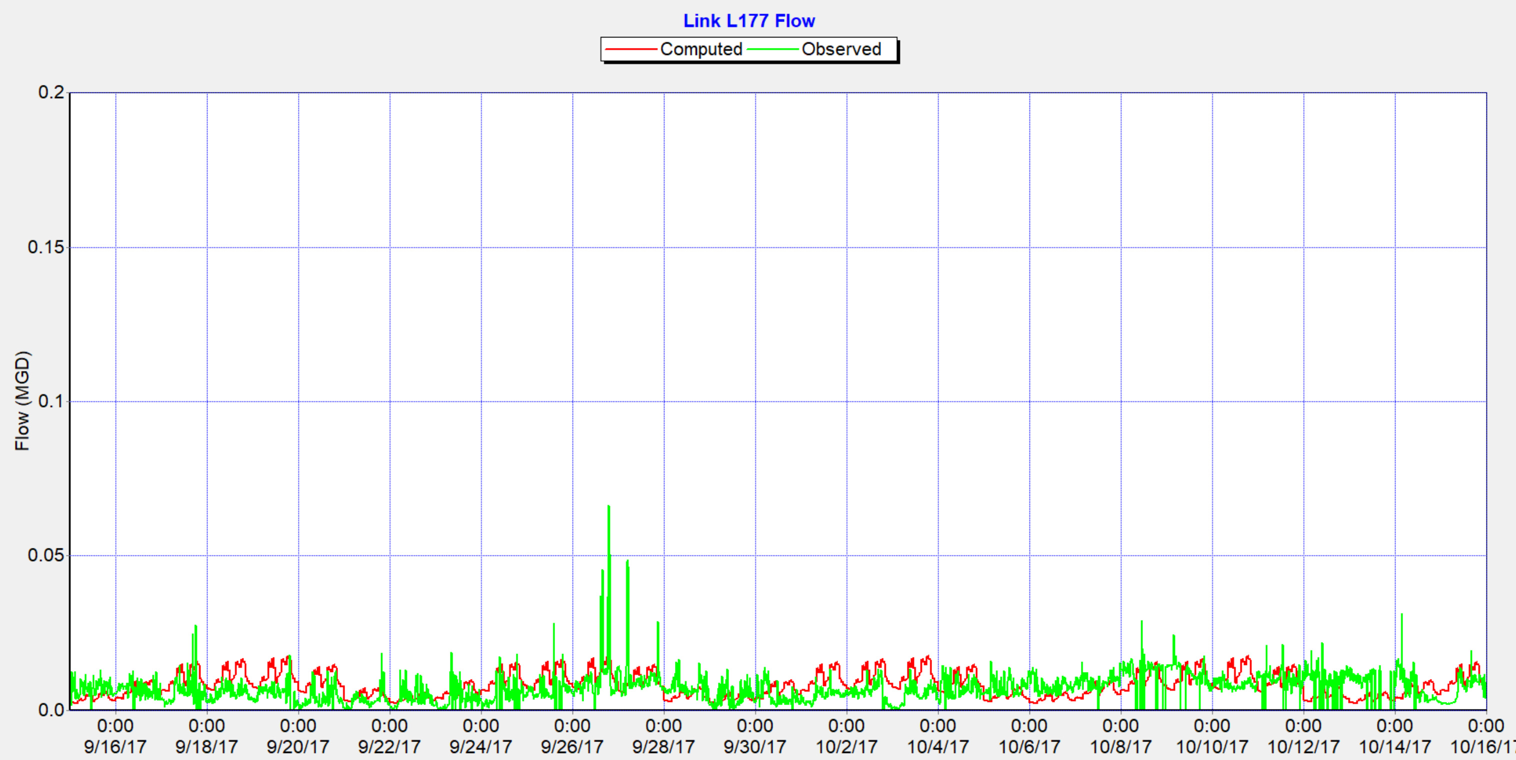
Meter CSO 105: Depth (ft)

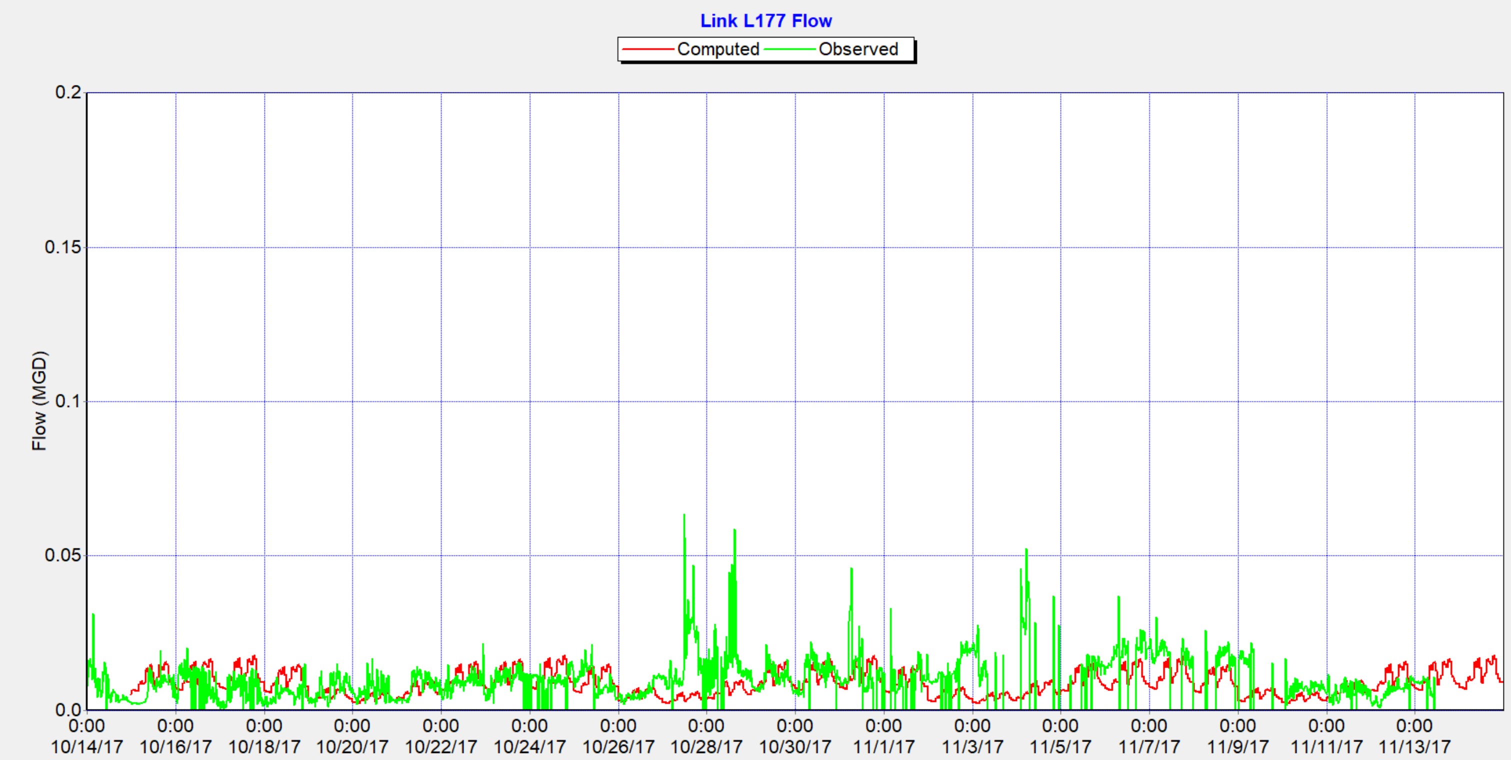
Depth data not available for this meter.

Validation Event

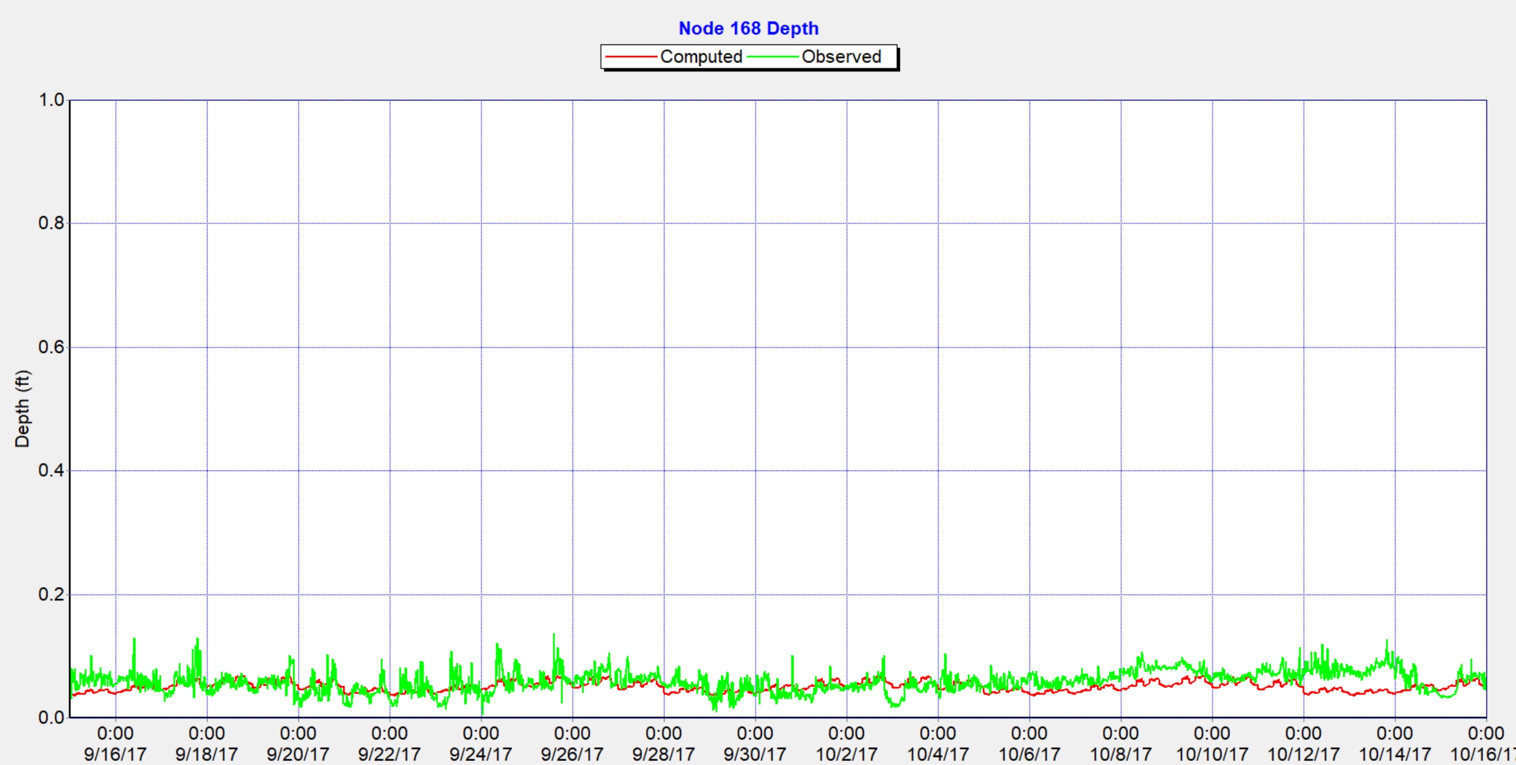
September 15, 2017 to October 15, 2017

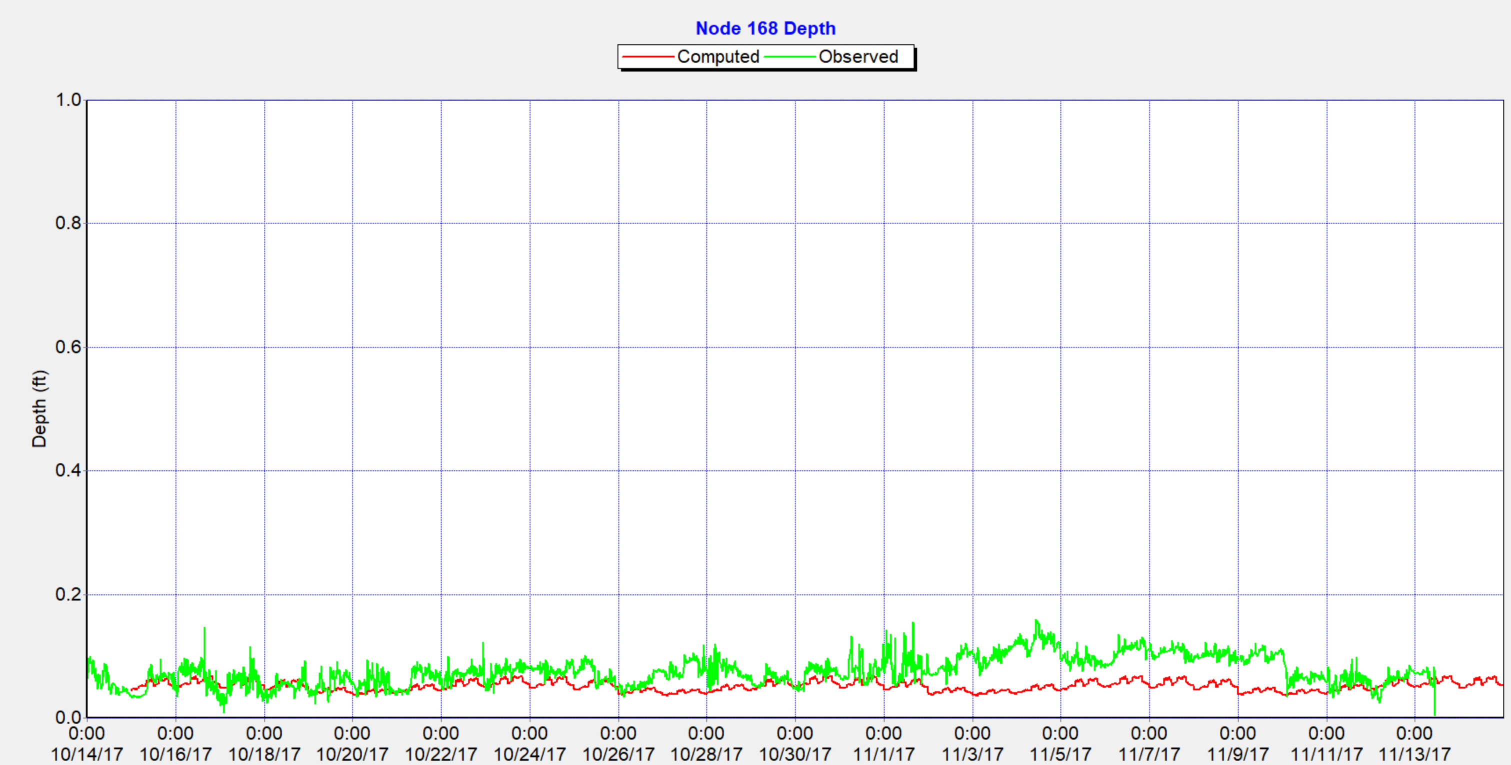
Meter 168 10-inch Influent: Flow (MGD)



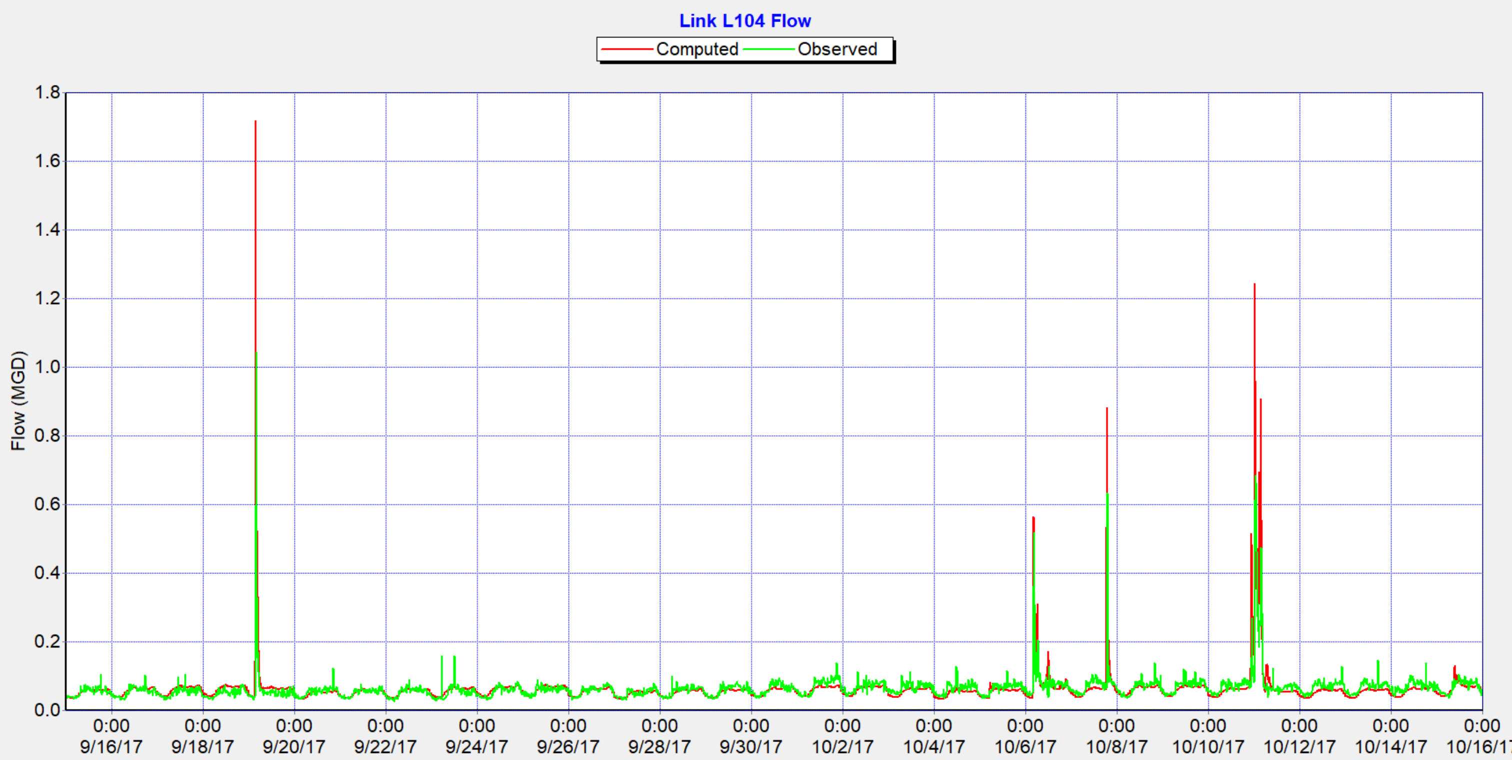


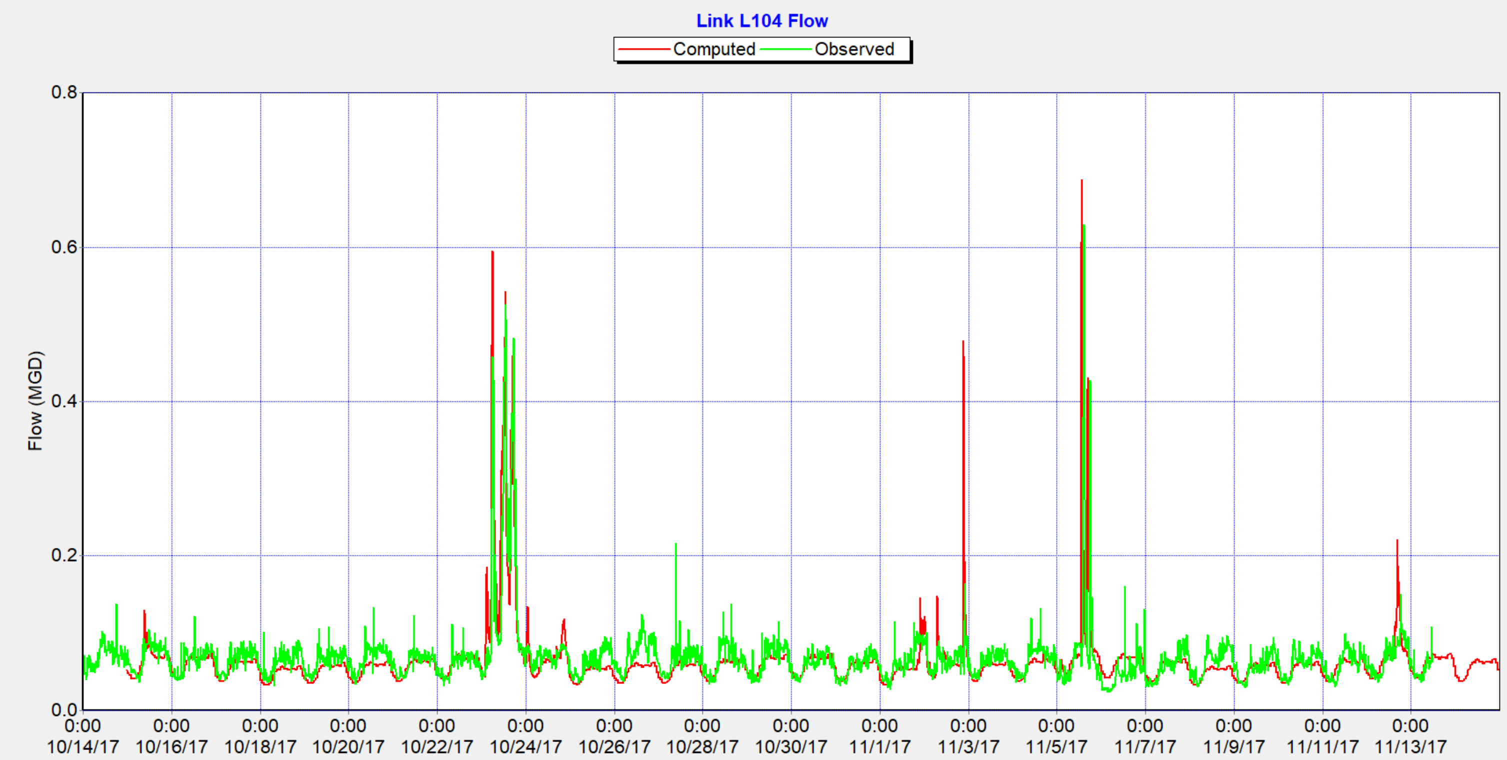
Meter 168 10-inch Influent: Depth (ft)



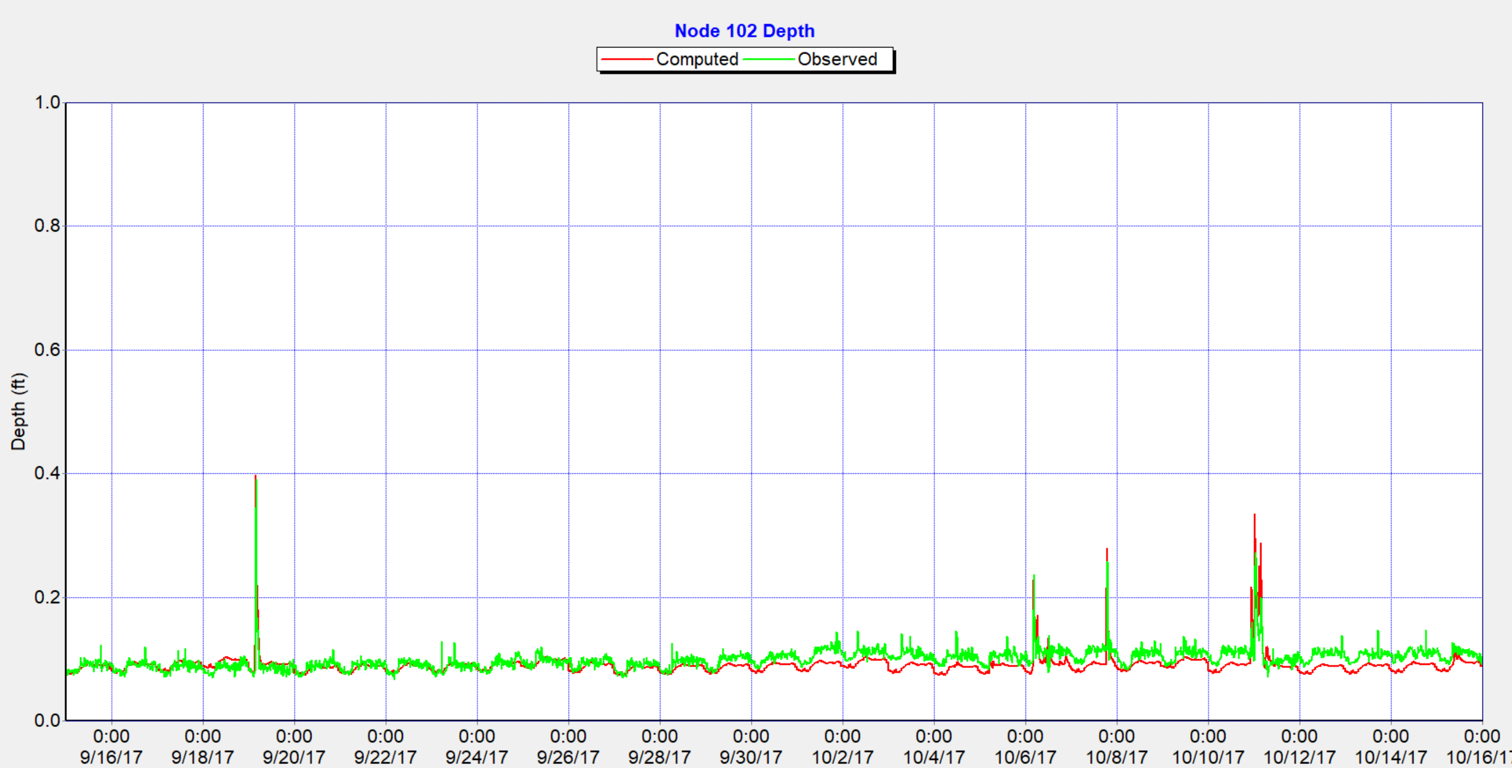


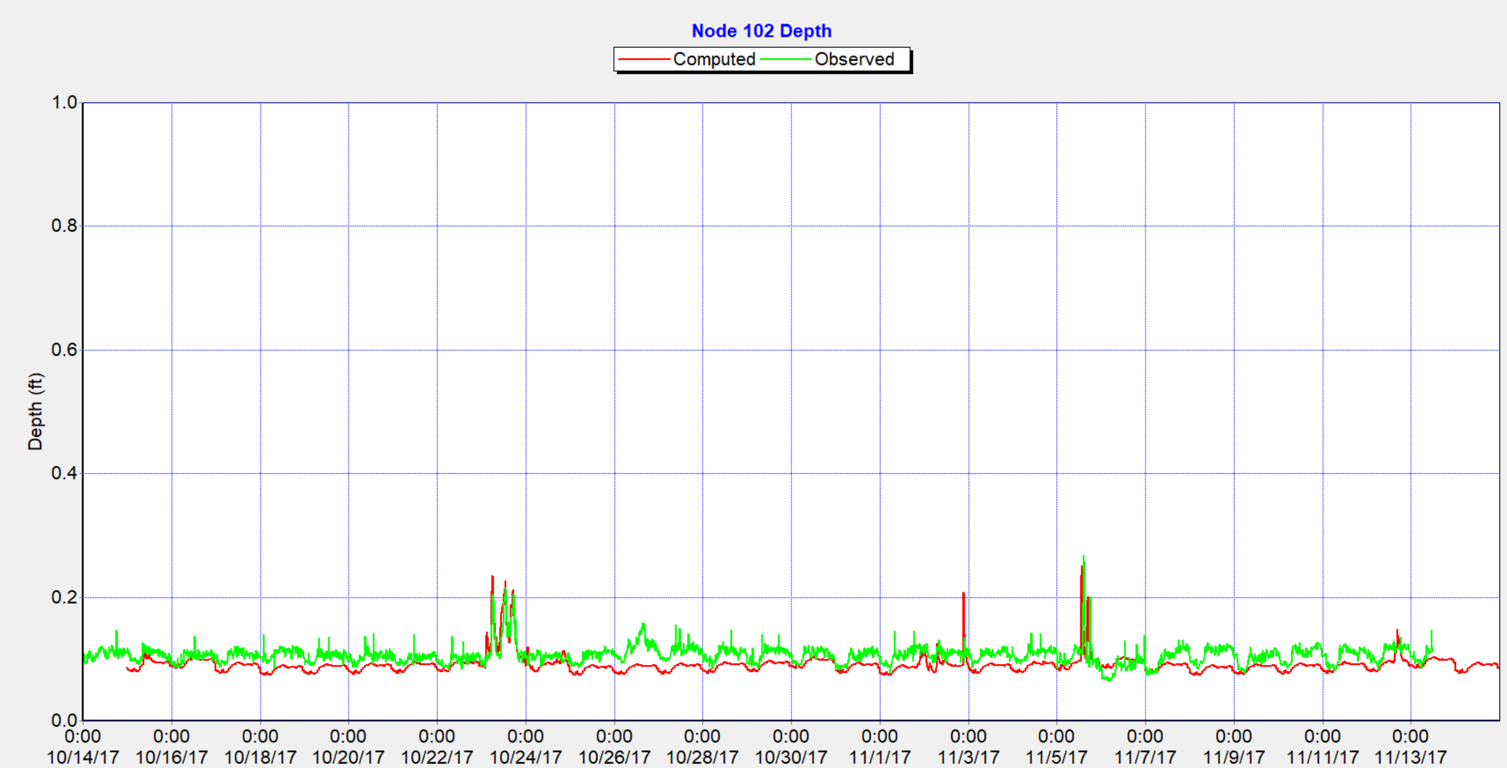
Meter 102 12-inch Influent: Flow (MGD)



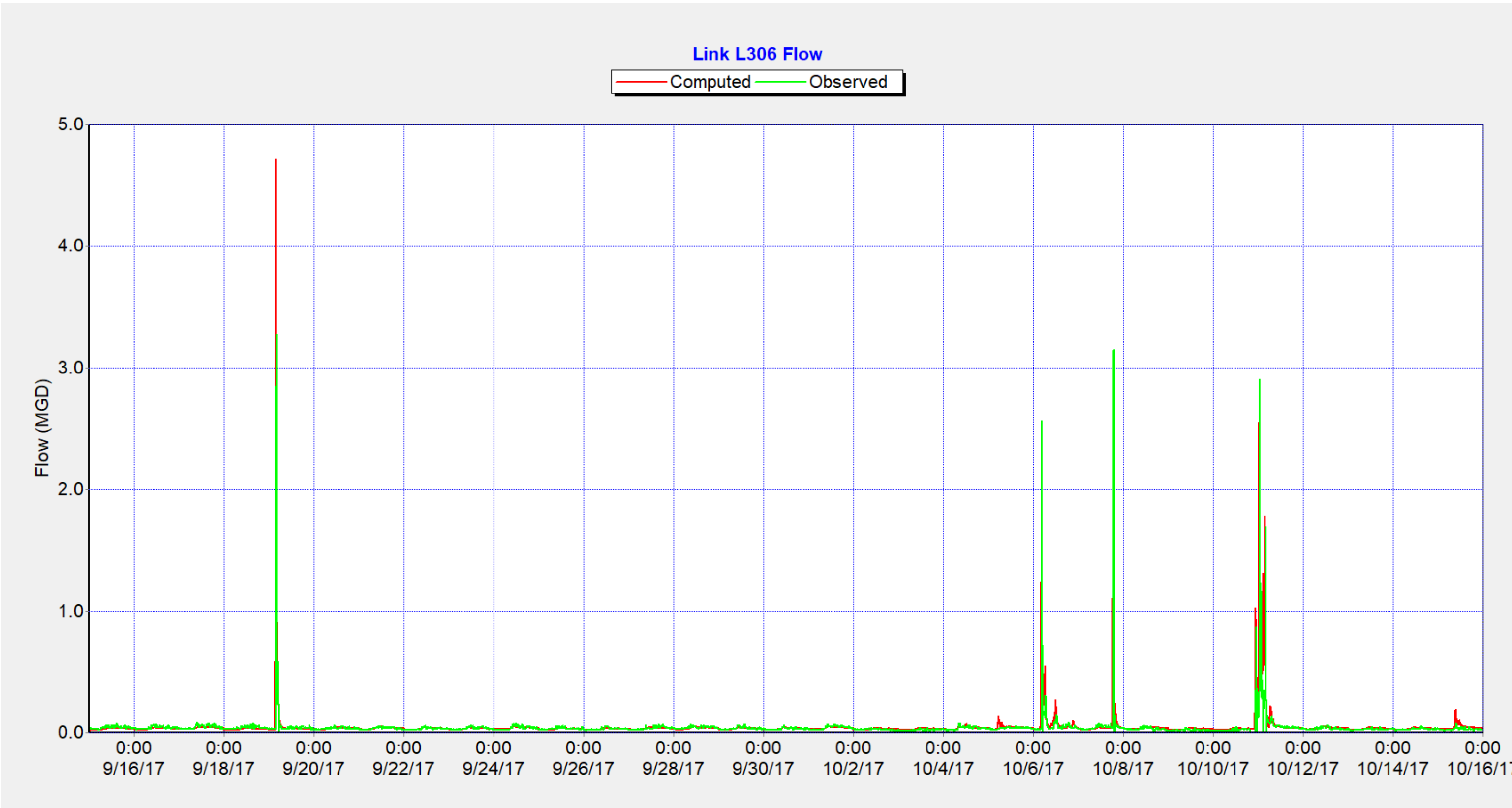


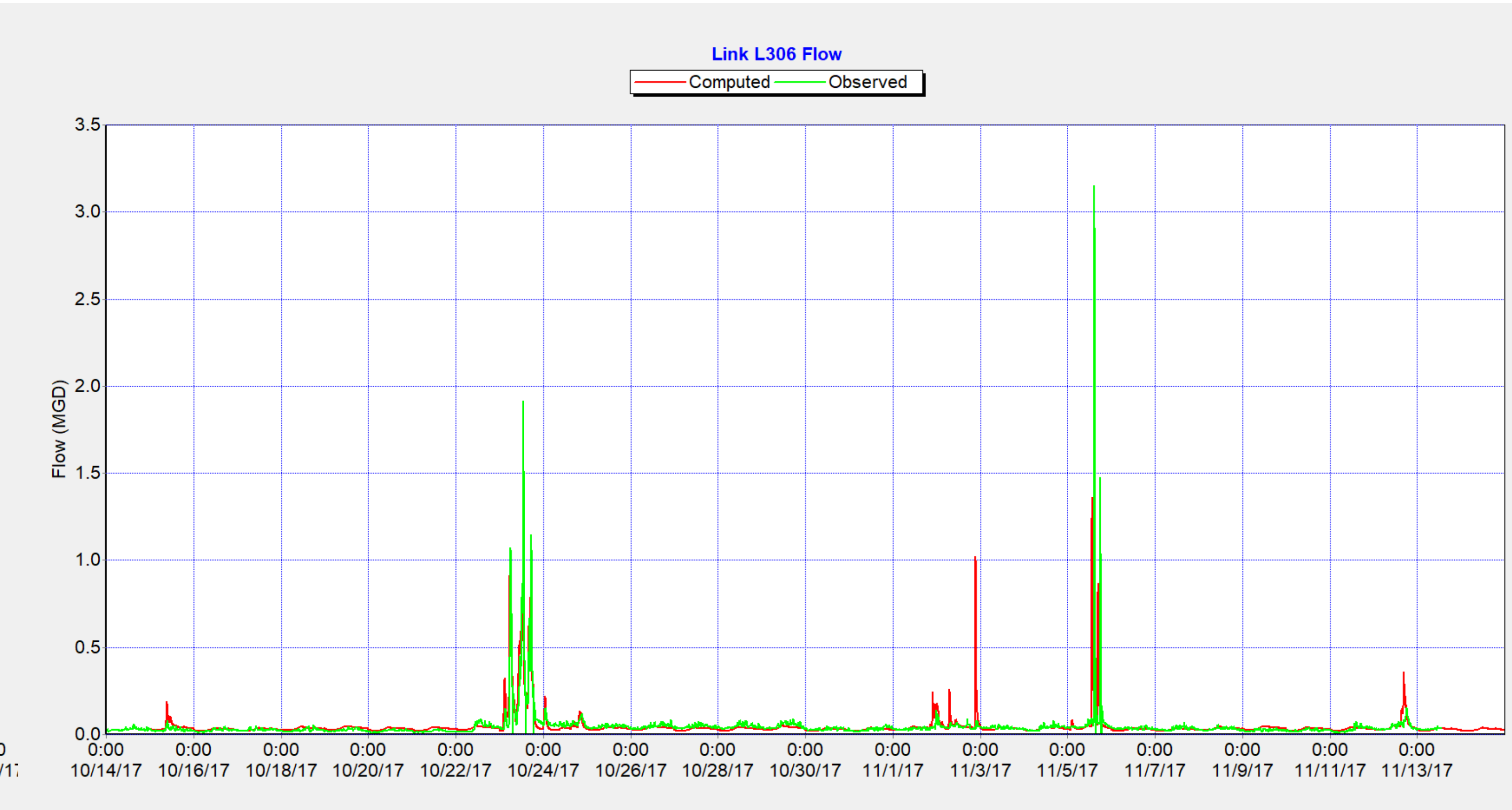
Meter 102 12-inch Influent: Depth (ft)



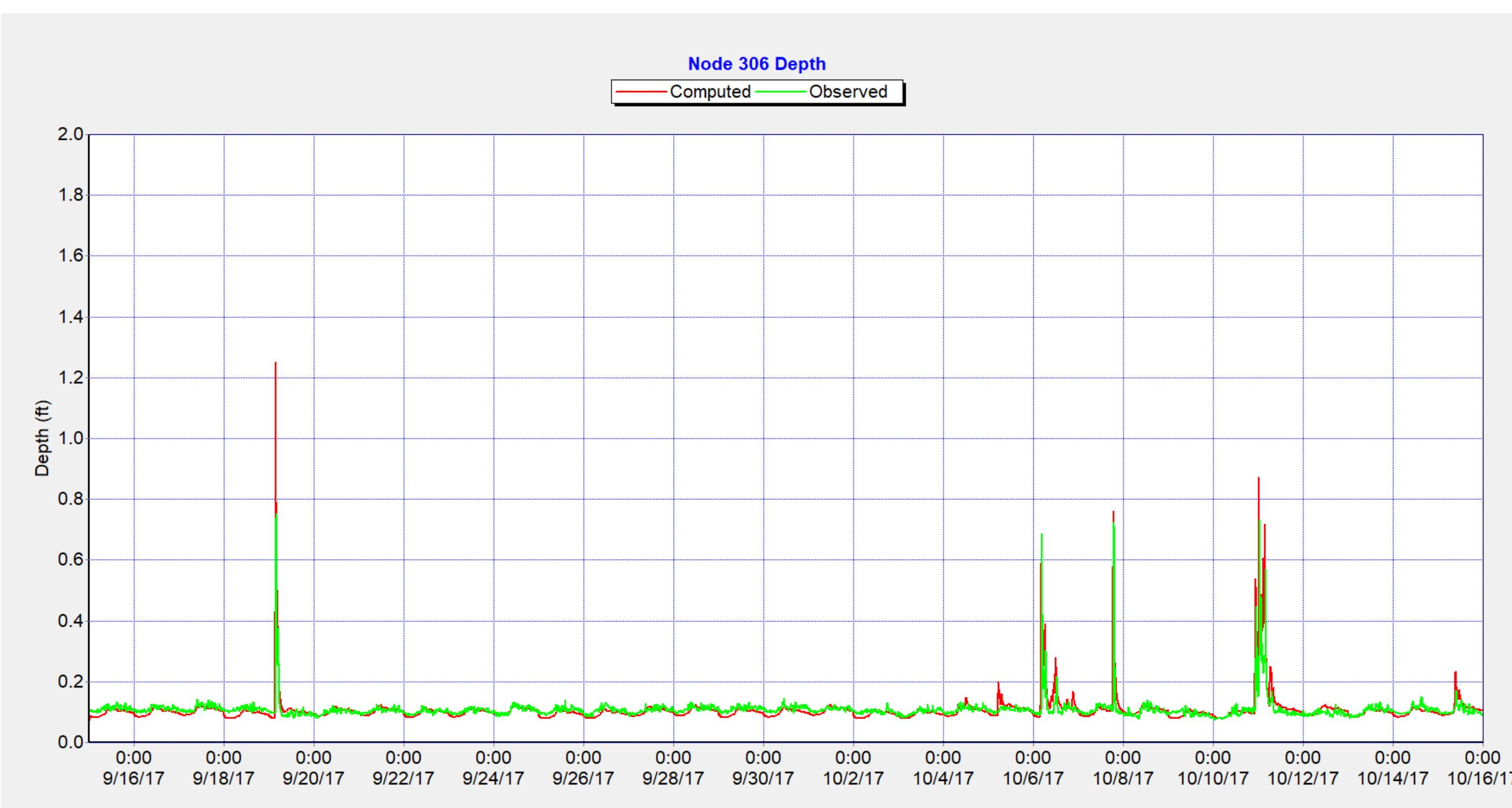


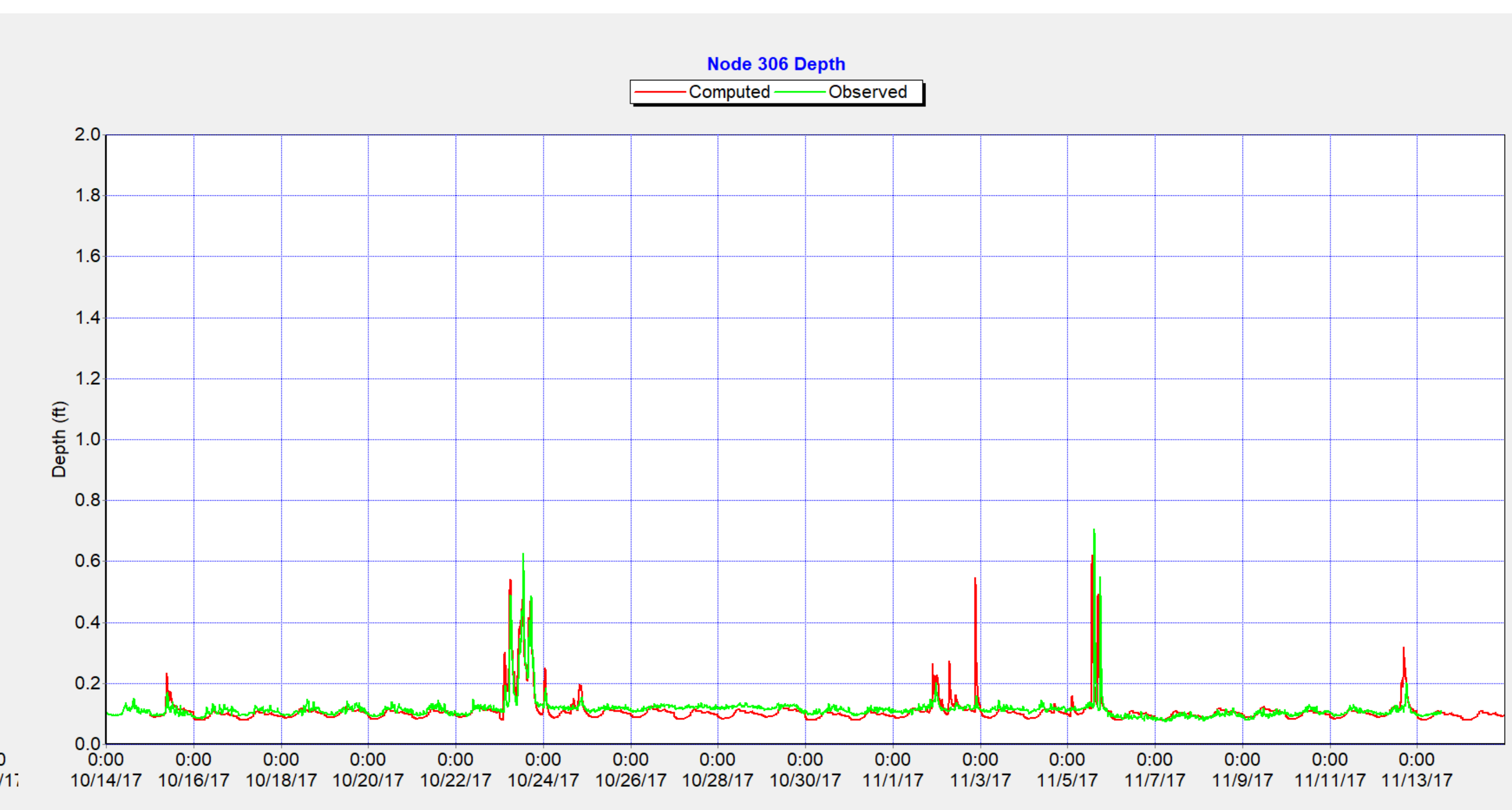
Meter 306 24-inch Effluent: Flow (MGD)



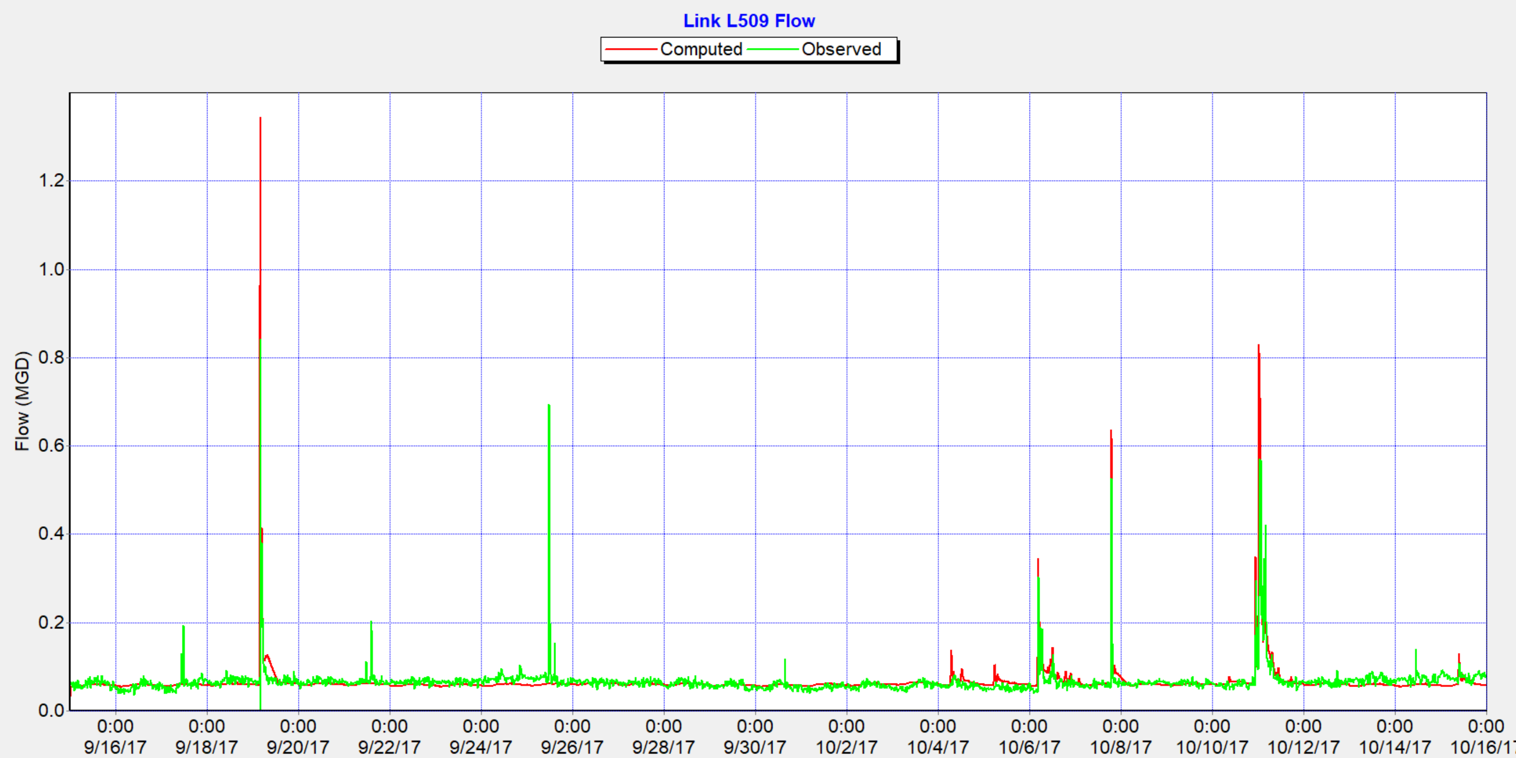


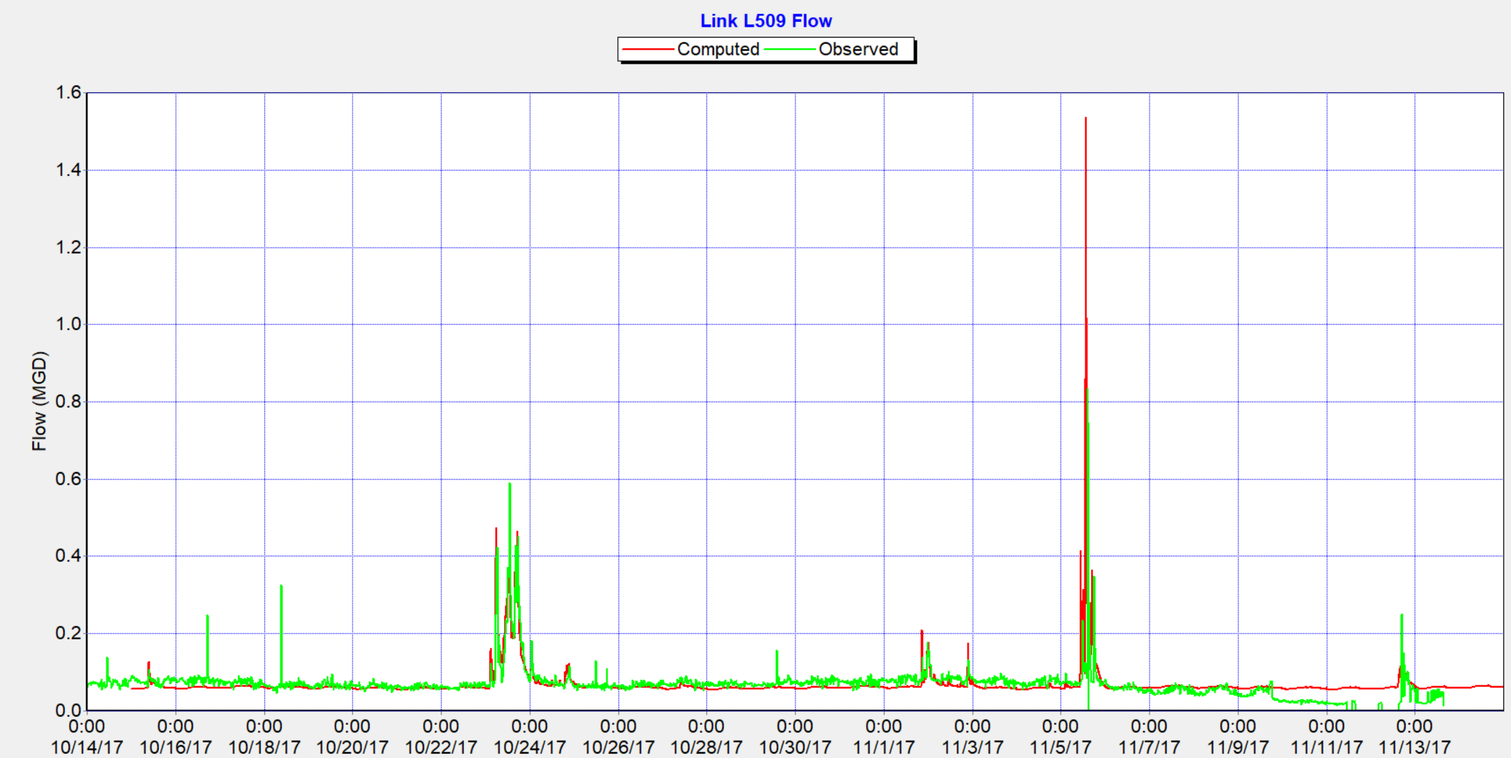
Meter 306 24-inch Effluent: Depth (ft)



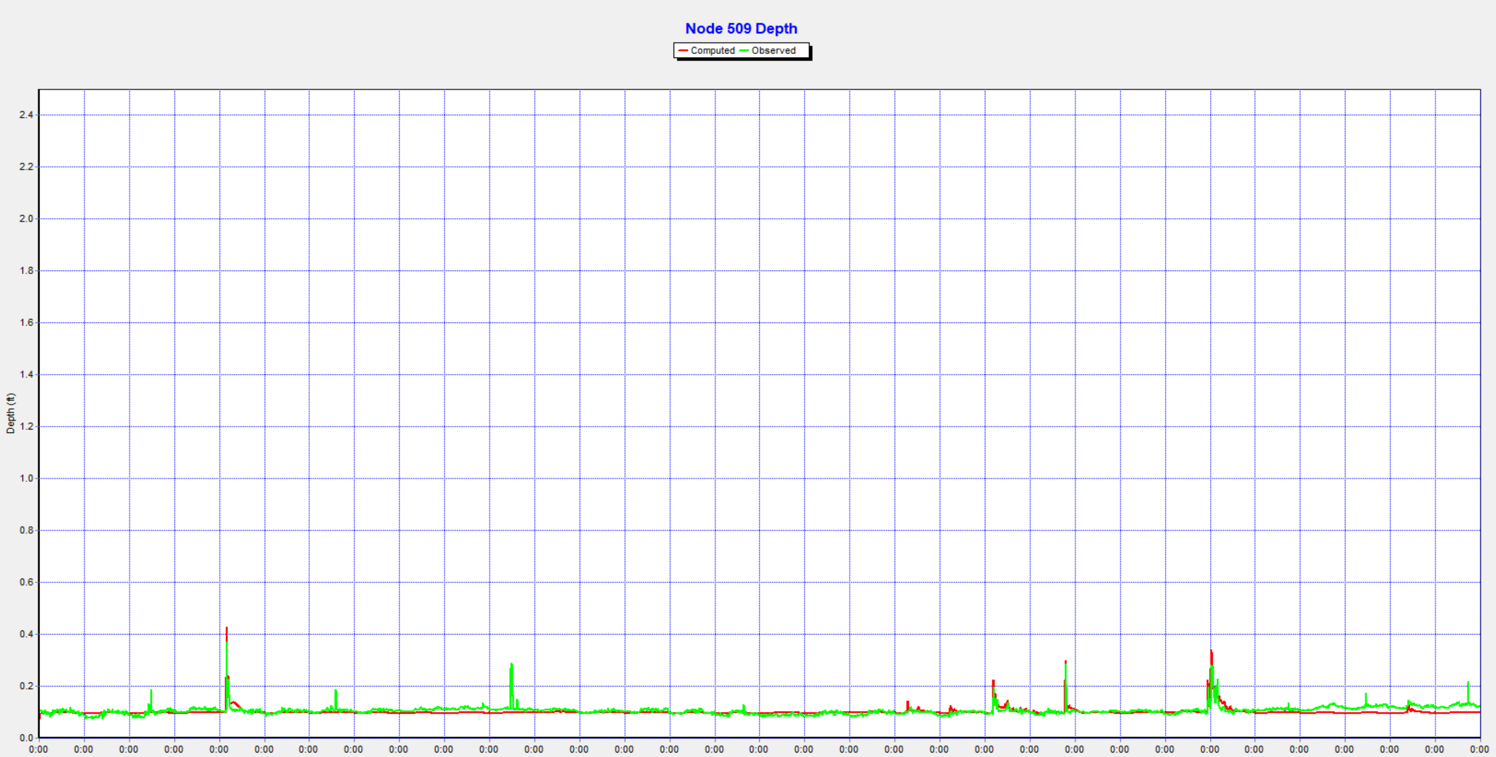


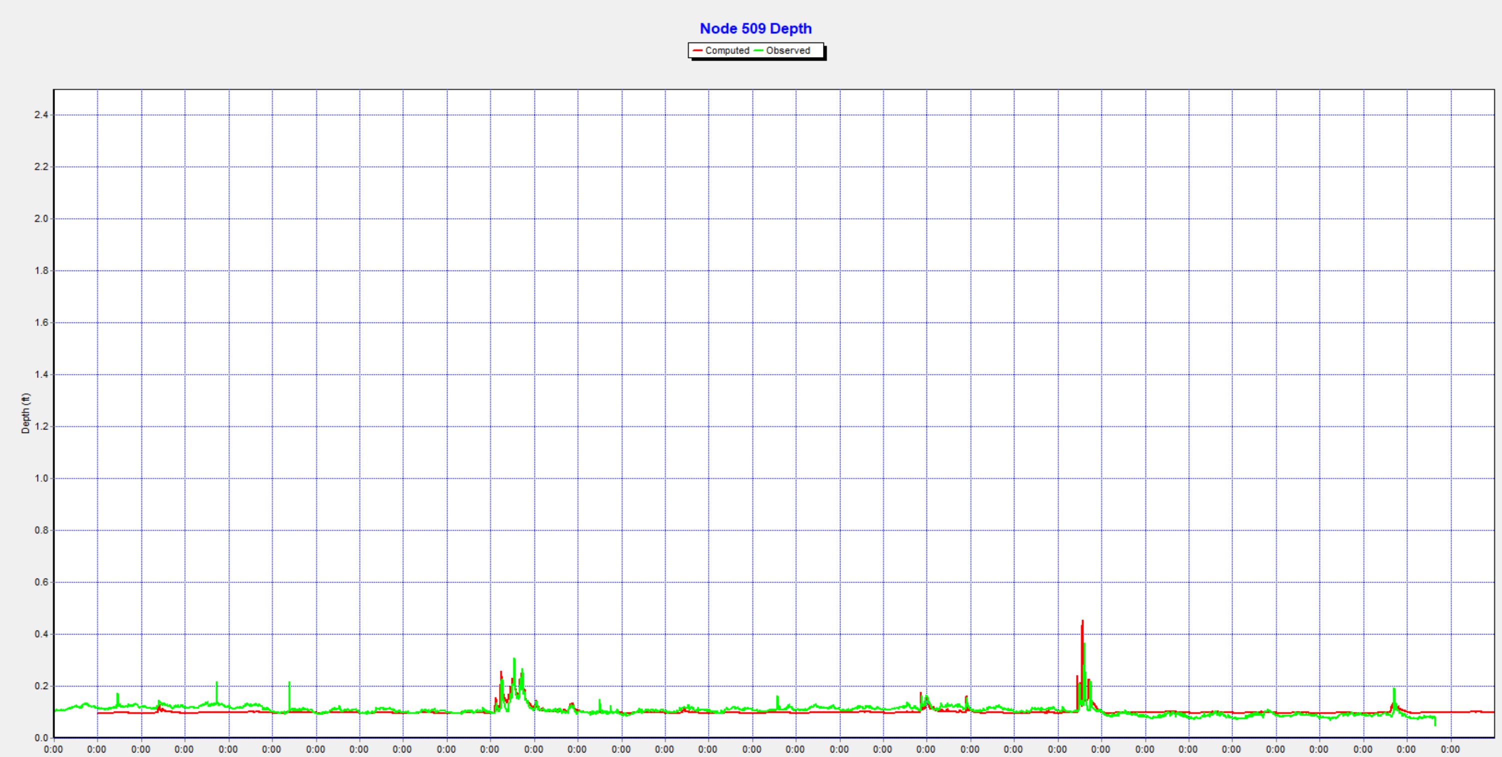
Meter 509 30-inch Effluent: Flow (MGD)



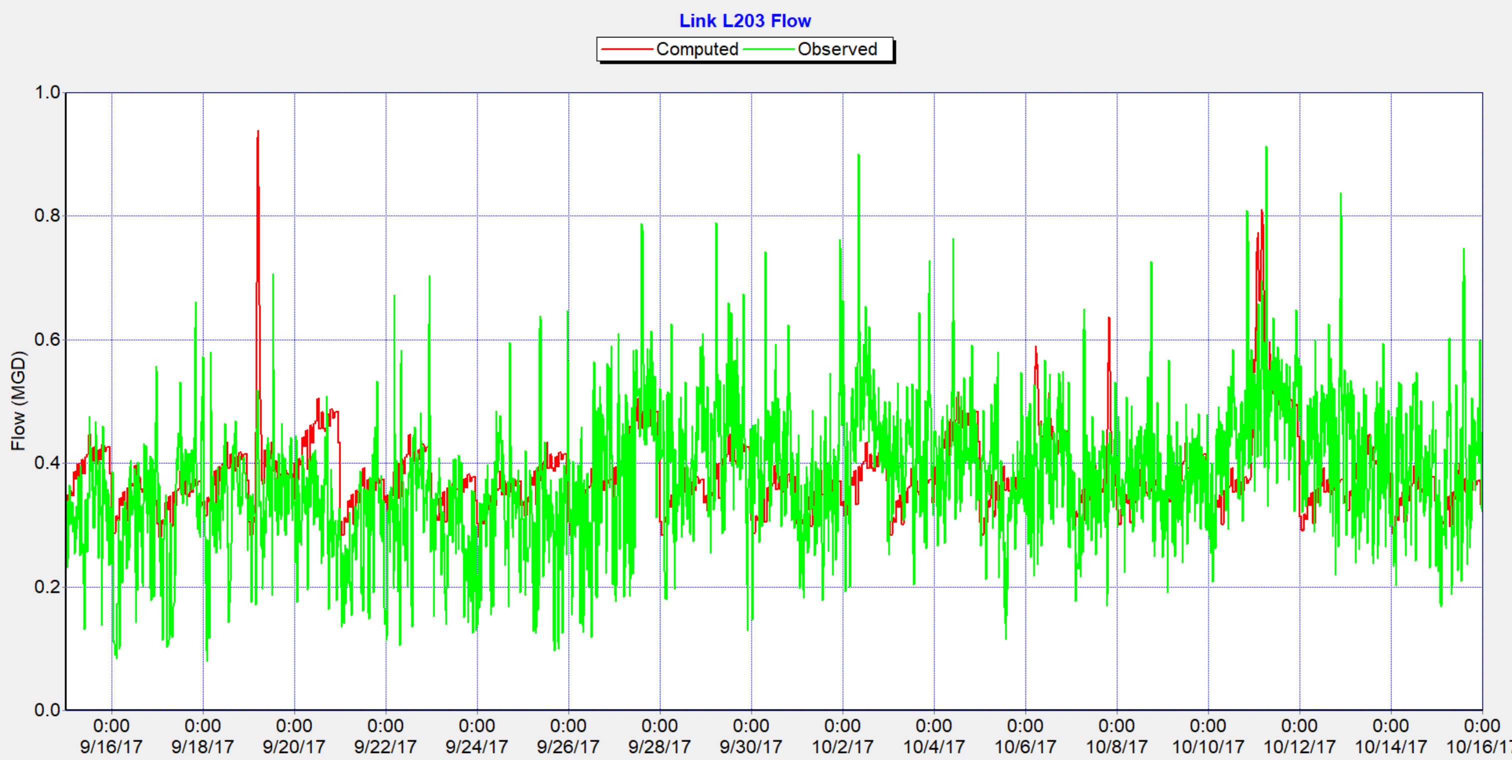


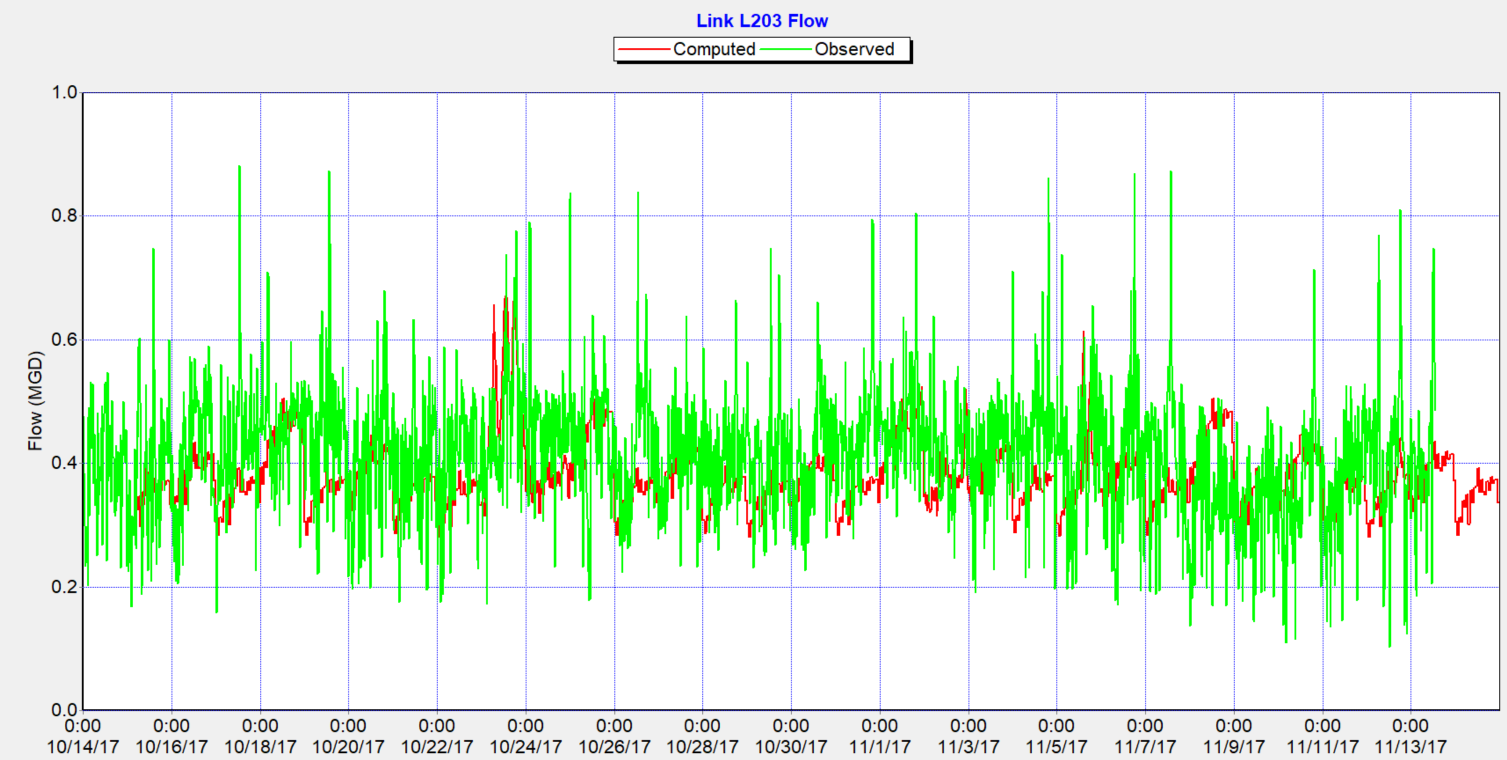
Meter 509 30-inch Effluent: Depth (ft)



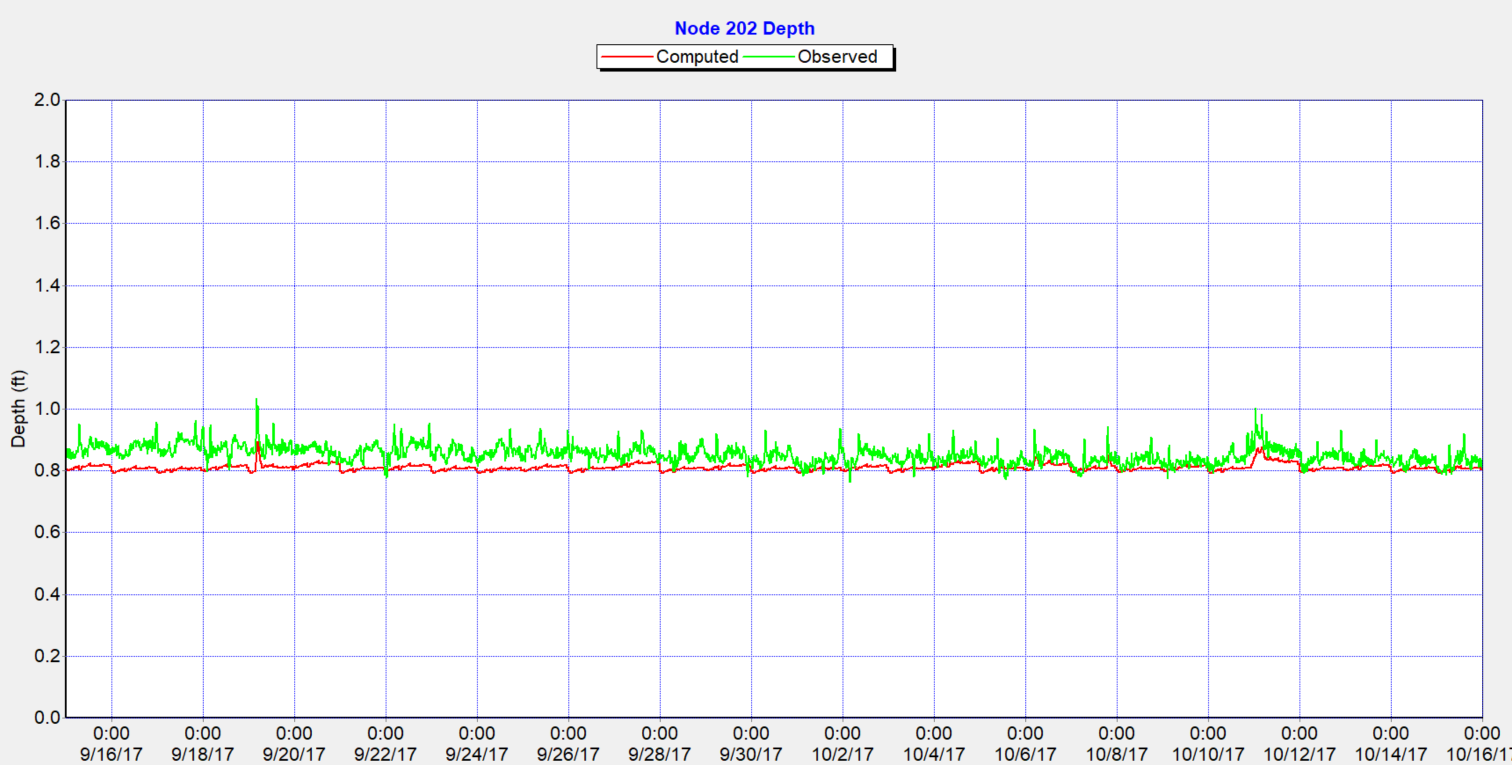


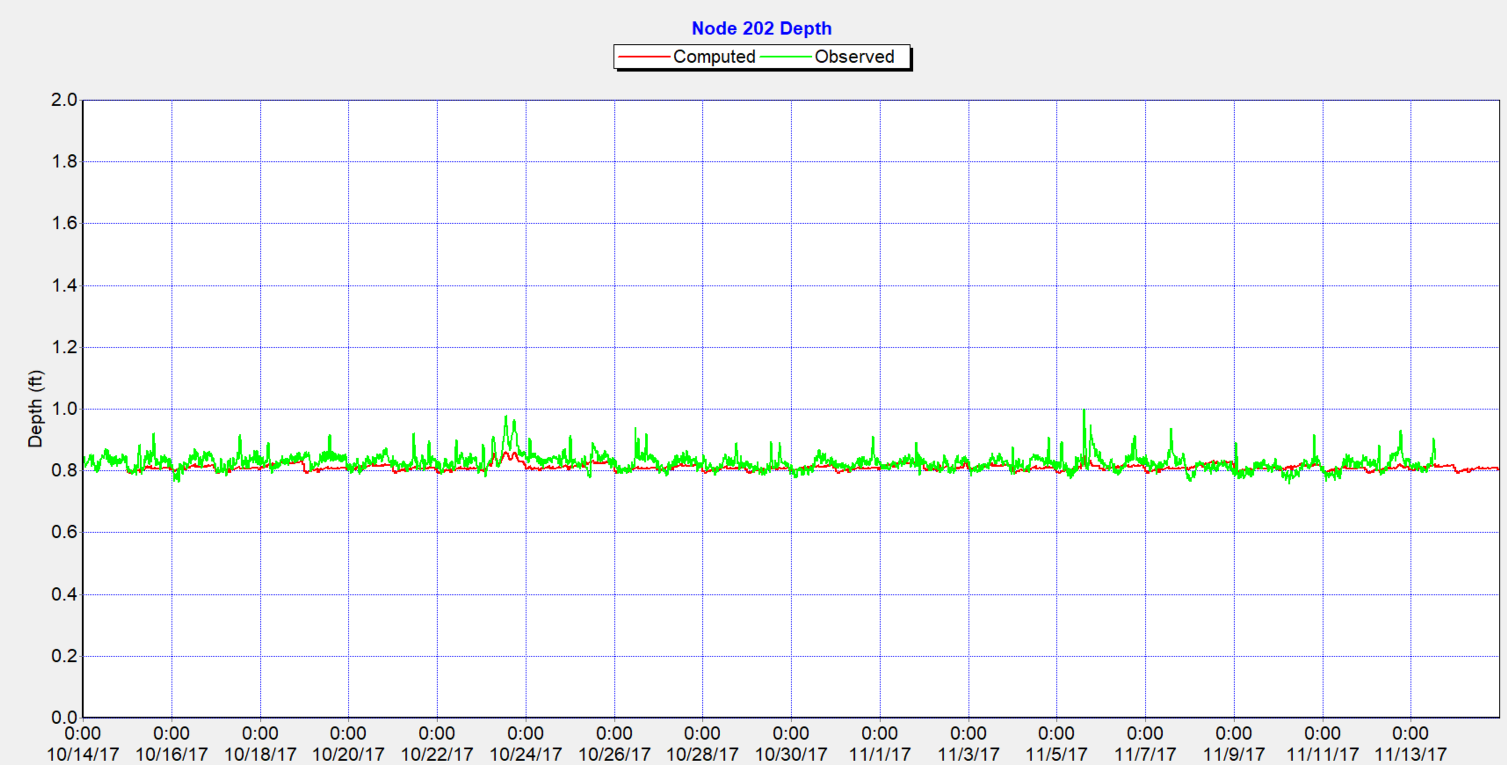
Meter 202 24-inch Influent: Flow (MGD)



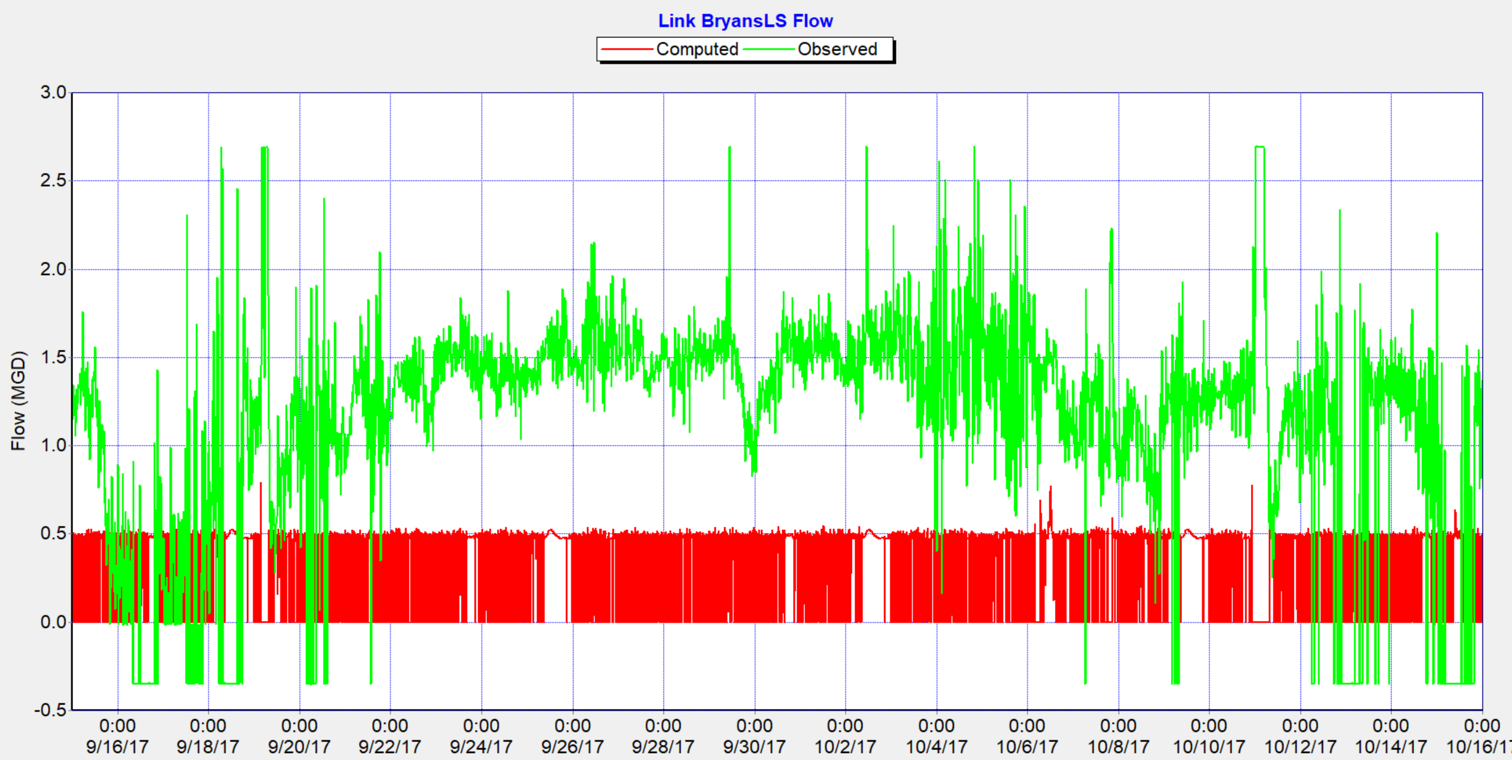


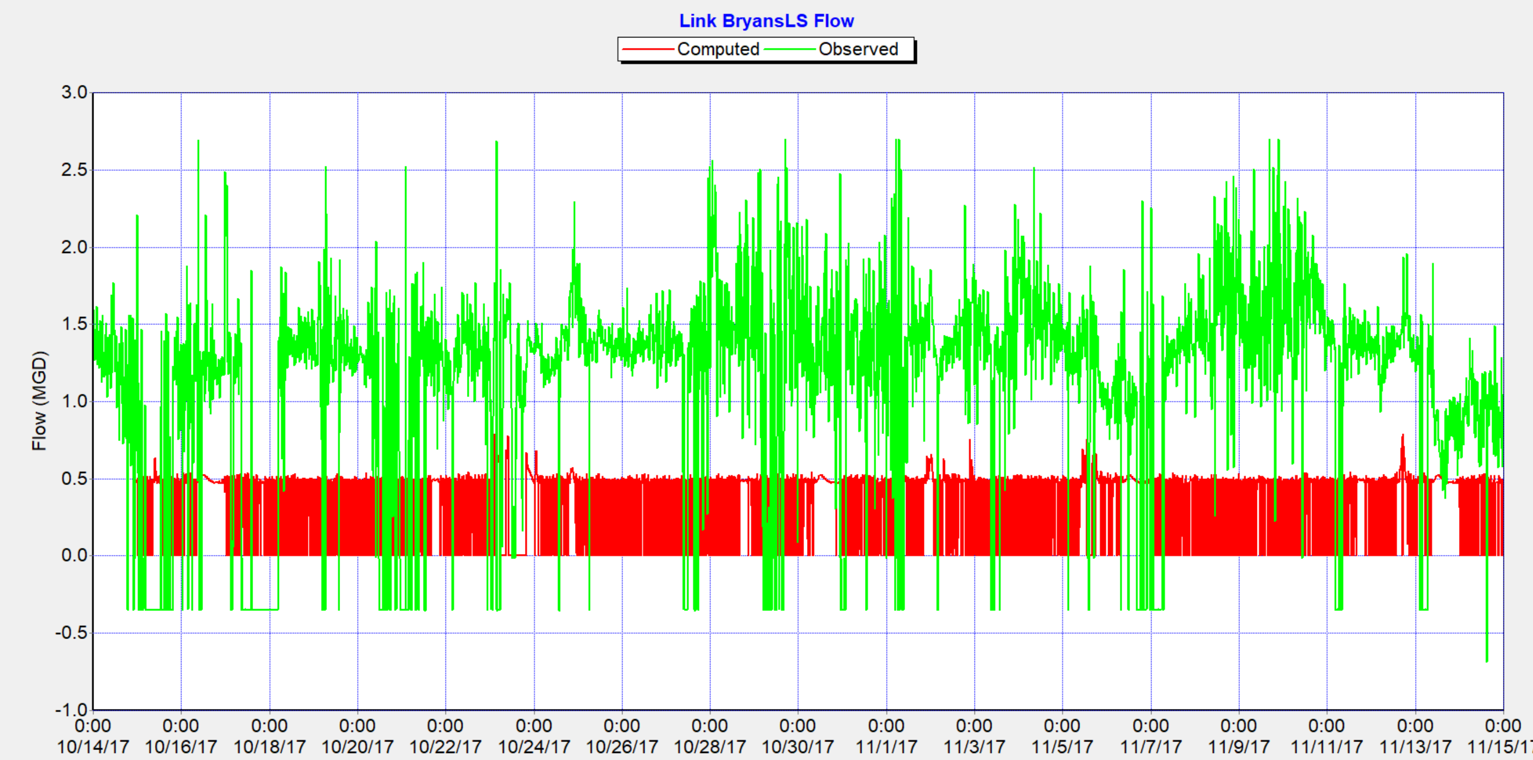
Meter 202 24-inch Influent: Depth (ft)



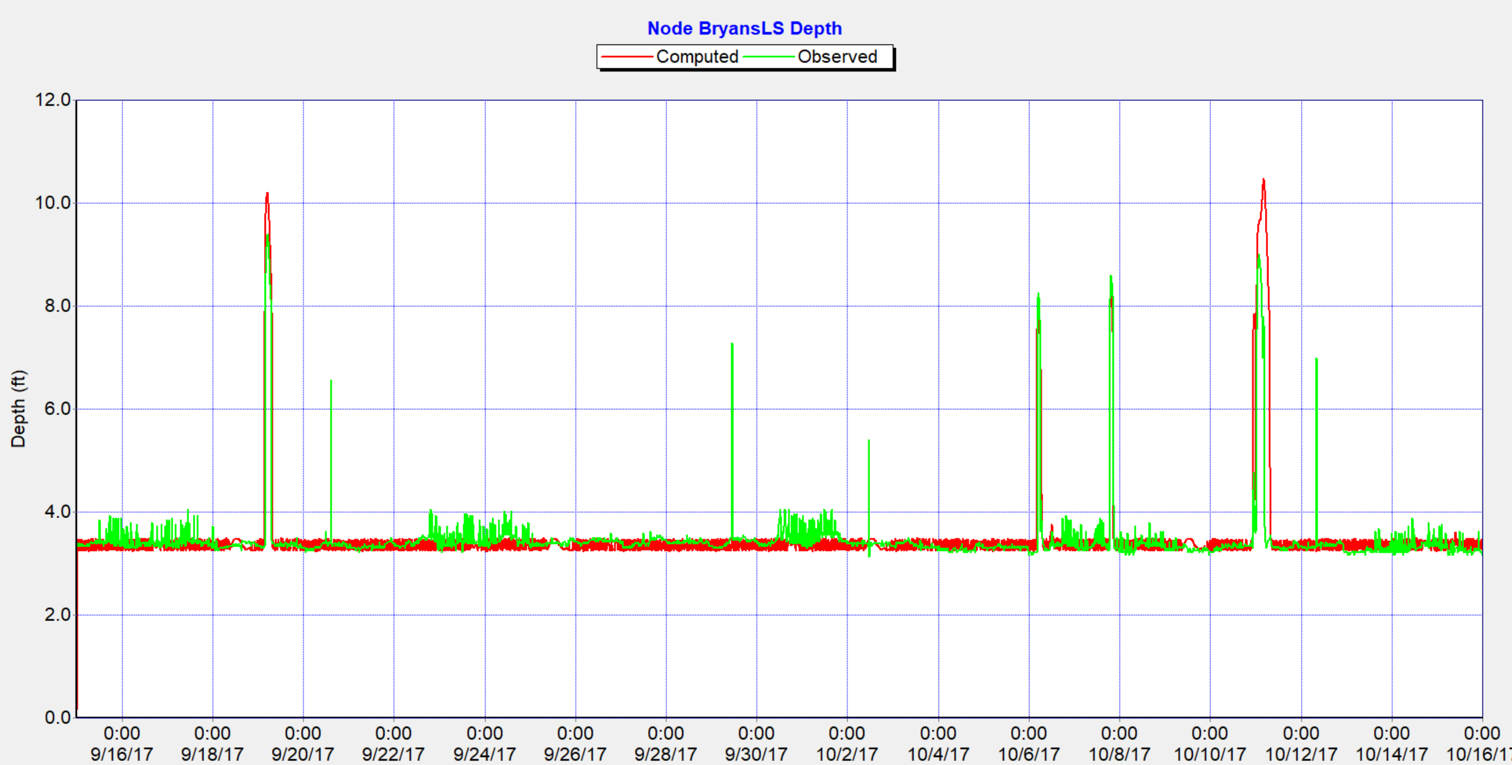


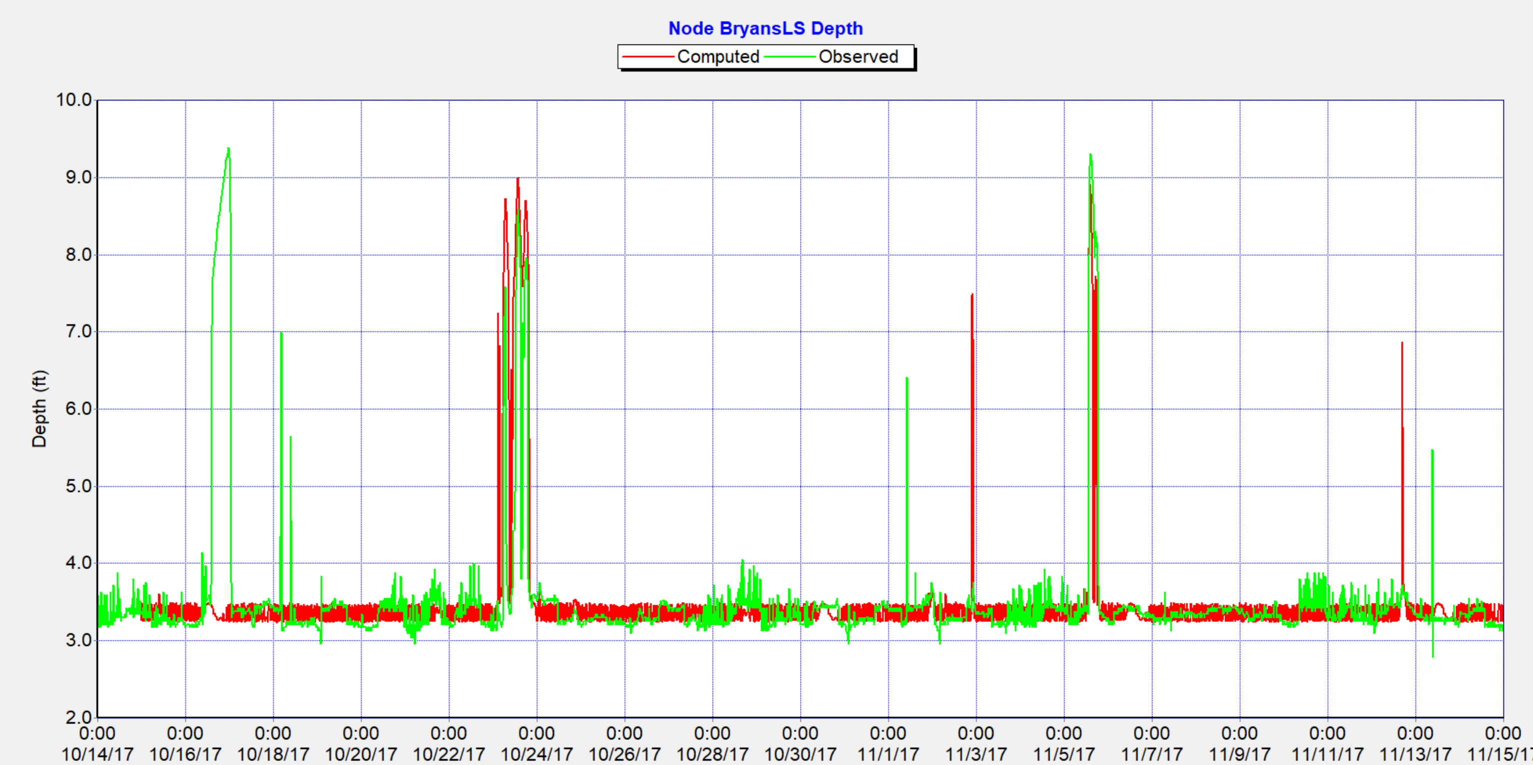
Meter Bryan's Lift Station: Flow (MGD)



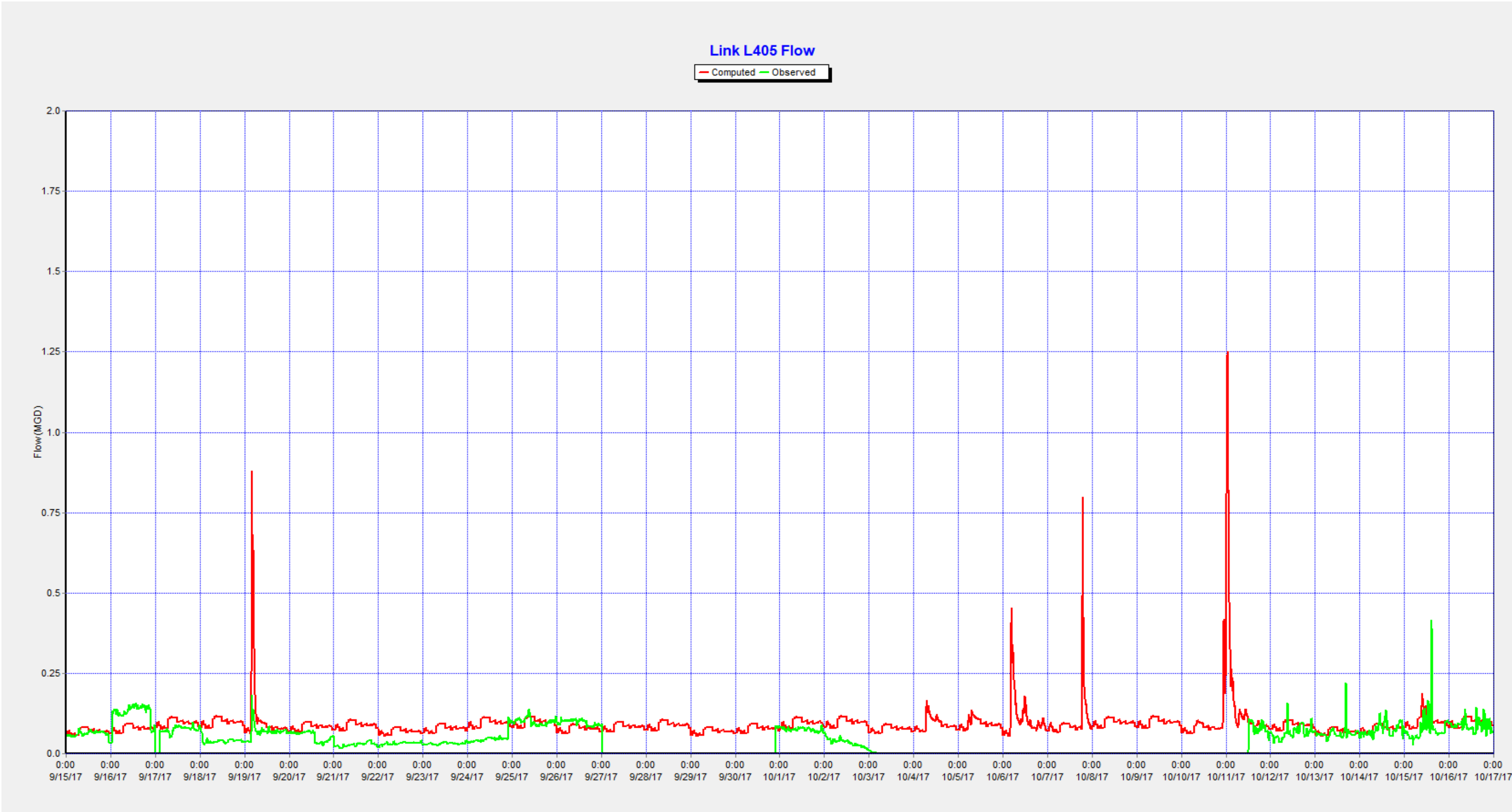


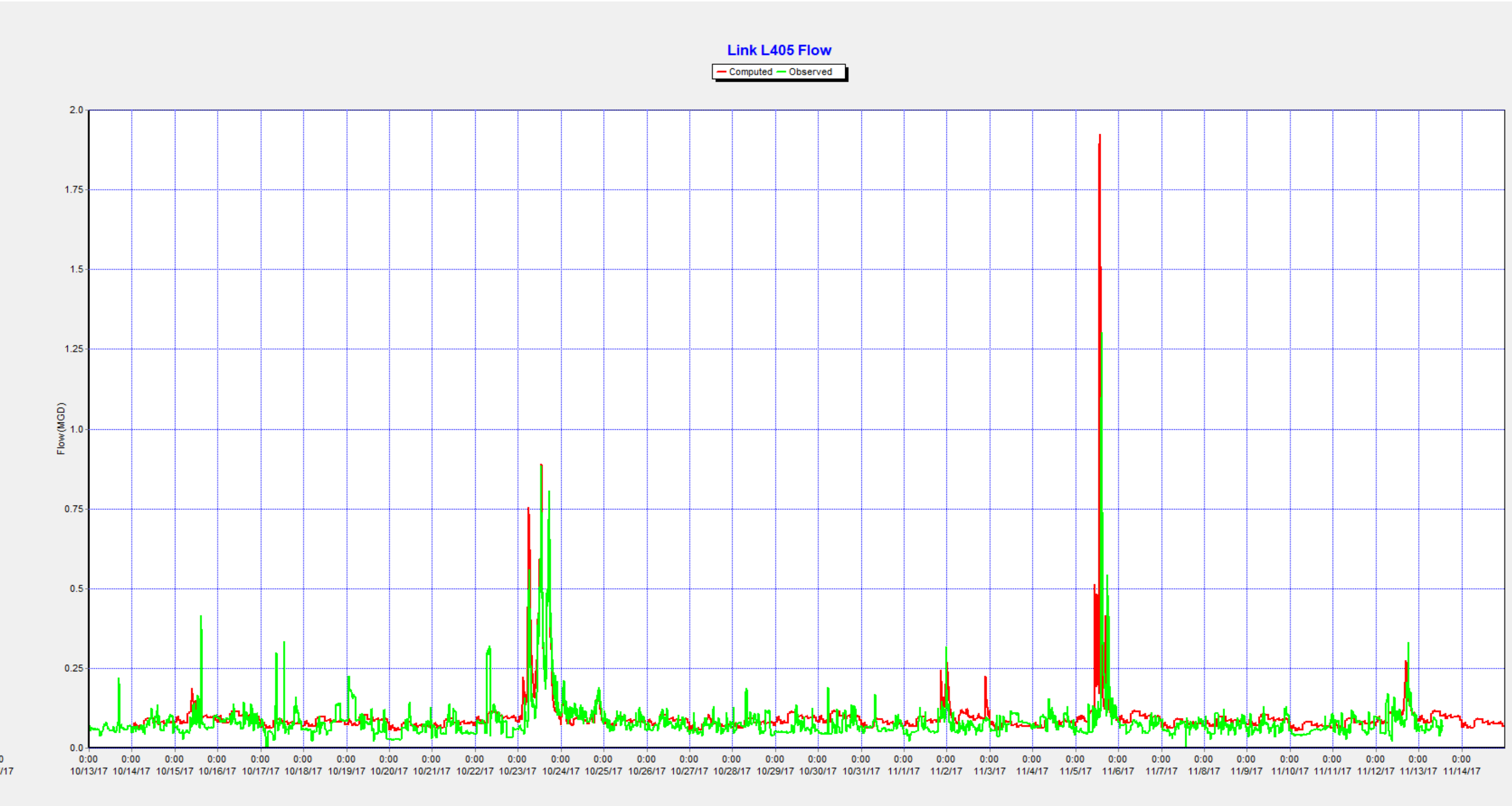
Meter Bryan's Lift Station: Depth (ft)



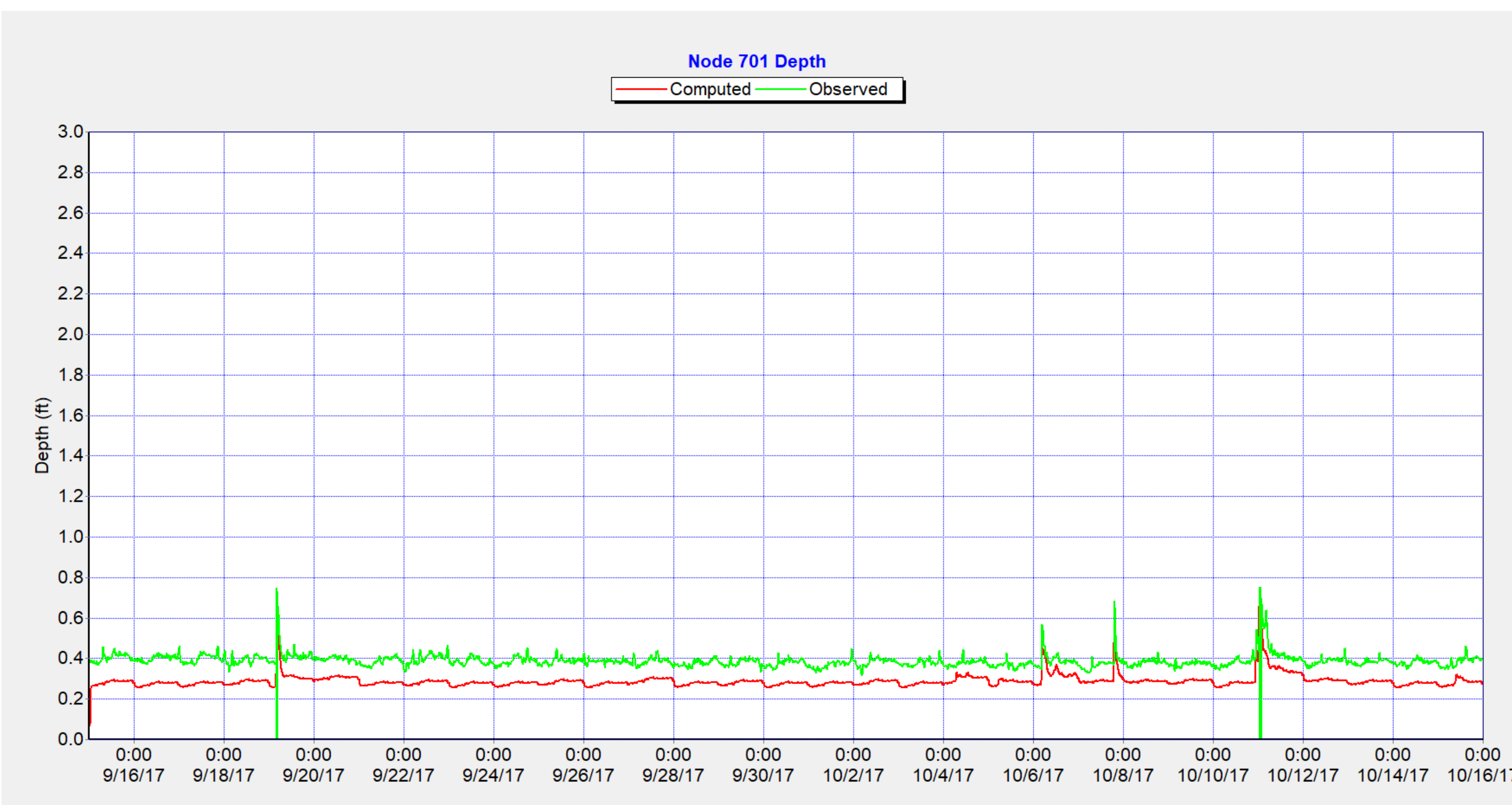


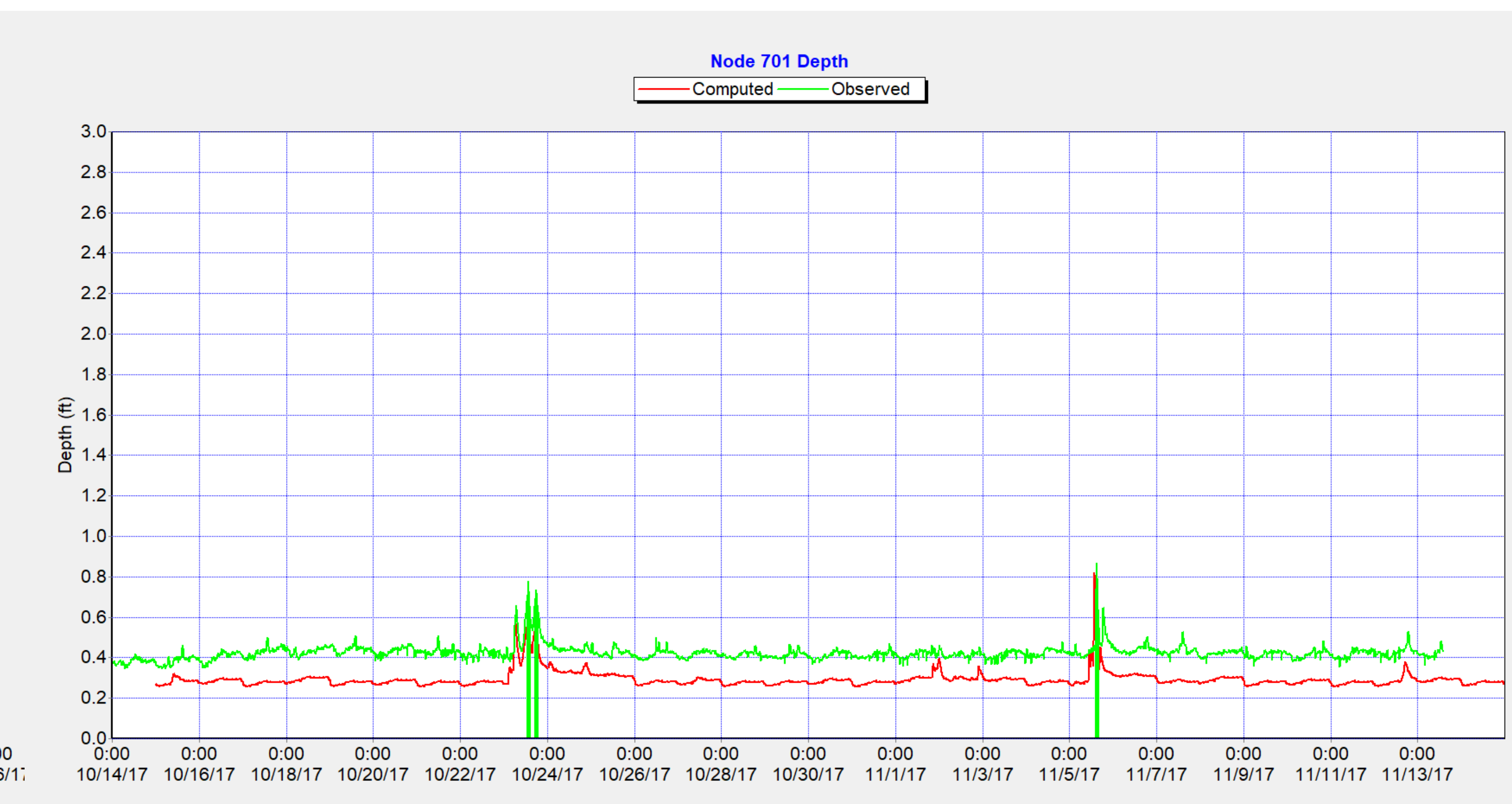
Meter 401 30-inch Influent: Flow (MGD)



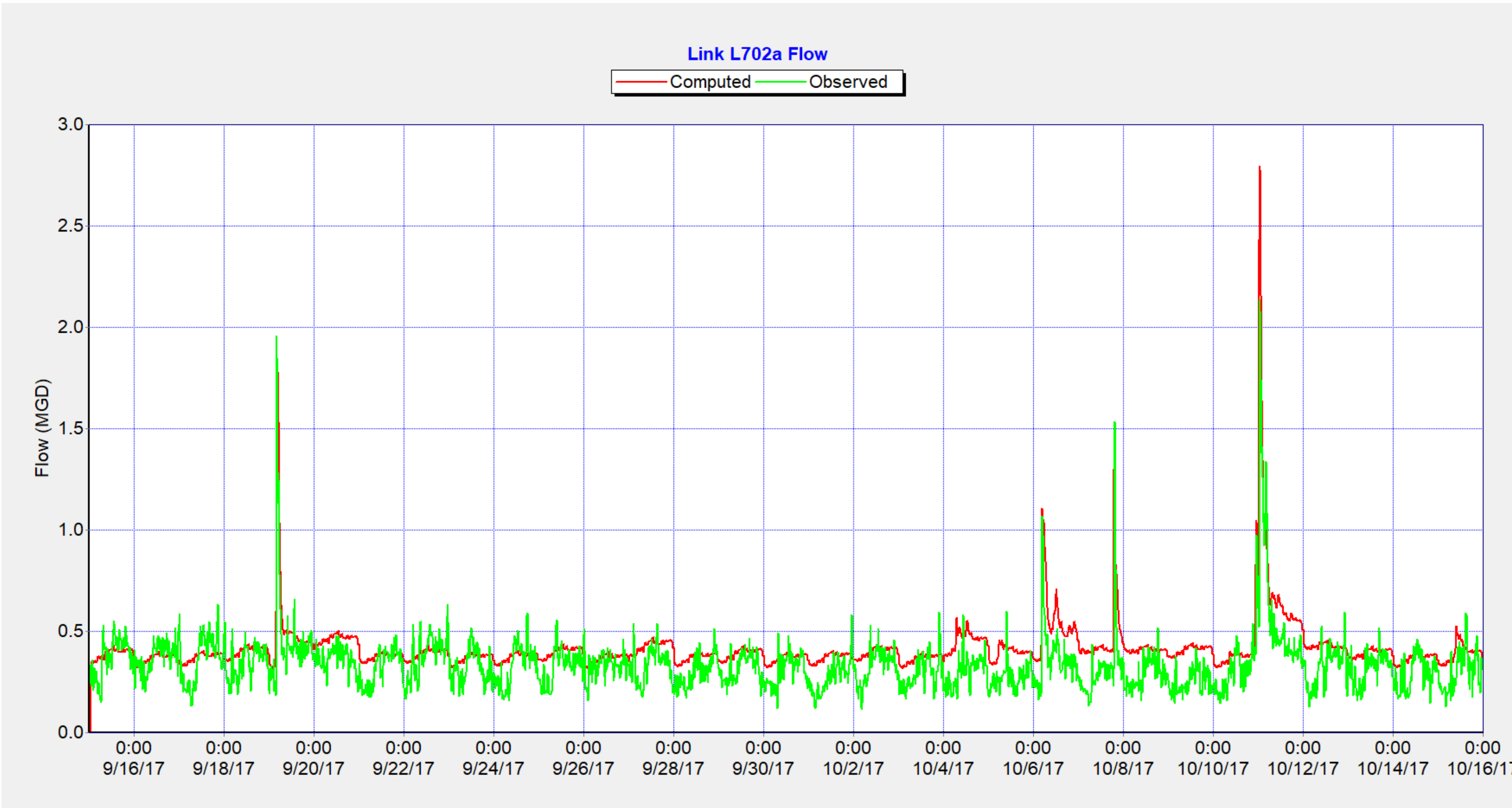


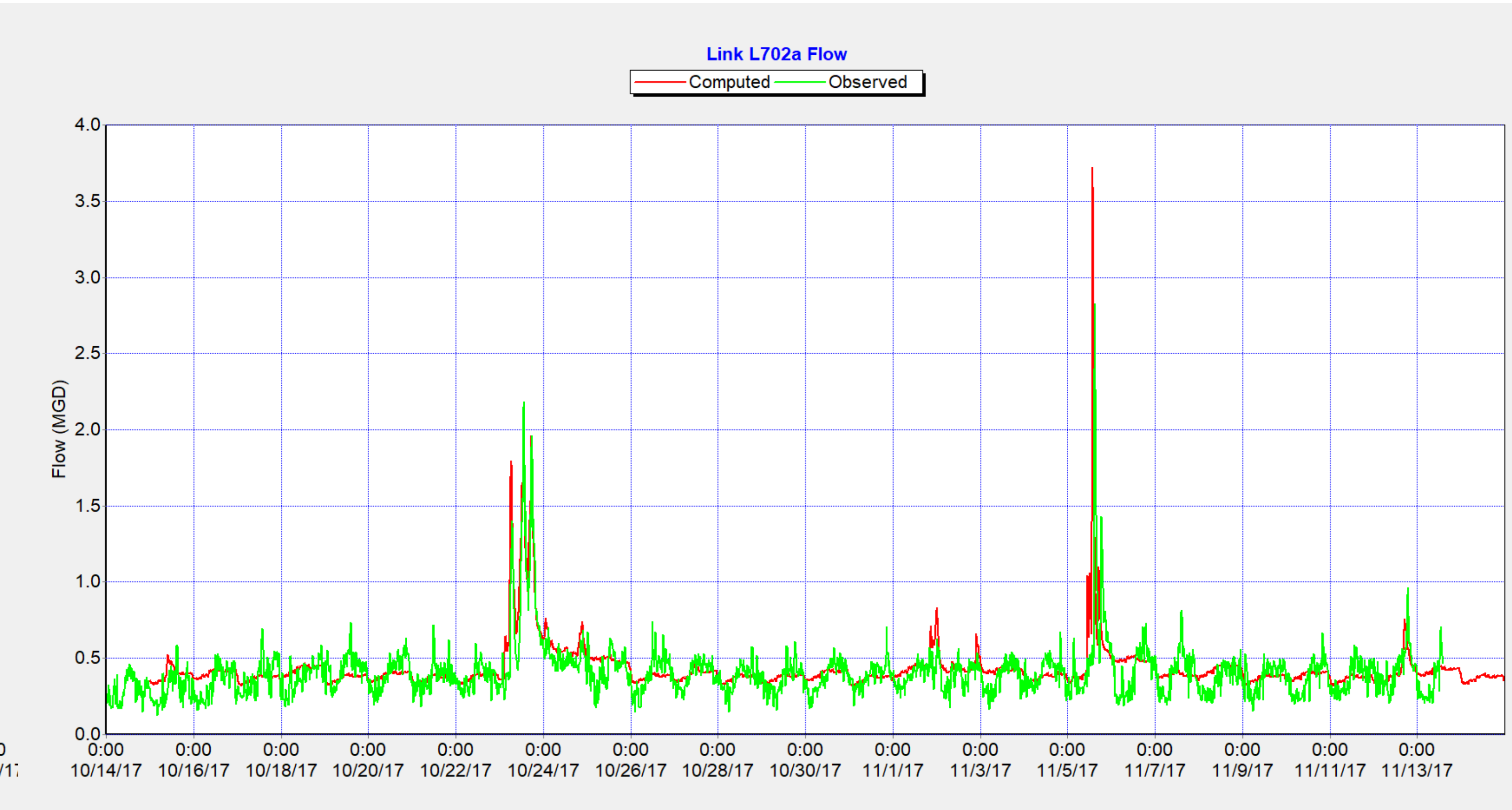
Meter 401 30-inch Influent: Depth (ft)



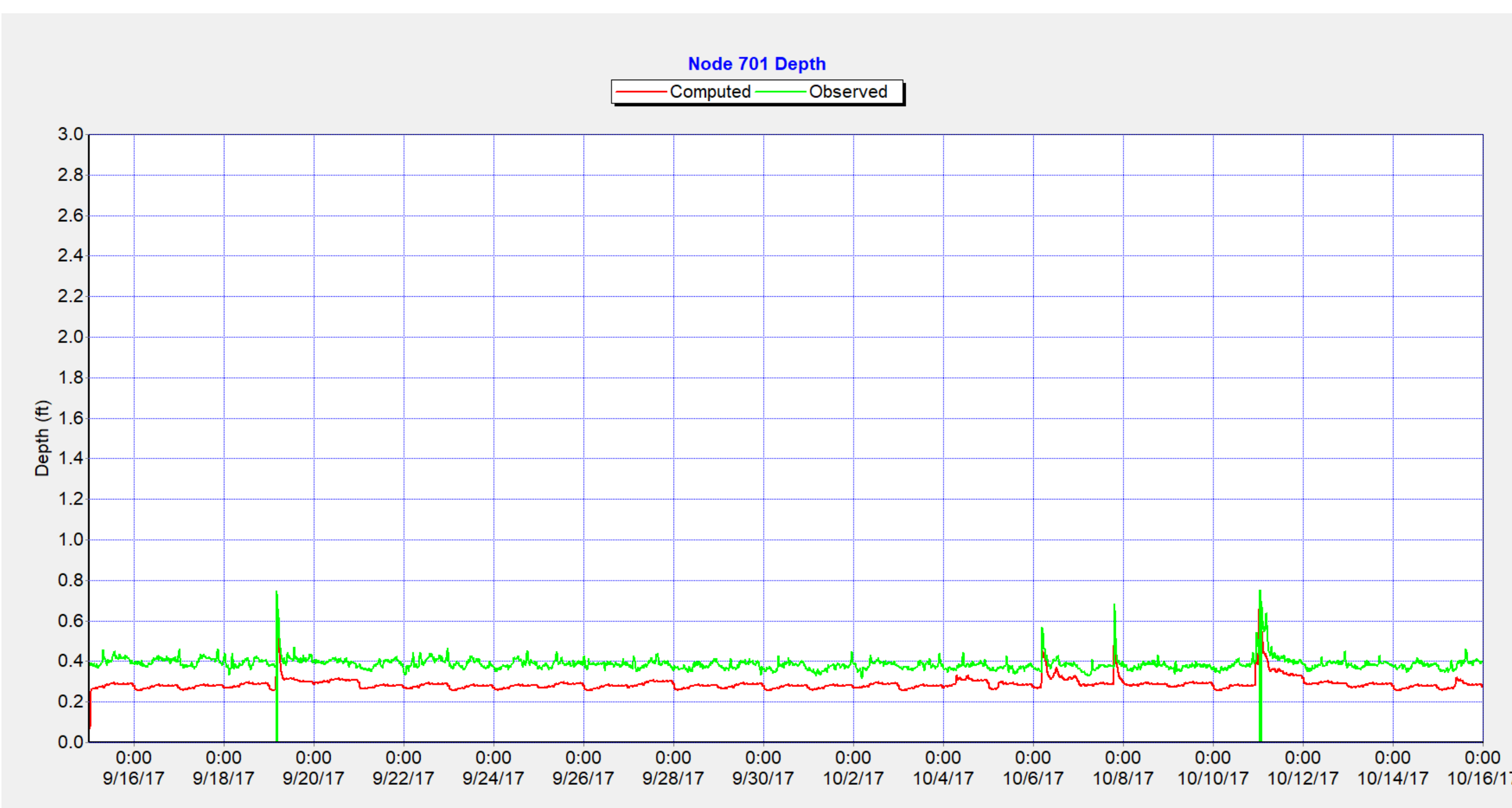


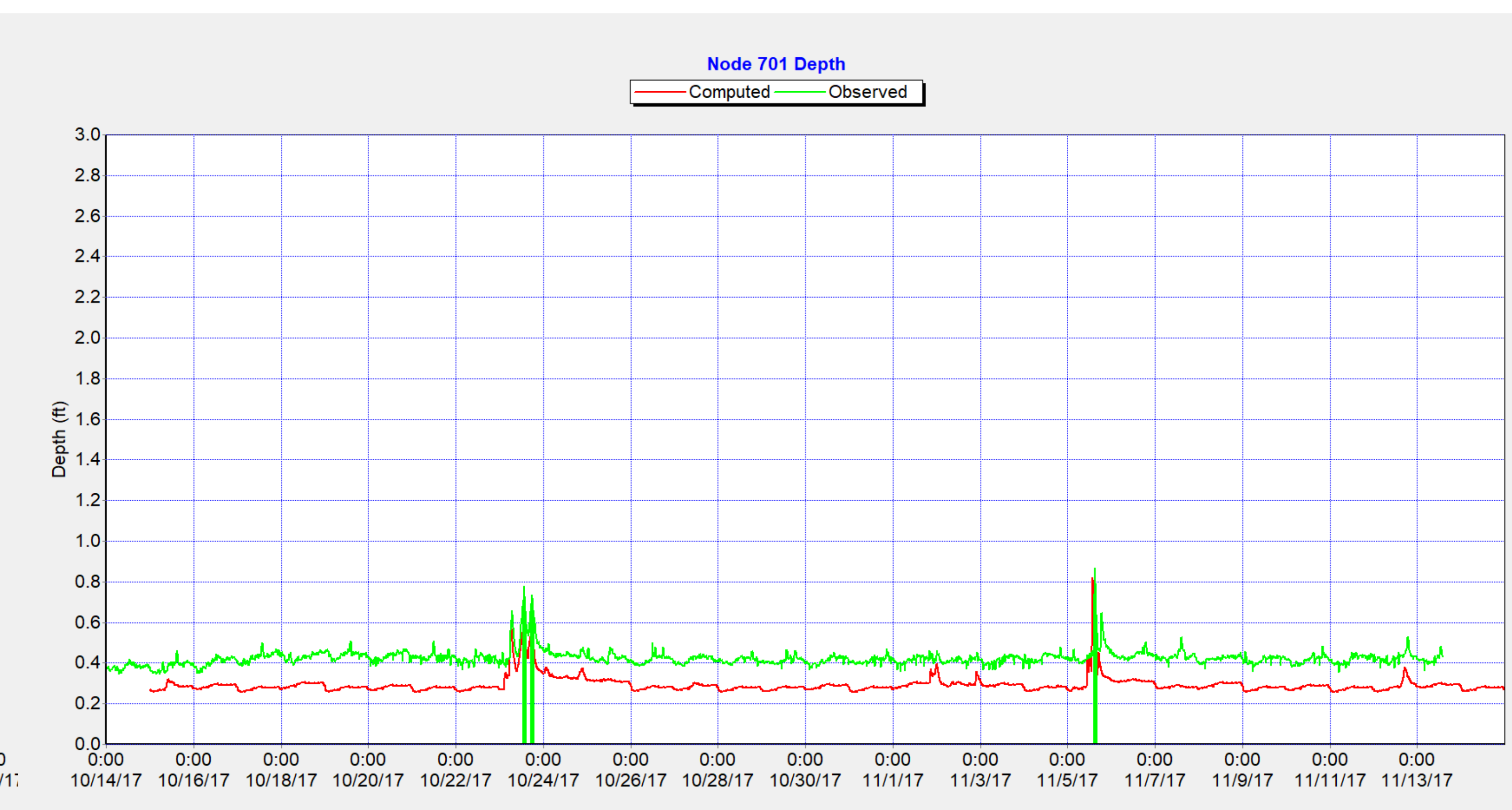
Meter 701 36-inch Influent: Flow (MGD)



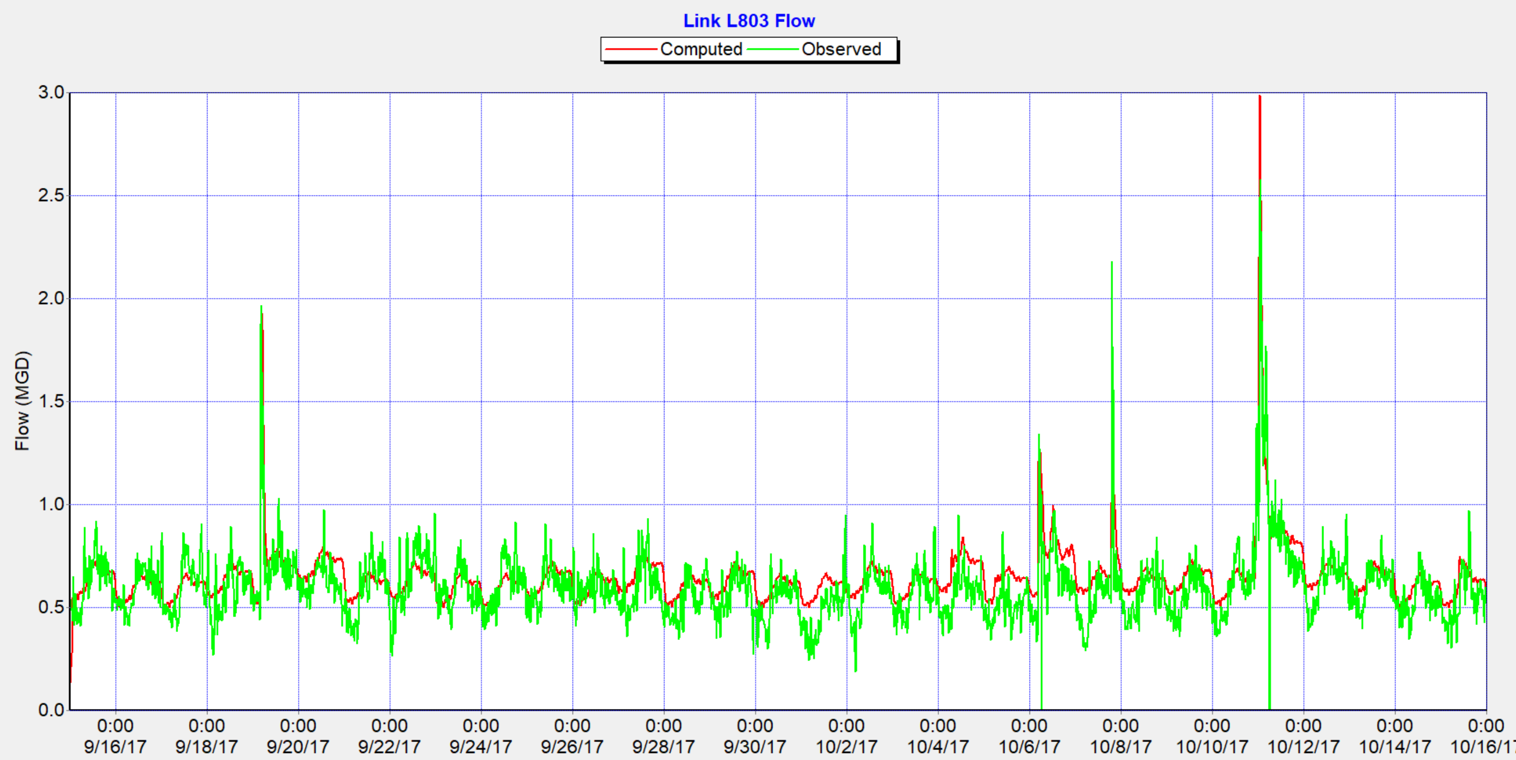


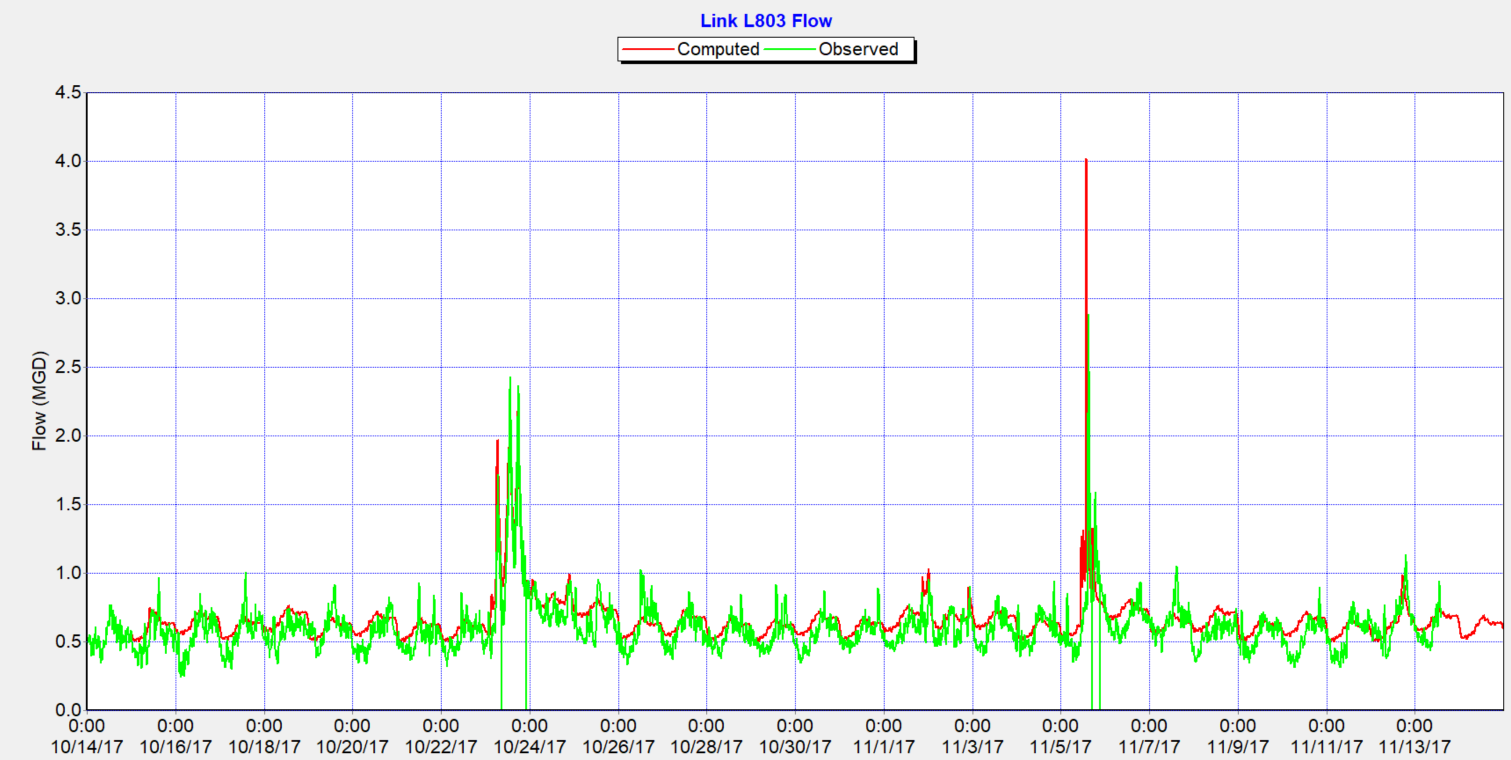
Meter 701 36-inch Influent: Depth (ft)



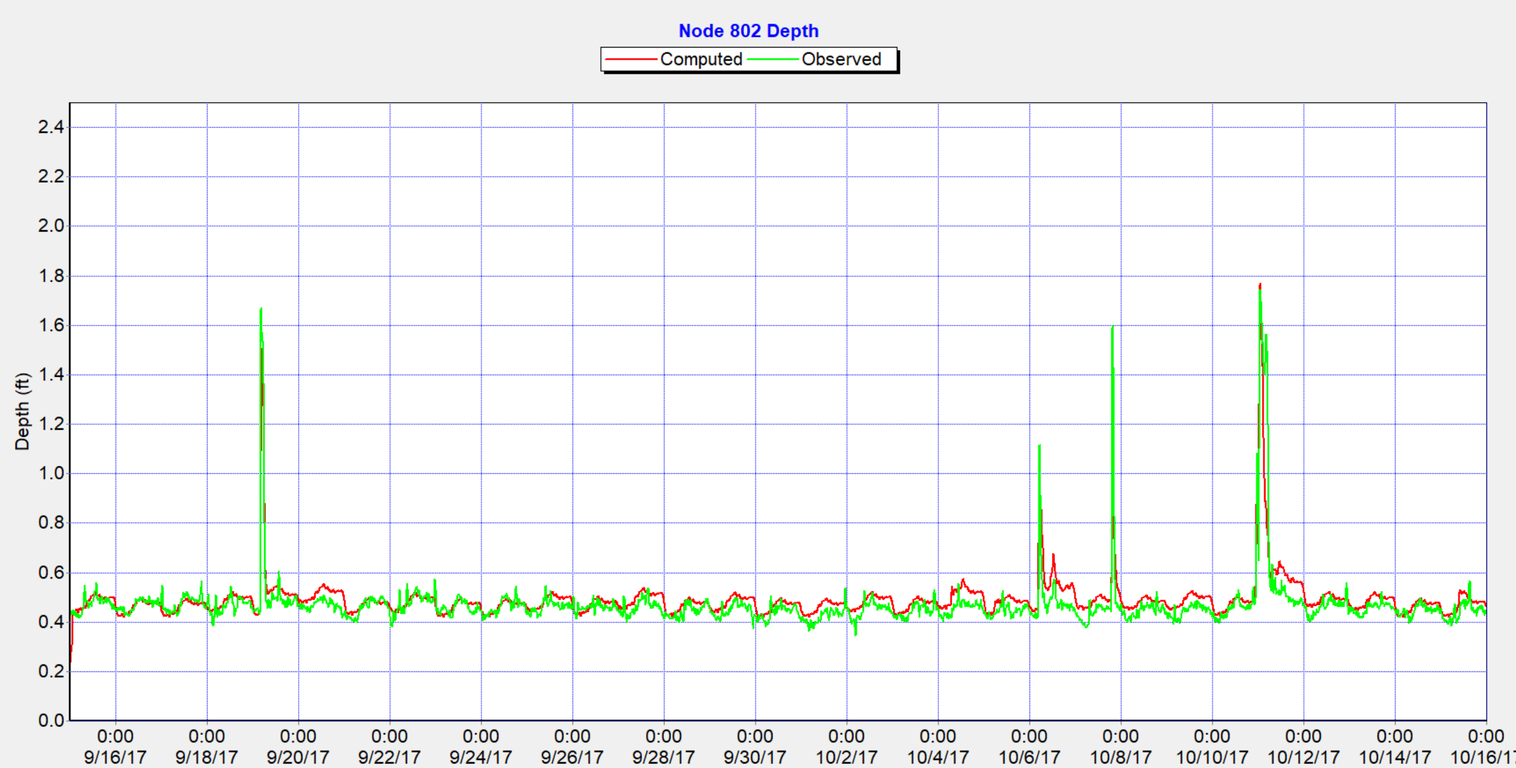


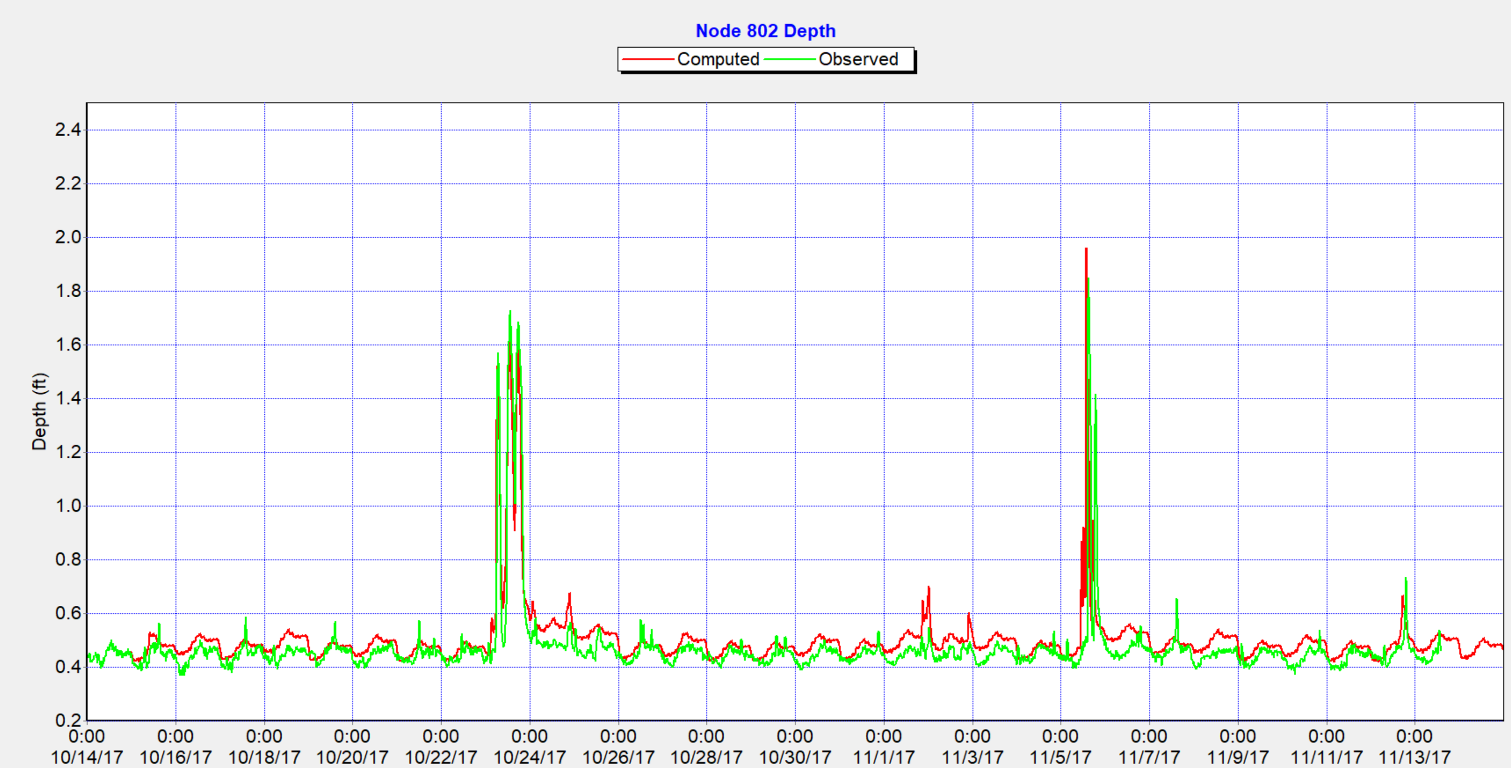
Meter 802 36-inch Influent: Flow (MGD)



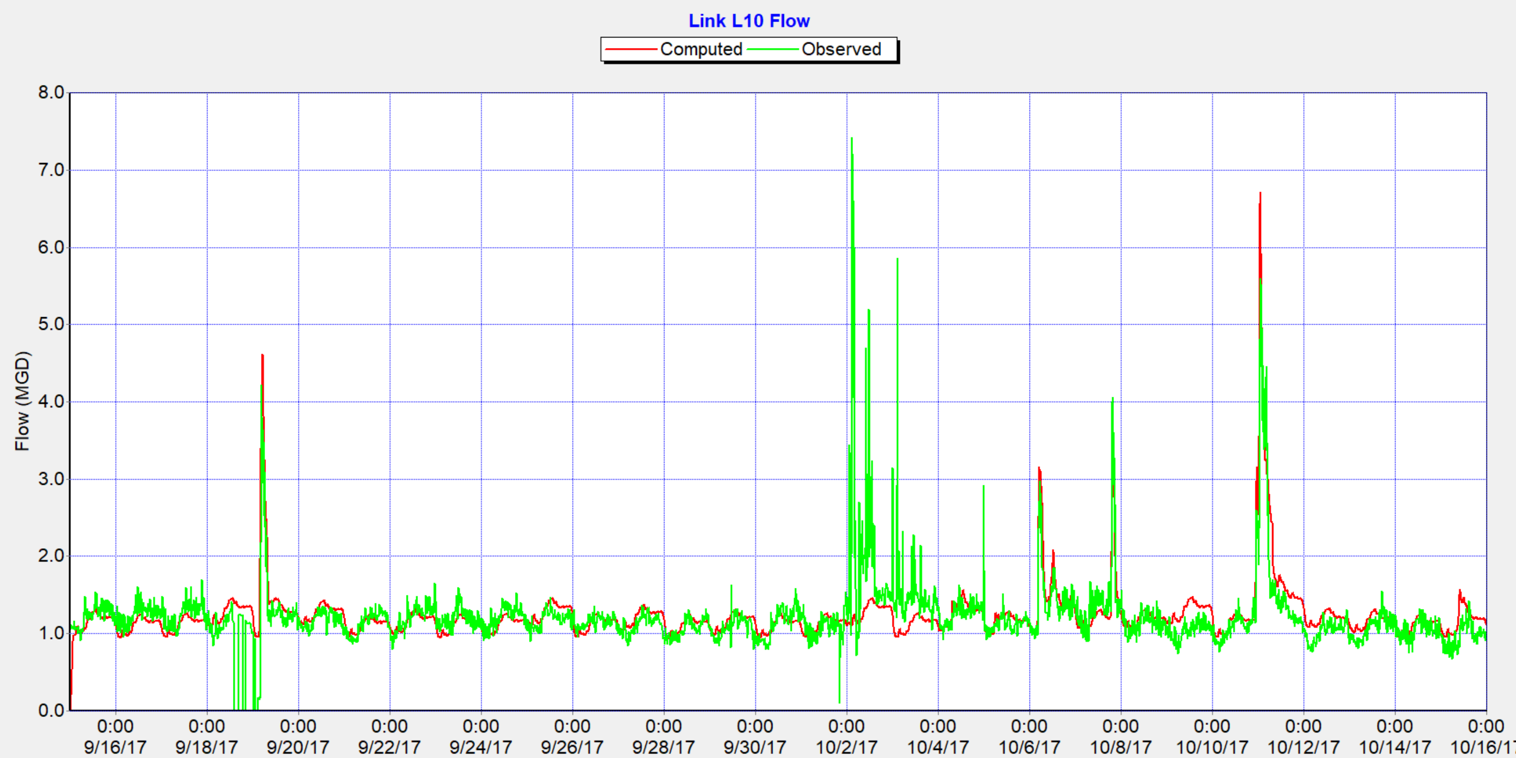


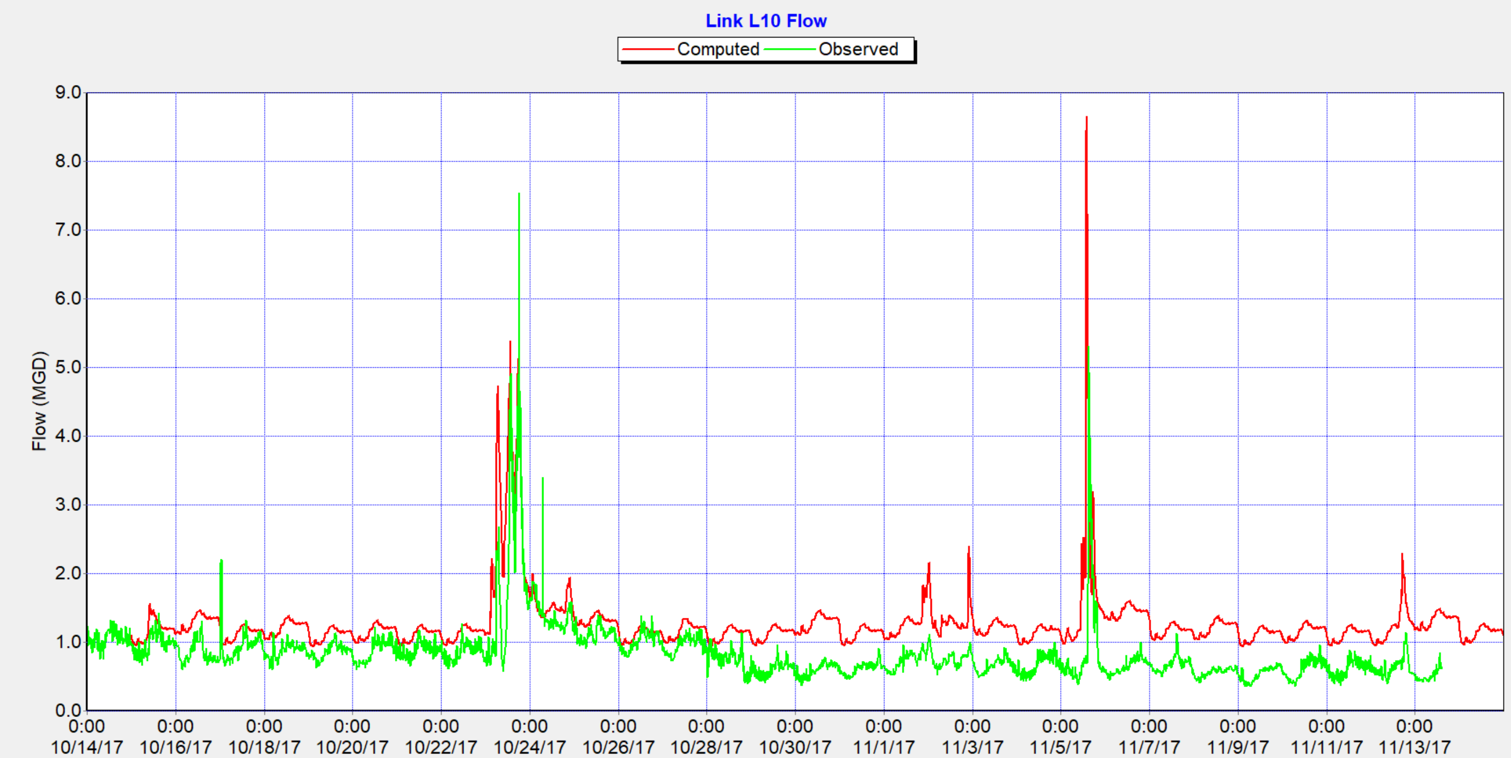
Meter 802 36-inch Influent: Depth (ft)



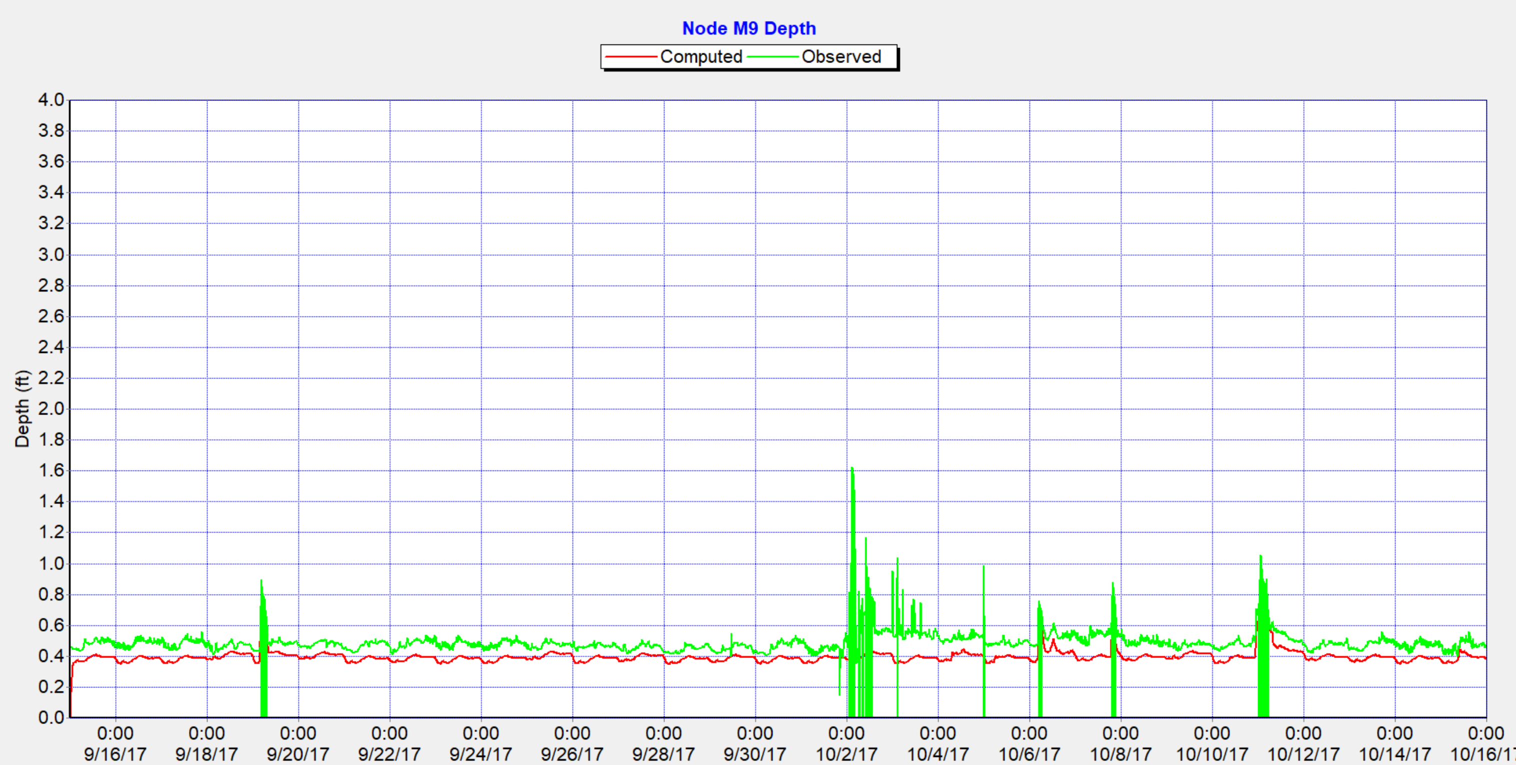


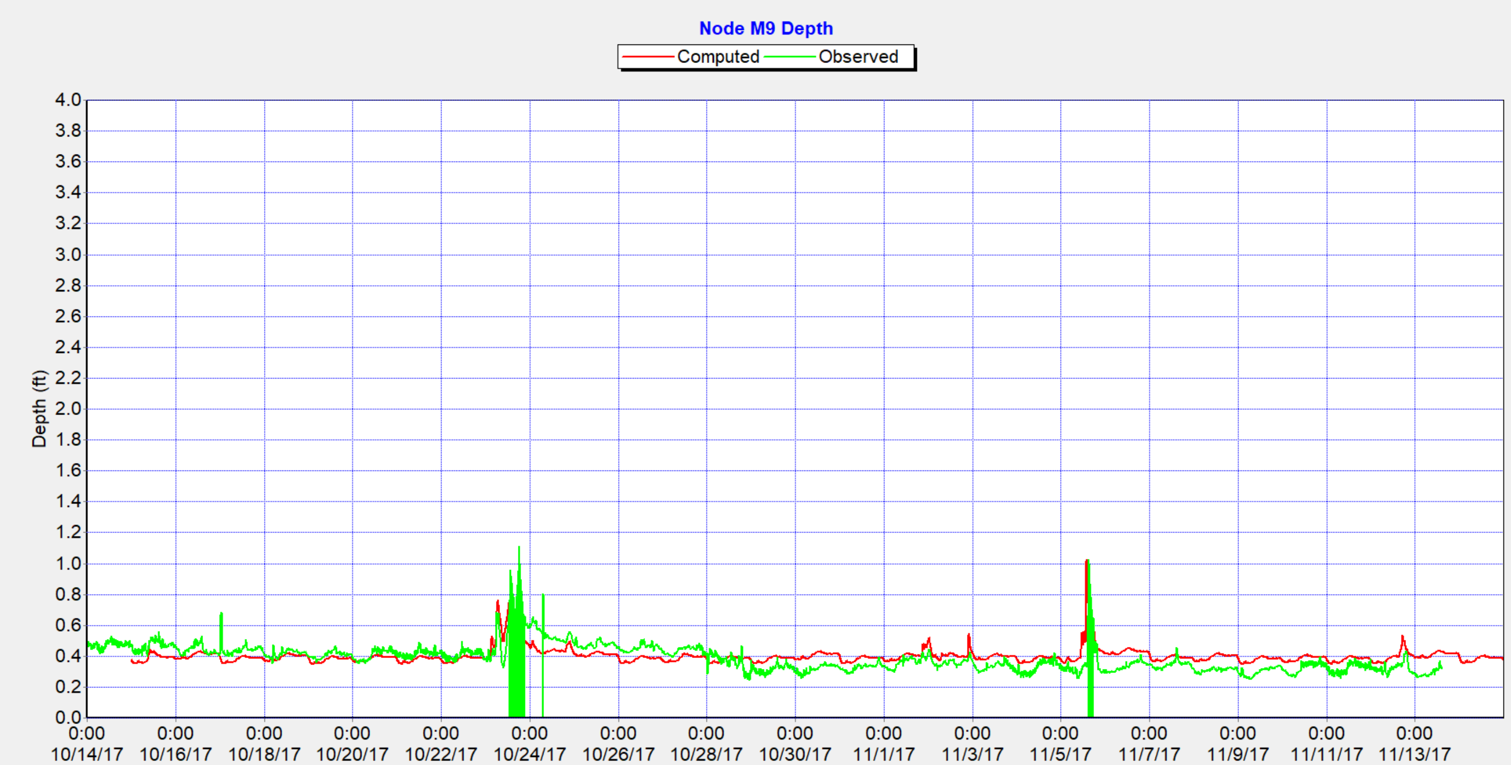
Meter M9 48-inch Influent: Flow (MGD)



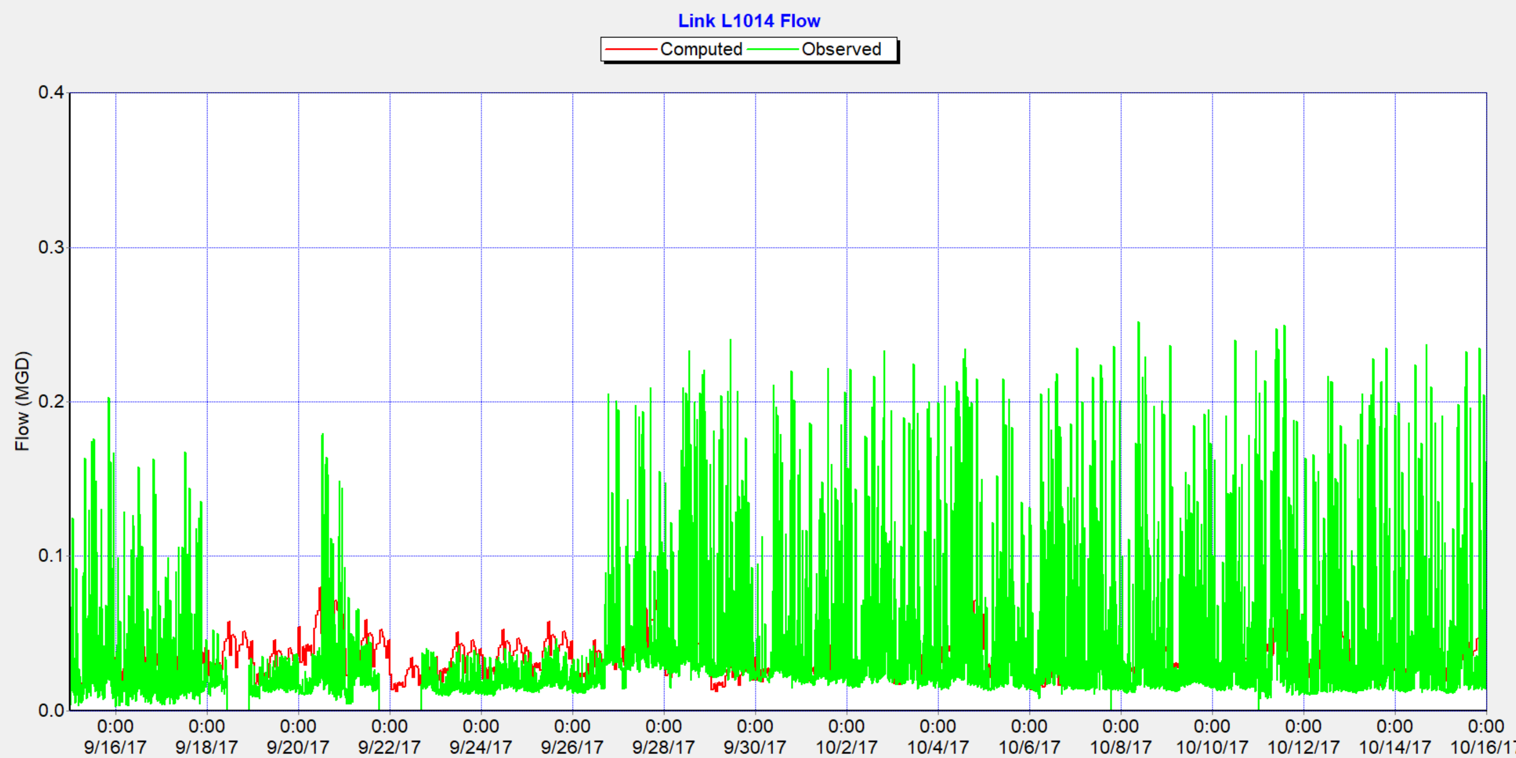


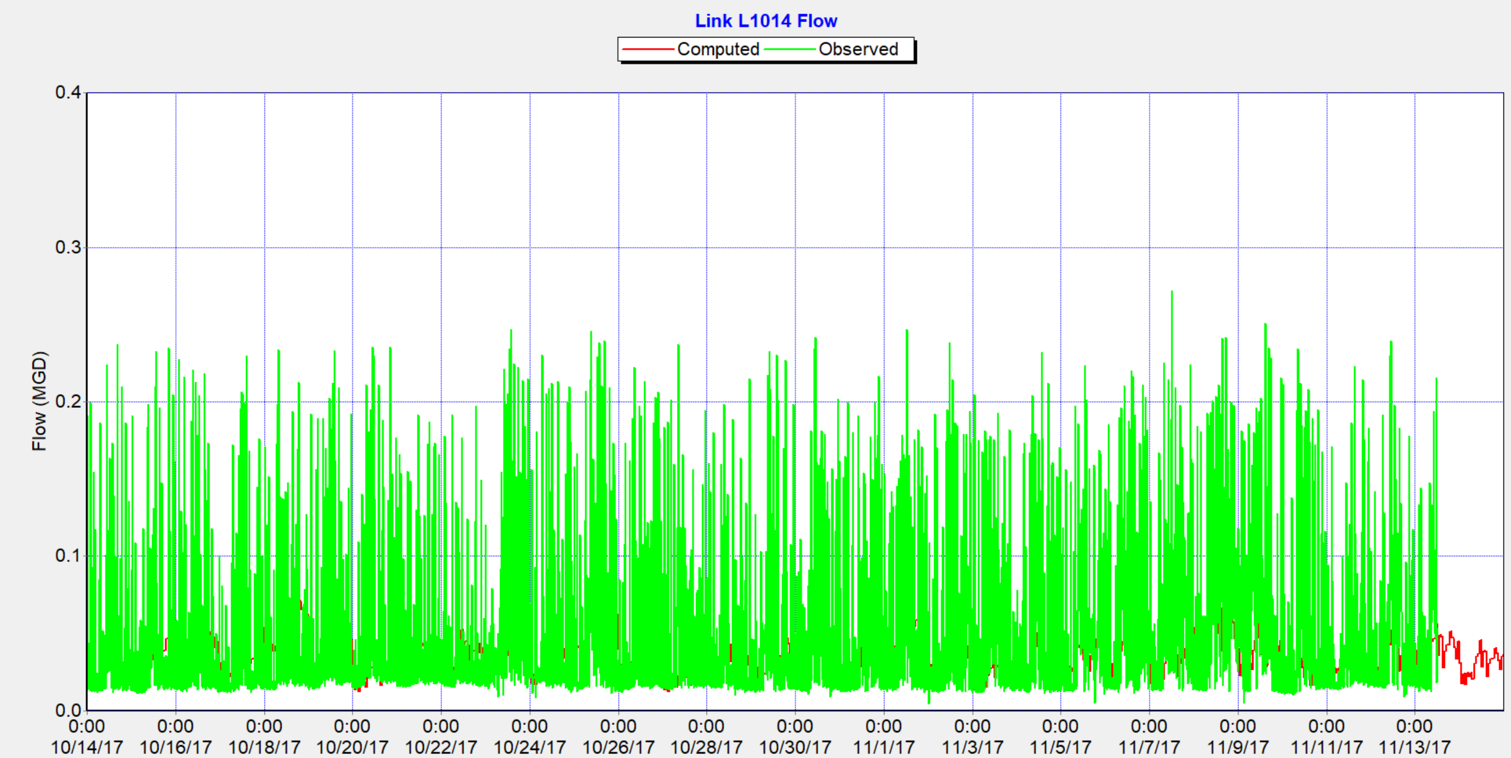
Meter M9 48-inch Influent: Depth (ft)



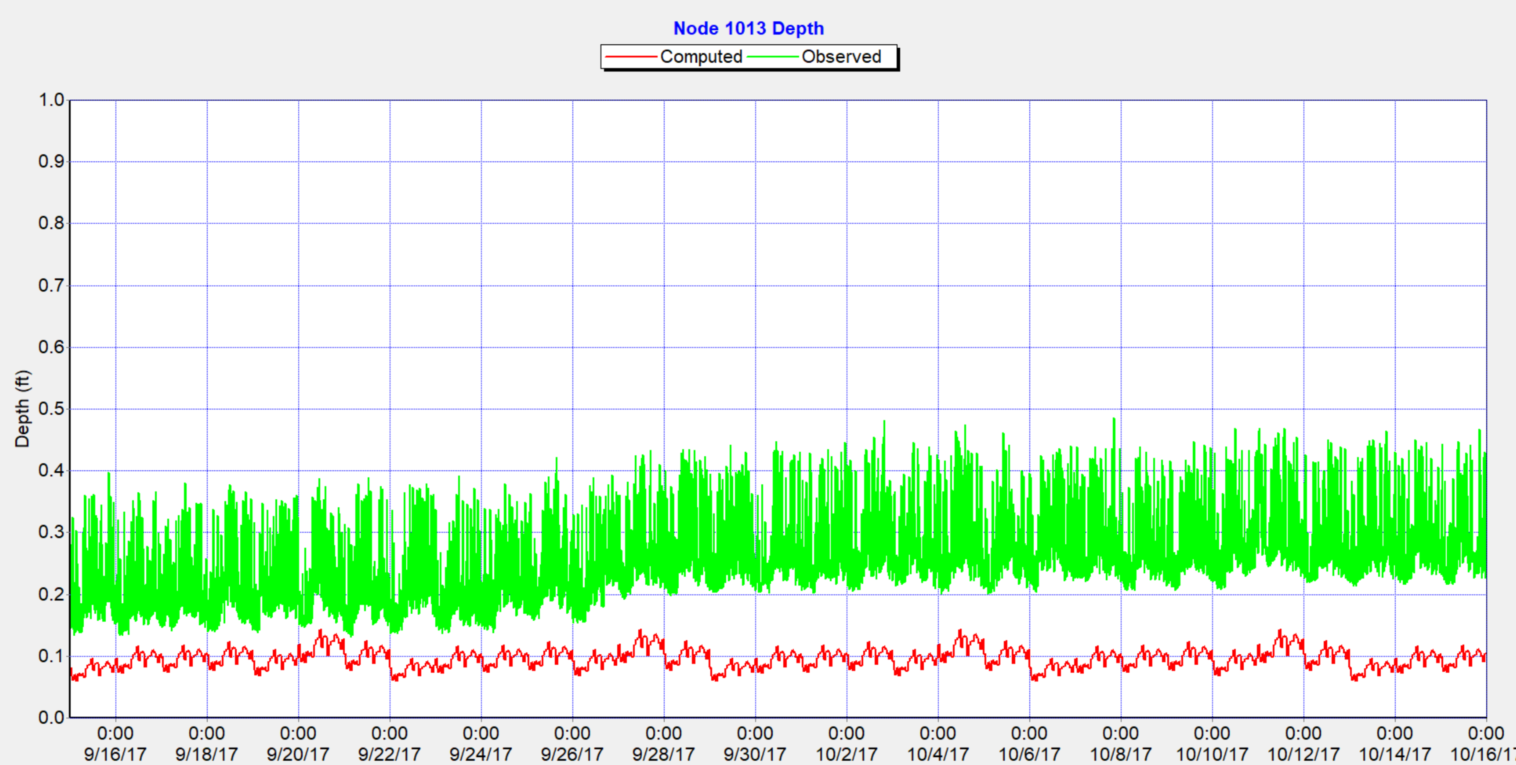


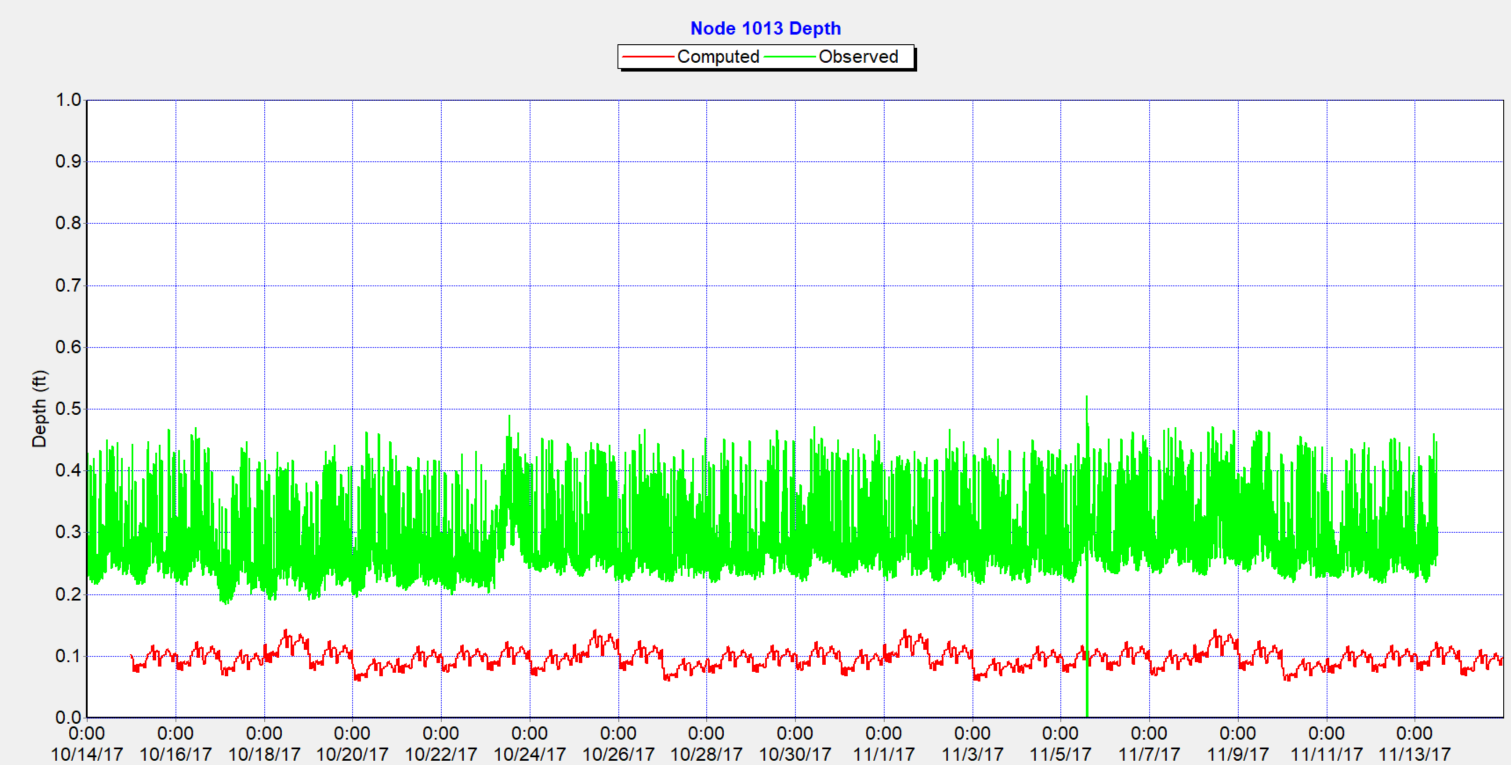
Meter 1013 12-inch Influent: Flow (MGD)



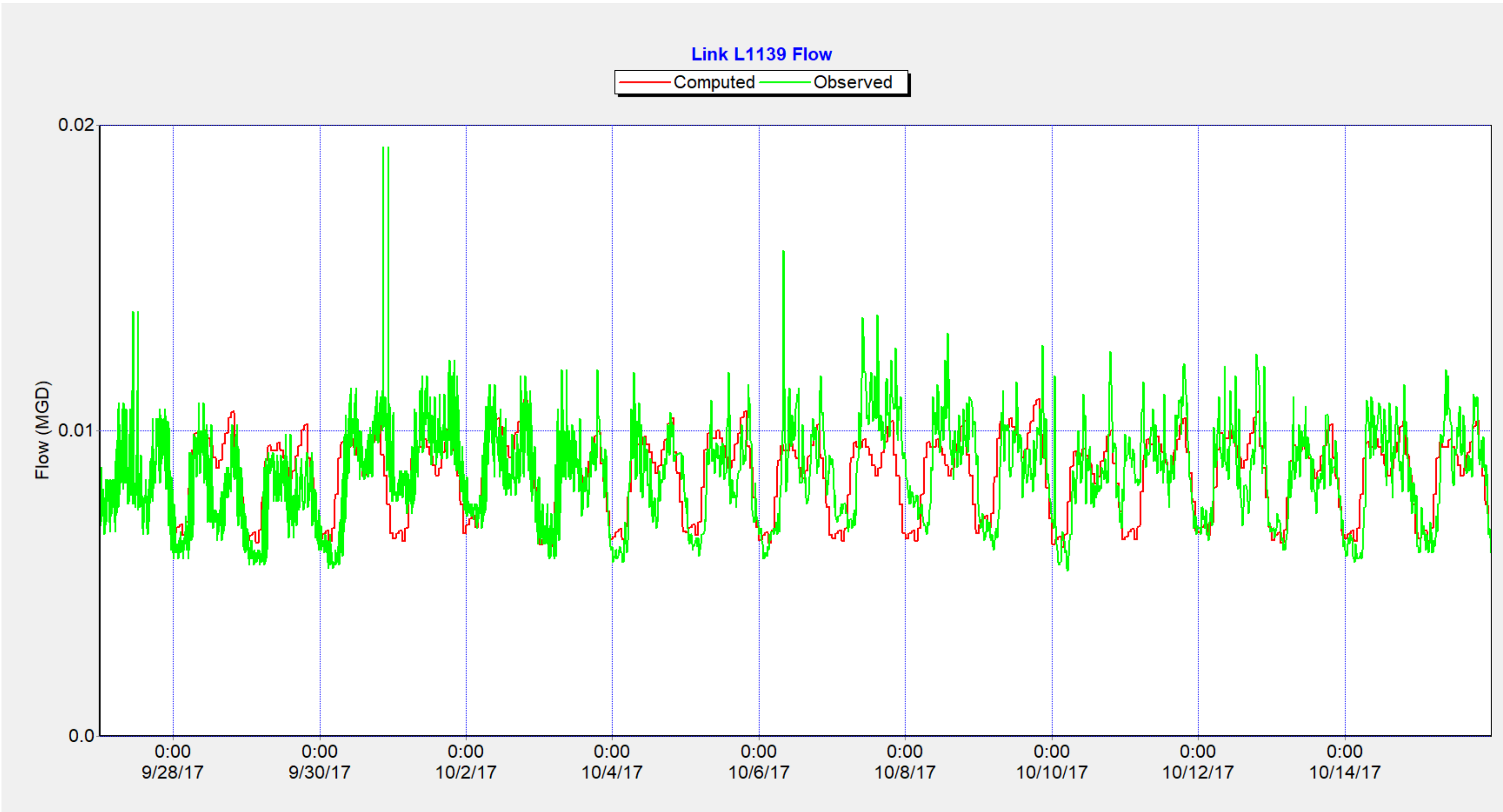


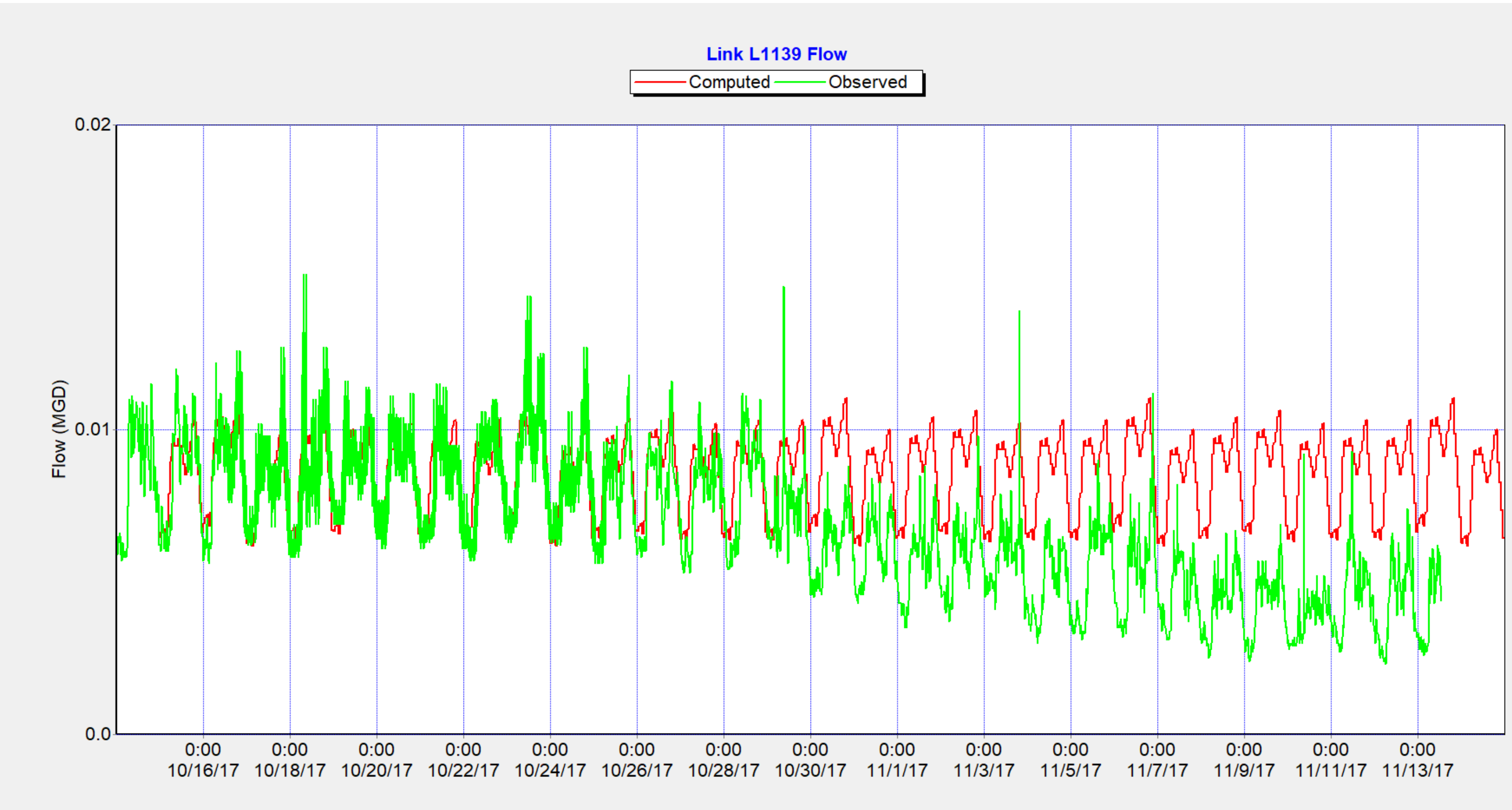
Meter 1013 12-inch Influent: Depth (ft)



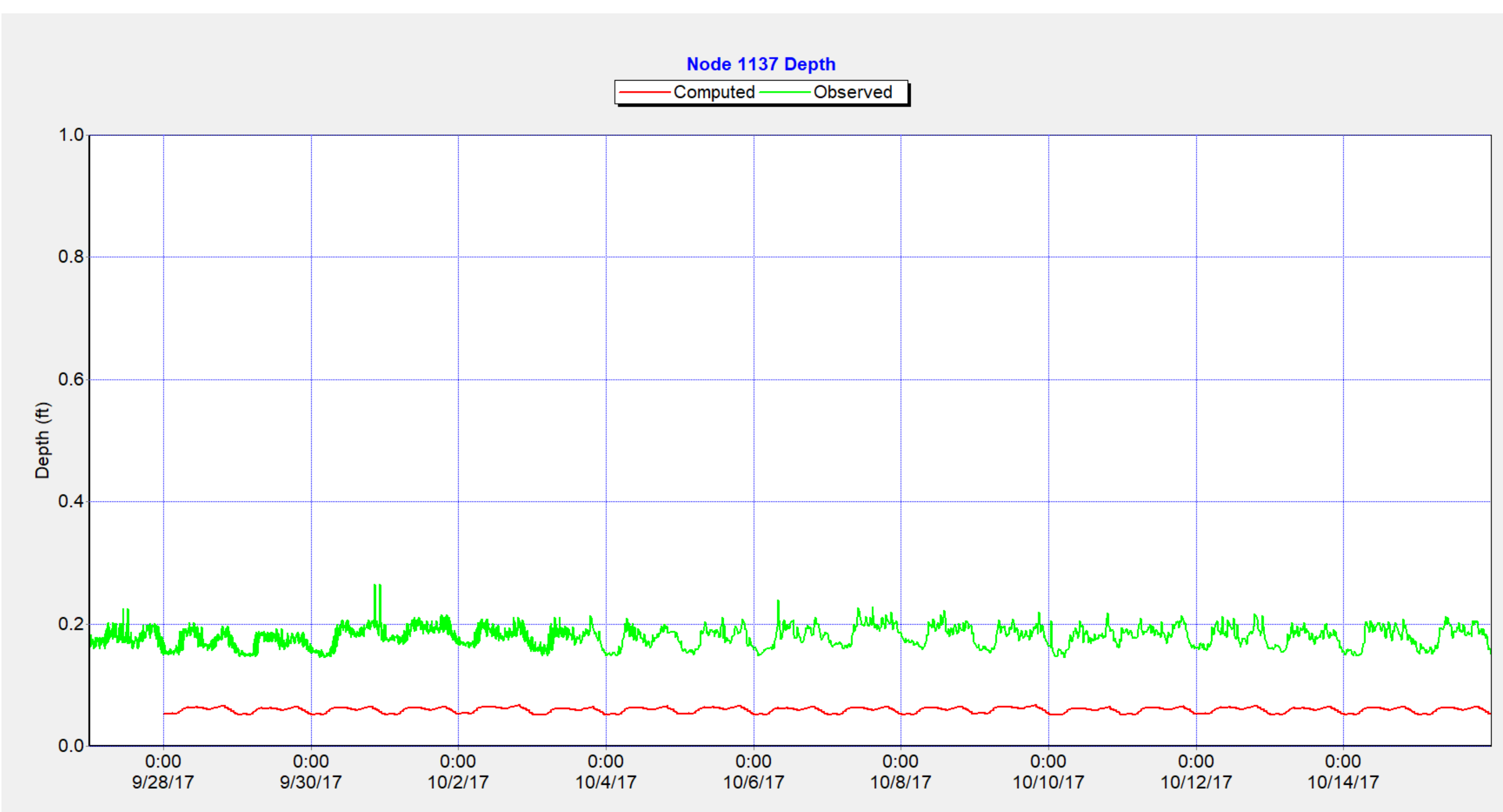


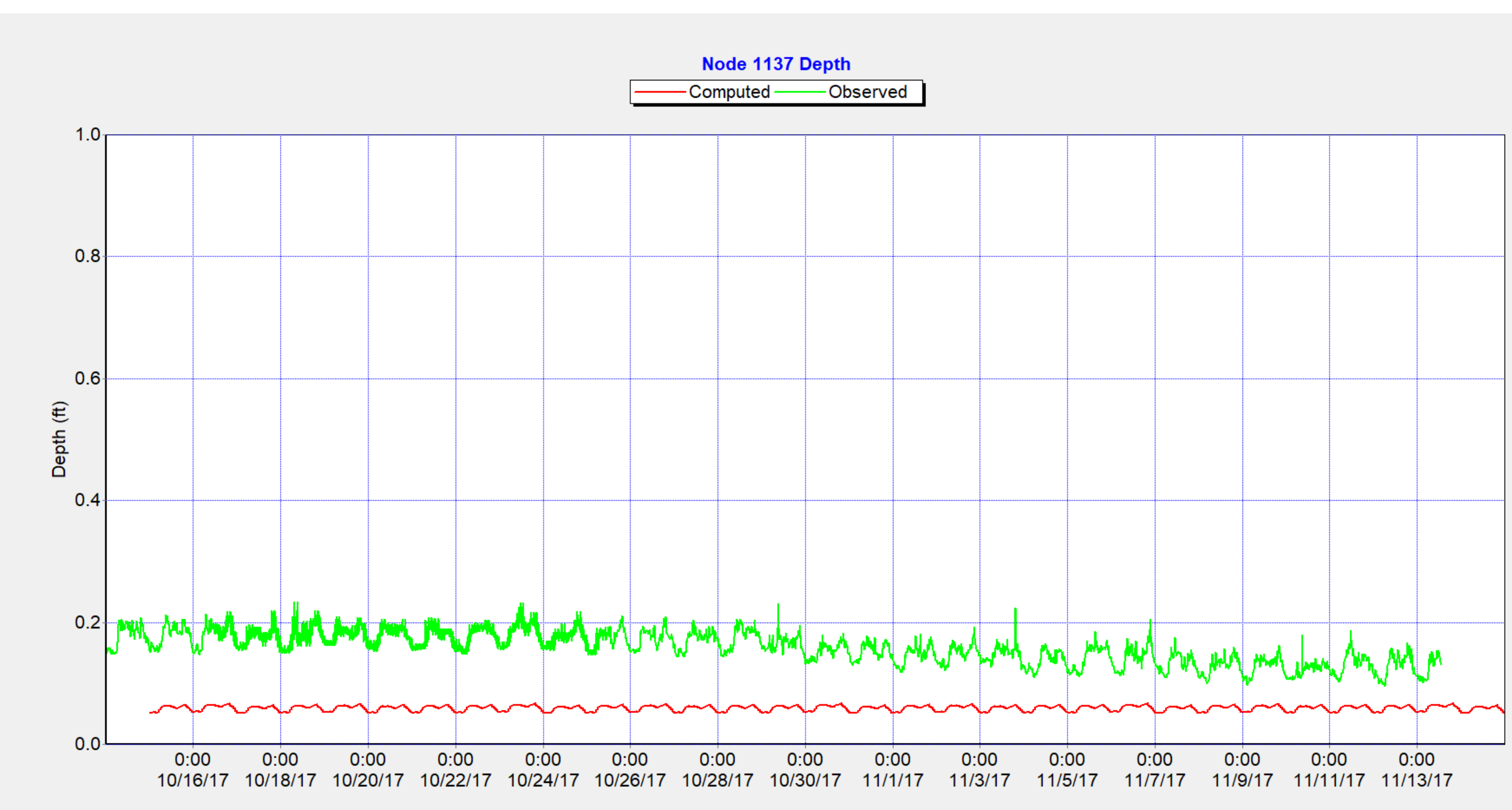
Meter 1137 12-inch Influent: Flow (MGD)



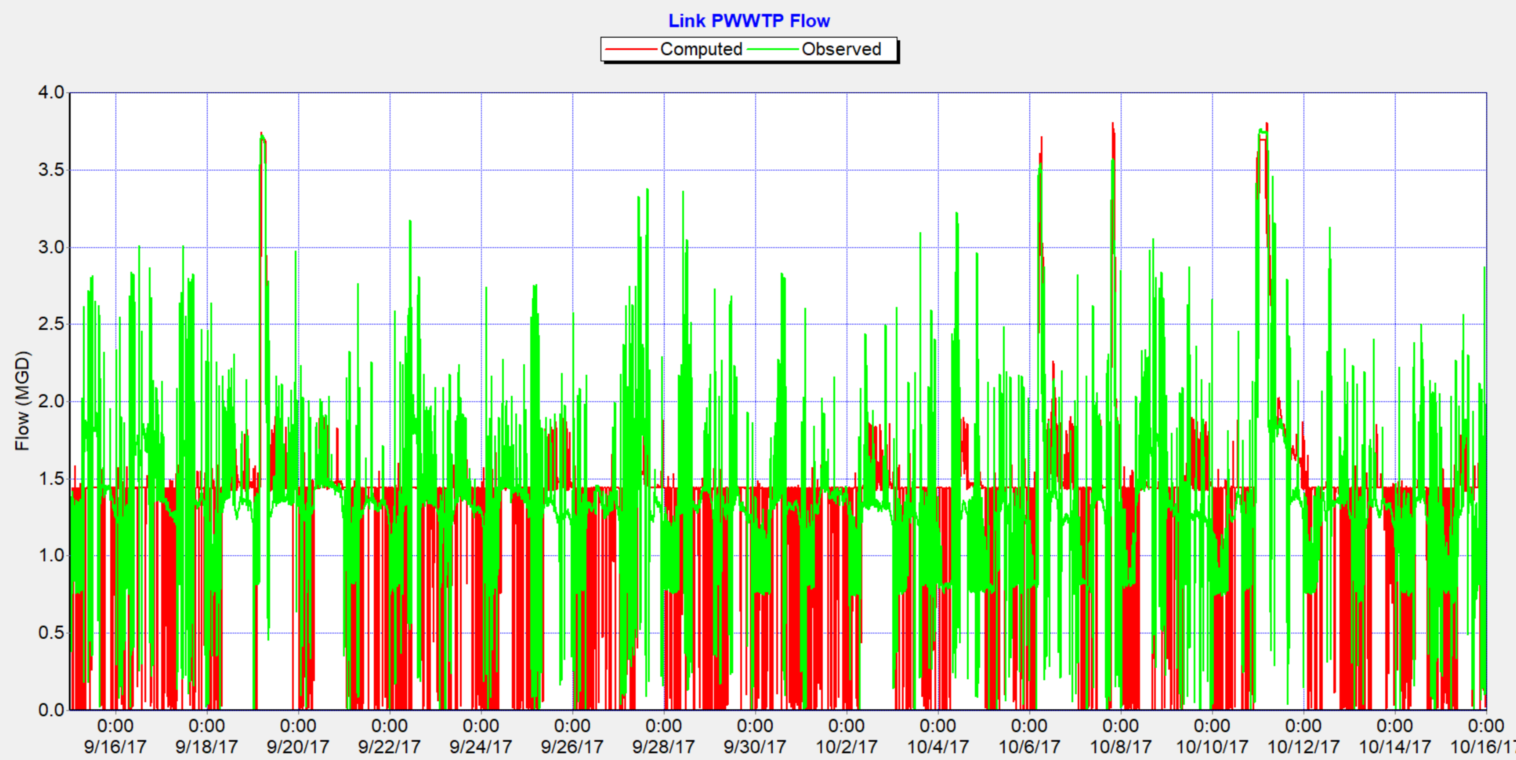


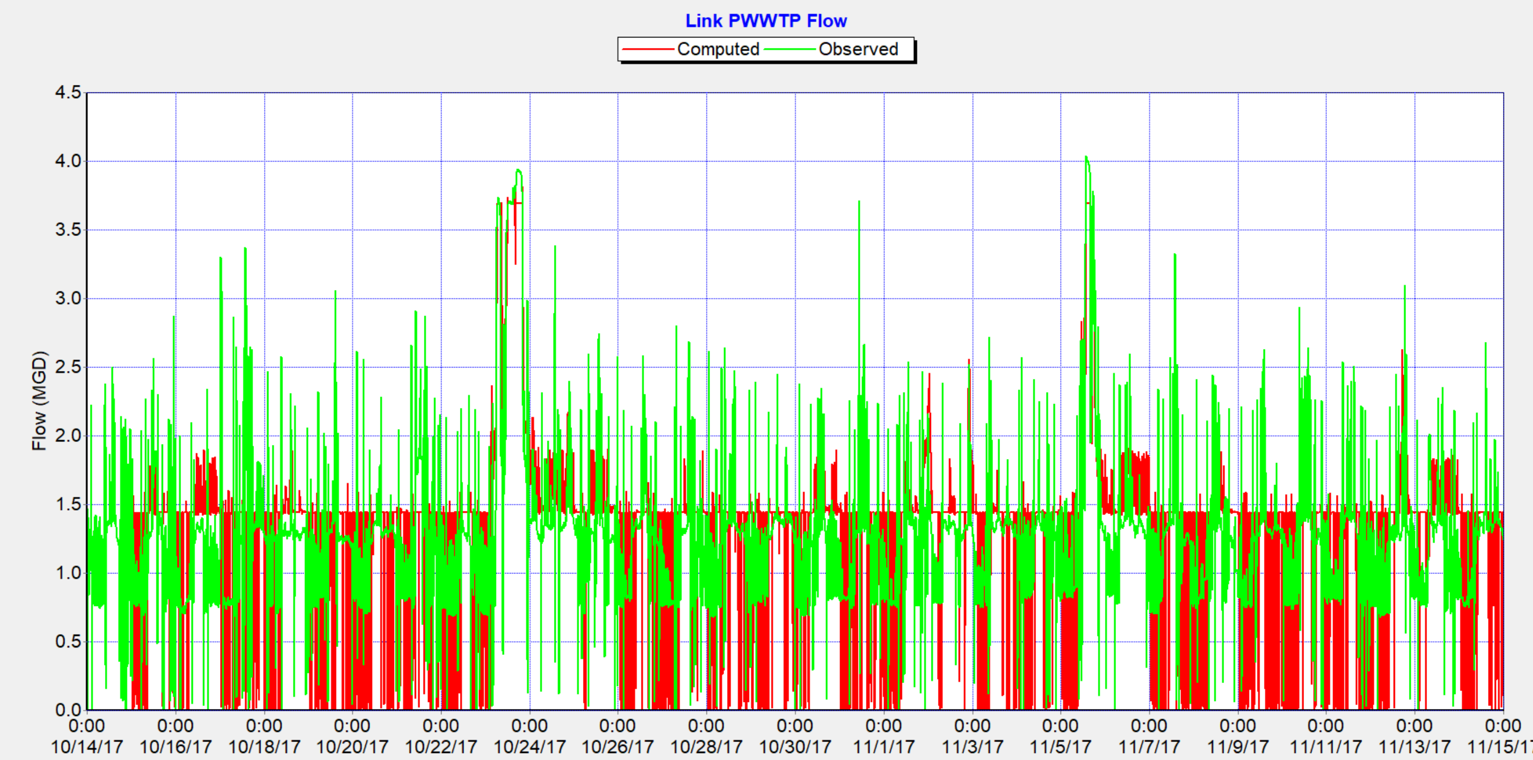
Meter 1137 12-inch Influent: Depth (ft)



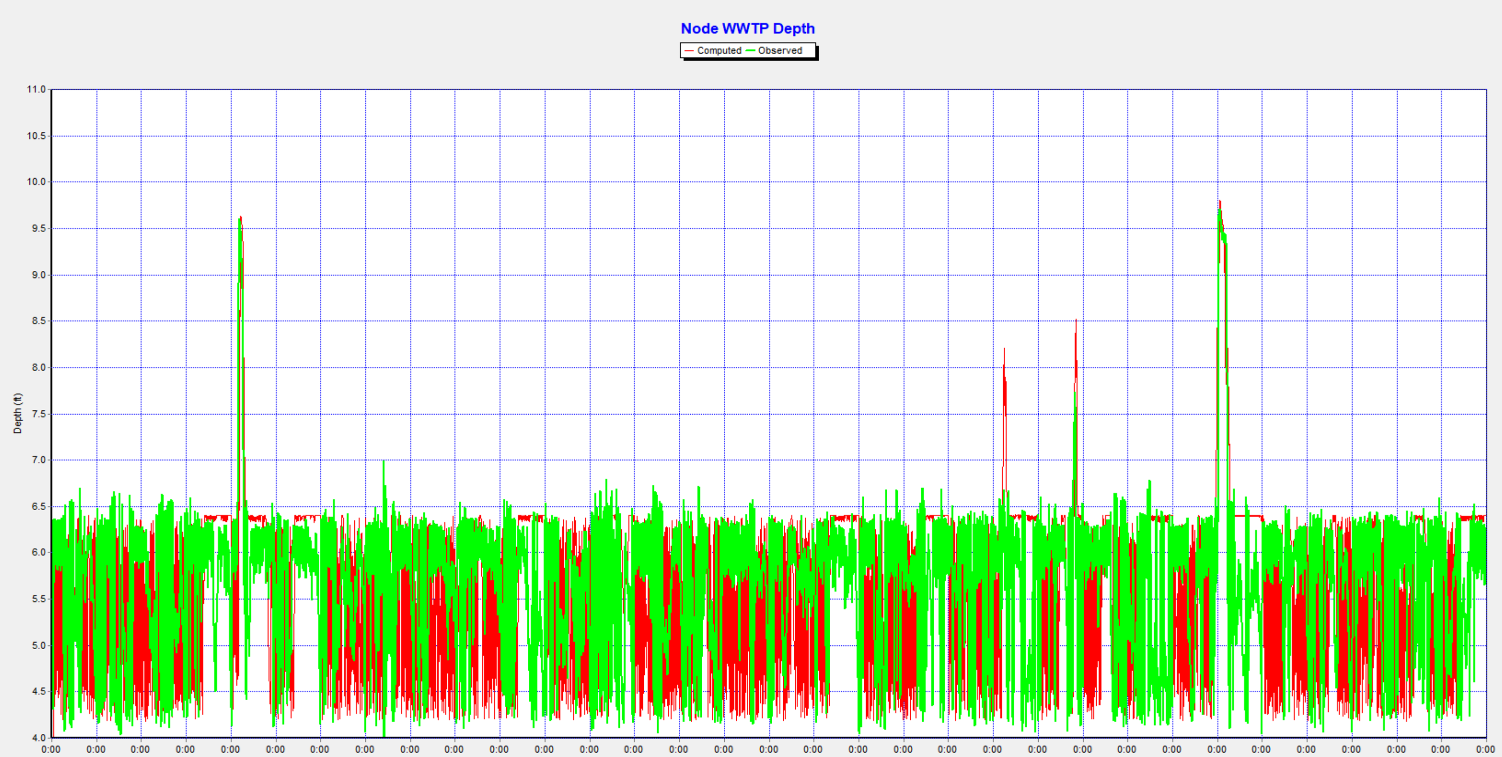


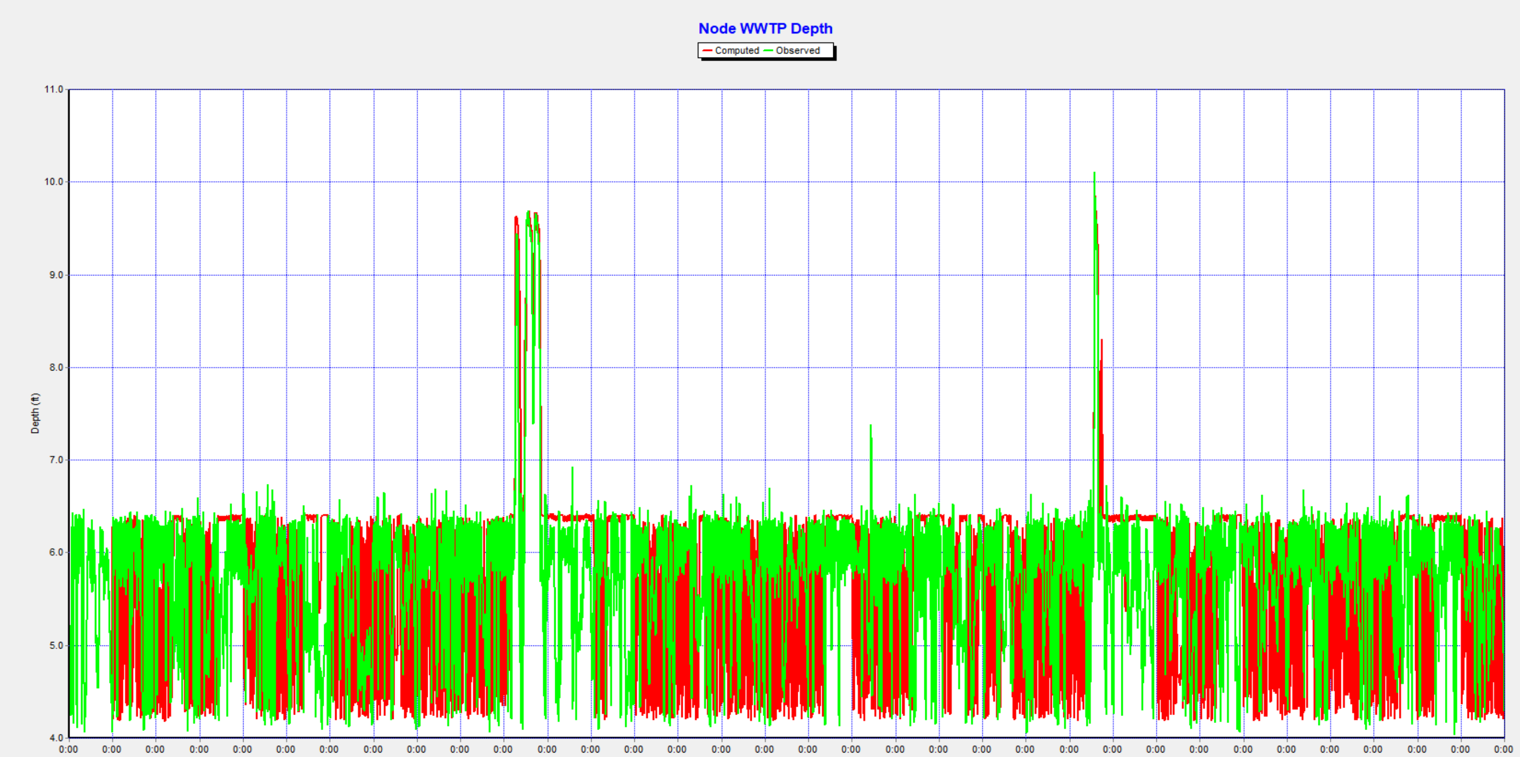
Meter WWTP Influent: Flow (MGD)





Meter WWTP Influent: Depth (ft)





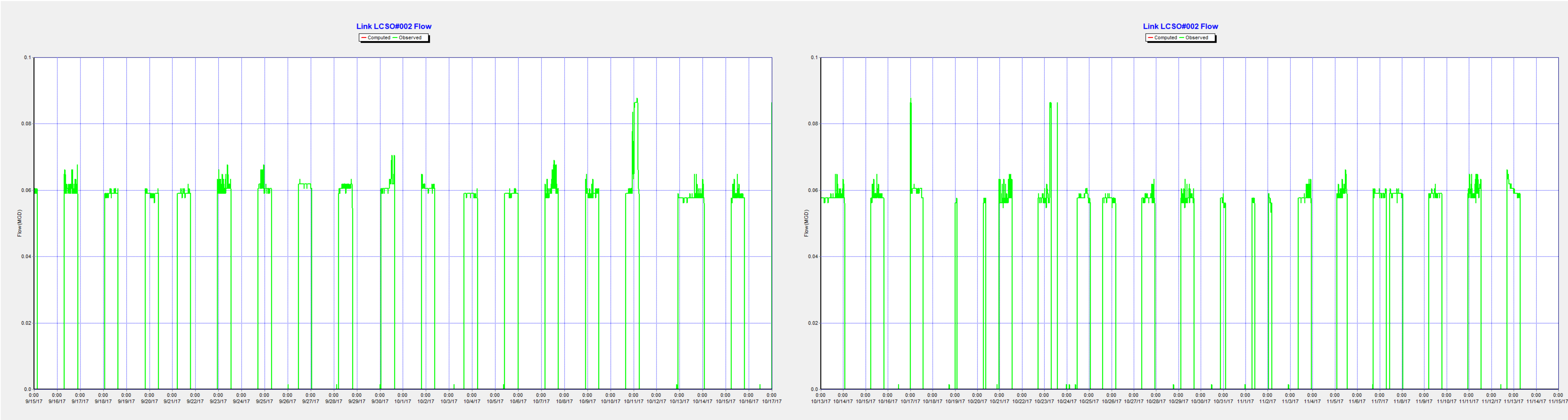
Meter CSO 001: Flow (MGD)

Flow data not available for this meter.

Meter CSO 001: Depth (ft)

Depth data not available for this meter.

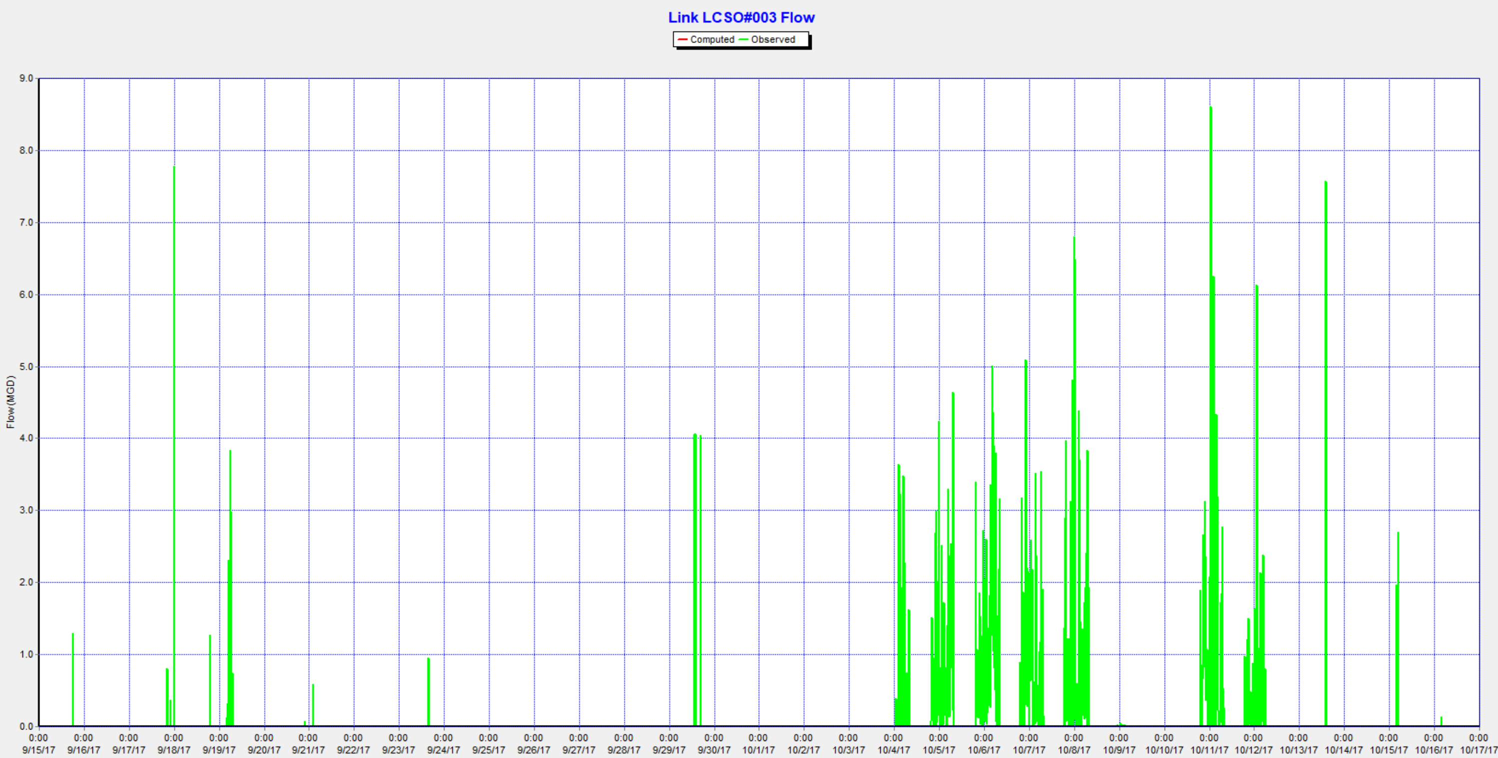
Meter CSO 002: Flow (MGD)

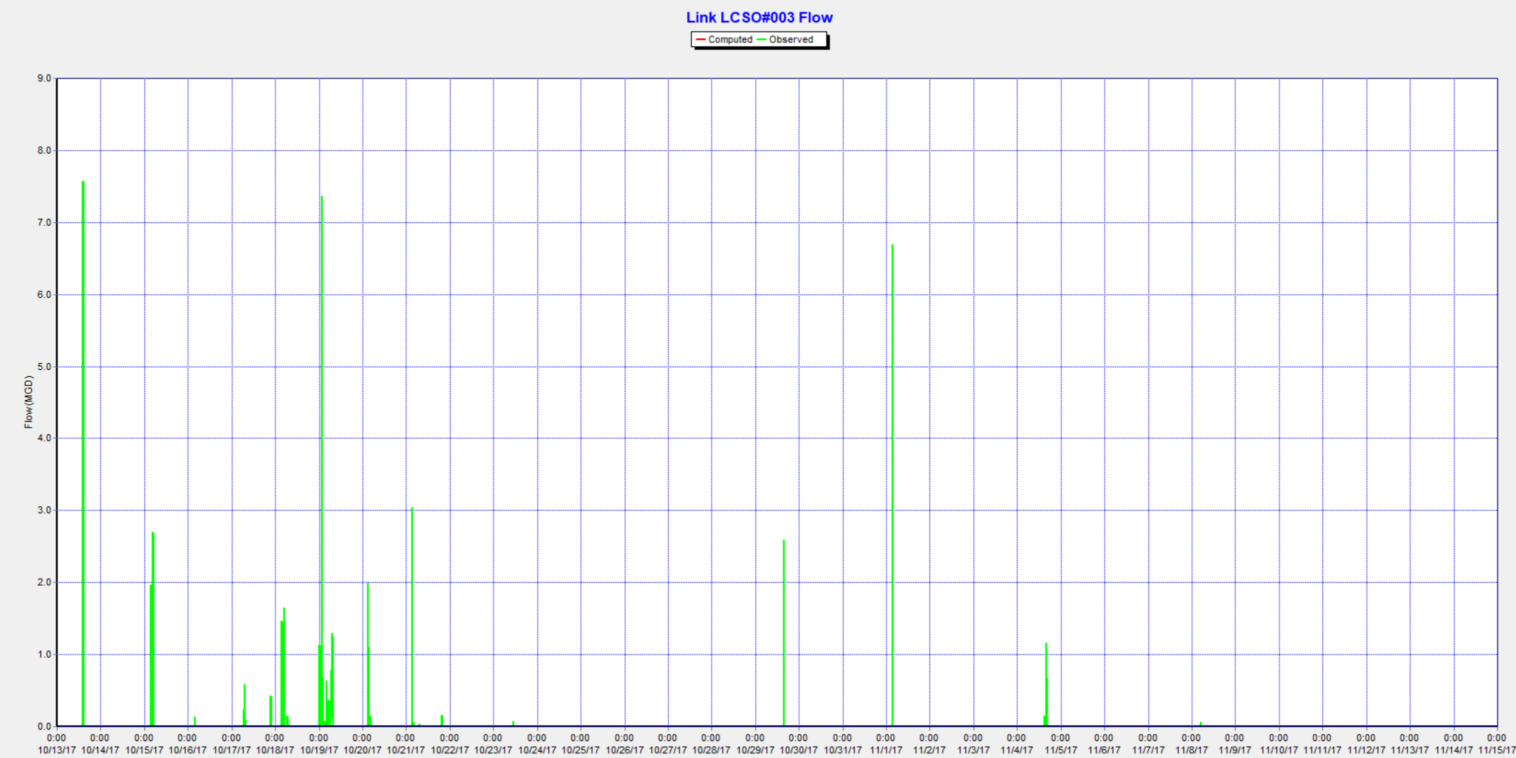


Meter CSO 002 Depth (ft)

Depth data not available for this meter.

Meter CSO 003: Flow (MGD)

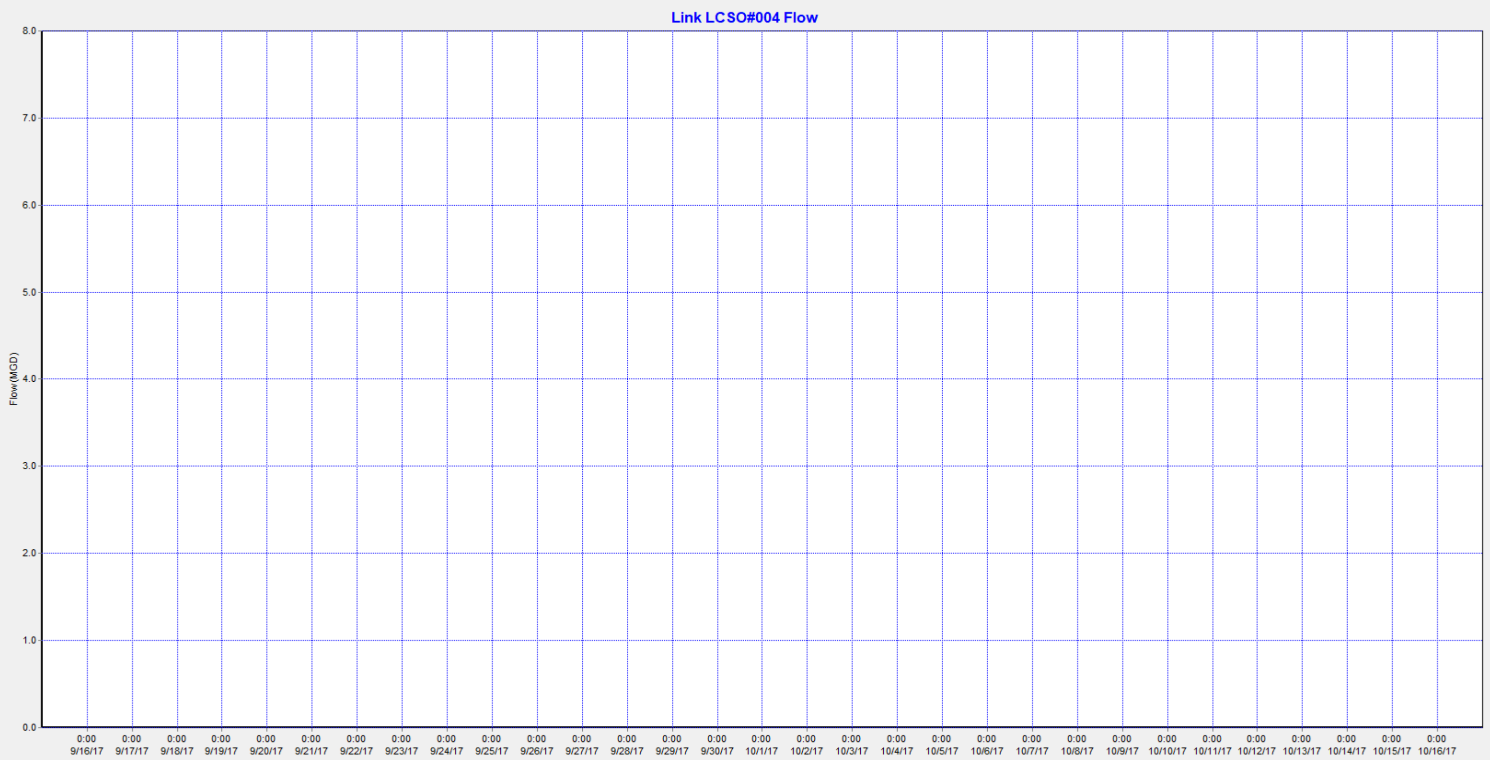


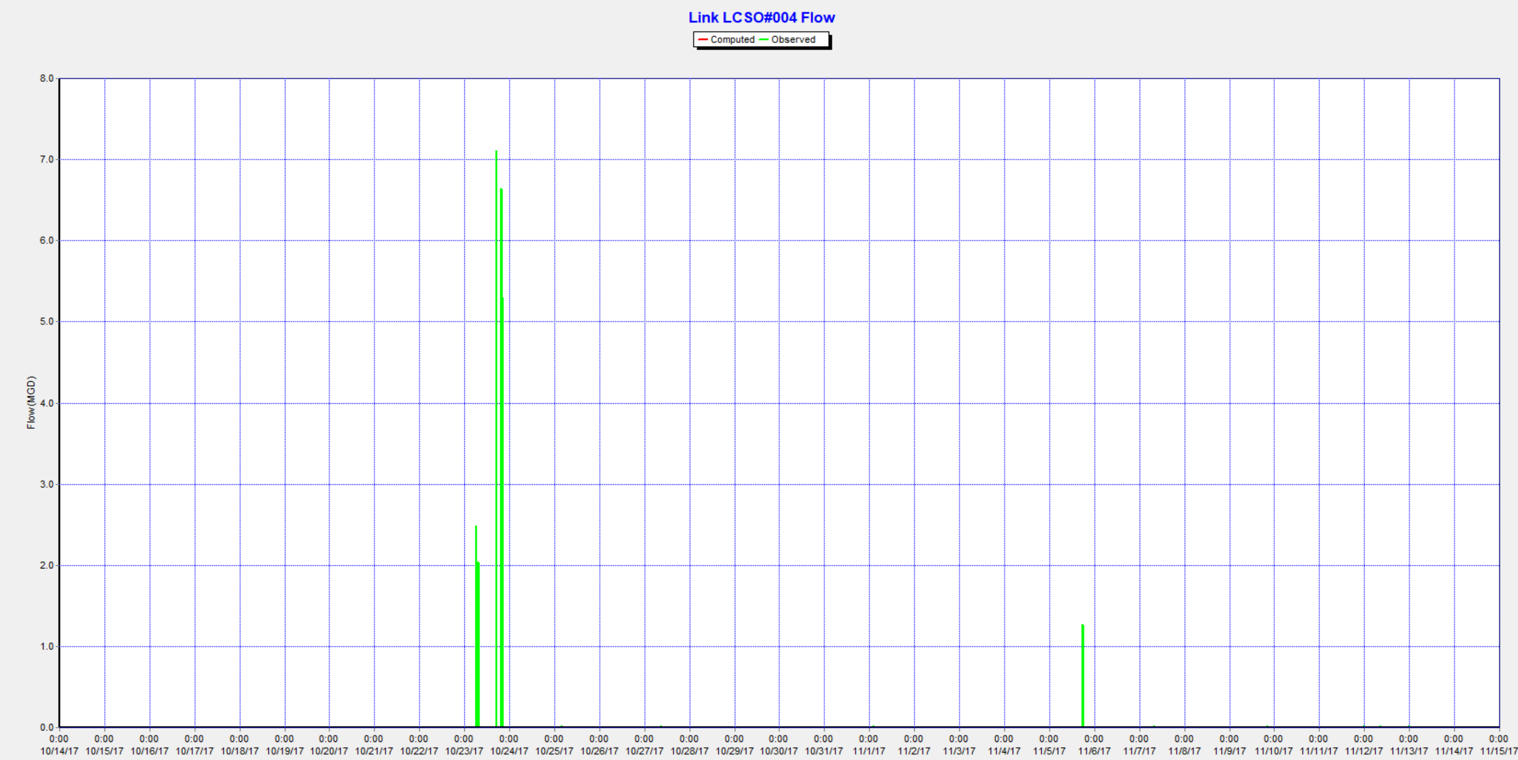


Meter CSO 003: Depth (ft)

Depth data not available for this meter.

Meter CSO 004: Flow (MGD)

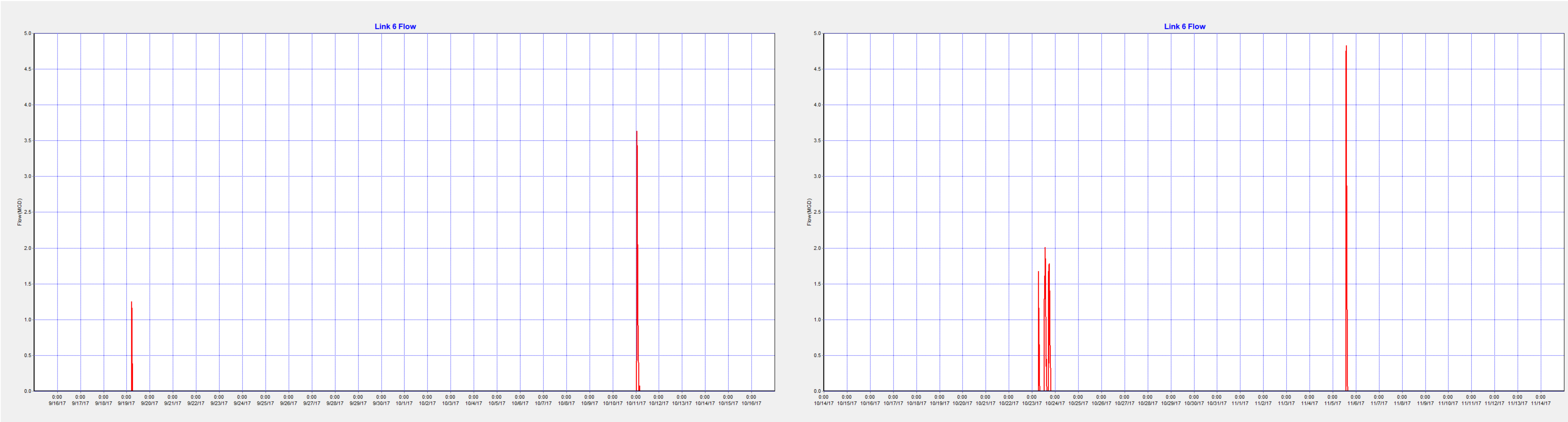




Meter CSO 004: Depth (ft)

Depth data not available for this meter.

Meter CSO 105: Flow (MGD)



Meter CSO 105: Depth (ft)

Dry weather depth data not available for this meter.

Appendix F

CSO LTCP Schedule

attractiveness of future financial packages, and any changes in the proposed implementation schedule would be communicated with IDEM OWQ. Alternative Solution 1 – Variation 3 is also illustrated in **Figure 0-1 – Selected Alternative Solution Alternative 1 – Variation 3**.

Table 0-1 – Selected Alternative Solution 1 – Variation 3: Phases

Project 1/Phase I – National Homes Drainage Improvements	**Activity**	**Completion Date**
	Construction	**August 2010**
Total Project 1/Phase I Cost	**$884,033**	
Project 1/Phase II – National Homes Drainage Improvements	**Activity**	**Completion Date**
	Construction	**November 2011**
Total Project 1/Phase II Cost	**$1,779,075**	
Project 2a – Bryans Lift Station (LS 02) Upgrade & Wet Weather Storage Facility	**Activity**	**Completion Date**
	Construction	**July 2012**
Total Project 2a Cost	**$1,220,794**	
Project 2b – Bryan's Lift Station Force Main & Maple St. Relief Sewer	**Activity**	**Completion Date**
	Construction	**August 2015**
Total Project 2b Cost	**$2,079,265**	
Project 3 – Wastewater Treatment Plant Improvements	**Activity**	**Completion Date**
	Construction	**August 2017**
Total Project 3 Cost	**$11,285,350**	
Project 4a – Bluewater Drive Interceptor	**Activity**	**Completion Date**
• 745-LF of 15" Dia. Sanitary Sewer • 1,600-LF of 60" Dia. Sanitary Sewer	**Preliminary Engineering/Funding**	**2020**
	Design/Permitting	**2021**

• 305-LF of 96" Dia. Sanitary Sewer • CSO 001 Modifications	**Construction***	**2022***
Total Project 4a Cost	**$4,075,033**	
Project 4b – Maple Street Interceptor Extension	**Activity**	**Completion Date**
• 2,140-LF of 24" Dia. Sanitary Sewer • 445-LF of 21" Dia. Sanitary Sewer • CSO 007 Modifications • STR 401 Modifications	**Preliminary Engineering/Funding**	**2022**
	Design/Permitting	**2023**
	Construction*	**2024***
	Post Construction Monitoring	**2025**
Total Project 4b Cost	**$2,616,281**	
Project 5 – Wet Weather Storage and Treatment	**Activity**	**Completion Date**
• 1.07 MG Storage at WWTP (0.62 MG Active Storage) • Wet Weather Treatment at WWTP • 30 MGD Mechanical Screen • WWTP & CSO 105 Effluent Sewer Improvements	**Preliminary Engineering/Funding**	**2026**
	Design/Permitting	**2027**
	Construction*	**2028***
	Post Construction Monitoring	**2029**
Total Project 5 Cost	**$12,185,250**	
Total CSO LTCP Project Cost	**$36,125,081**	

*Construction to begin on or before January 1st of corresponding year, and construction to be complete on or before December 31st of corresponding year.

Appendix G

Proposed Alternatives Cost Estimates

Monticello Collection System Improvements Alternatives

Construction Cost Estimates

ALTERNATIVE 1					
ITEM	**DESCRIPTION**	**QNTY**	**UNIT**	**UNIT COST ($)**	**TOTAL COST ($)**
1	MOBILIZATION / DEMOBILIZATION (5%)	1	LS	380,000	380,000
2	CONTRACTOR CONSTRUCTION ENGINEERING (2%)	1	LS	149,000	149,000
3	MISC. UTILITY RELOCATION ALLOWANCE	1	LS	75,000	75,000
4	MAINTENANCE AND PROTECTION OF TRAFFIC	1	LS	100,000	100,000
5	TEMPORARY EROSION CONTROL	1	LS	100,000	100,000
6	BYPASS PUMPING	1	LS	300,000	300,000
7	18-INCH DIA. SANITARY SEWER	540	LF	300	162,000
8	12-INCH DIA. COMBINED SEWER	945	LF	365	344,925
9	15-INCH DIA. COMBINED SEWER	1,060	LF	405	429,300
10	18-INCH DIA. COMBINED SEWER	865	LF	445	384,925
11	24-INCH DIA. COMBINED SEWER	1,165	LF	520	605,800
12	30-INCH DIA. COMBINED SEWER	1,495	LF	600	897,000
13	48-INCH DIA. EFFLUENT SEWER	1,510	LF	900	1,359,000
14	60-INCH DIA. COMBINED SEWER	1,905	LF	1,075	2,047,875
15	CSO MODIFICAITONS	2	EA	120,000	240,000
16	TIOGA ROAD MULTI-PURPOSE TRAIL	1	LS	400,000	400,000
				CONSTRUCTION COST ($) =	**7,974,825**
				10% CONSTRUCTION CONTINGENCY ($) =	**797,483**
				TOTAL CONSTRUCTION COST ($) =	**8,772,308**
				25% NON-CONSTRUCTION COSTS ($) =	**2,193,077**
				TOTAL COST ($) =	**10,965,385**

ALTERNATIVE 2					
ITEM	**DESCRIPTION**	**QNTY**	**UNIT**	**UNIT COST ($)**	**TOTAL COST ($)**
1	MOBILIZATION / DEMOBILIZATION (5%)	1	LS	409,000	409,000
2	CONTRACTOR CONSTRUCTION ENGINEERING (2%)	1	LS	161,000	161,000
3	MISC. UTILITY RELOCATION ALLOWANCE	1	LS	100,000	100,000
4	MAINTENANCE AND PROTECTION OF TRAFFIC	1	LS	130,000	130,000
5	TEMPORARY EROSION CONTROL	1	LS	115,000	115,000
6	BYPASS PUMPING	1	LS	350,000	350,000
7	18-INCH DIA. STORM SEWER	540	LF	300	162,000
8	12-INCH DIA. COMBINED SEWER	945	LF	365	344,925
9	15-INCH DIA. COMBINED SEWER	1,060	LF	405	429,300
10	18-INCH DIA. COMBINED SEWER	865	LF	445	384,925
11	24-INCH DIA. COMBINED SEWER	1,165	LF	520	605,800
12	30-INCH DIA. COMBINED SEWER	3,235	LF	600	1,941,000
13	36-INCH DIA. COMBINED SEWER	2,140	LF	680	1,455,200
14	48-INCH DIA. EFFLUENT SEWER	1,510	LF	900	1,359,000
15	CSO MODIFICAITONS	2	EA	120,000	240,000
16	TIOGA ROAD MULTI-PURPOSE TRAIL	1	LS	400,000	400,000
				CONSTRUCTION COST ($) =	**8,587,150**
				10% CONSTRUCTION CONTINGENCY ($) =	**858,715**
				TOTAL CONSTRUCTION COST ($) =	**9,445,865**
				25% NON-CONSTRUCTION COSTS ($) =	**2,361,466**
				TOTAL COST ($) =	**11,807,331**

ALTERNATIVE 3					
ITEM	DESCRIPTION	QNTY	UNIT	UNIT COST ($)	TOTAL COST ($)
1	MOBILIZATION / DEMOBILIZATION (5%)	1	LS	672,000	672,000
2	CONTRACTOR CONSTRUCTION ENGINEERING (2%)	1	LS	264,000	264,000
3	MISC. UTILITY RELOCATION ALLOWANCE	1	LS	100,000	100,000
4	MAINTENANCE AND PROTECTION OF TRAFFIC	1	LS	125,000	125,000
5	TEMPORARY EROSION CONTROL	1	LS	120,000	120,000
6	BYPASS PUMPING	1	LS	300,000	300,000
7	18-INCH DIA. STORM SEWER	540	LF	300	162,000
8	12-INCH DIA. COMBINED SEWER	945	LF	365	344,925
9	15-INCH DIA. COMBINED SEWER	1,060	LF	405	429,300
10	18-INCH DIA. COMBINED SEWER	865	LF	445	384,925
11	24-INCH DIA. COMBINED SEWER	1,165	LF	520	605,800
12	30-INCH DIA. COMBINED SEWER	3,480	LF	600	2,088,000
13	48-INCH DIA. EFFLUENT SEWER	1,510	LF	900	1,359,000
14	CSO MODIFICAITONS	2	EA	120,000	240,000
15	BRYAN'S LIFT STATION 15 MGD HIGH RATE TREATMENT	1	LS	5,400,000	5,400,000
16	BRYANS LIFT SATION 0.170 MG STORAGE	1	LF	1,100,000	1,100,000
17	TIOGA ROAD MULTI-PURPOSE TRAIL	1	LS	400,000	400,000
				CONSTRUCTION COST ($) =	**14,094,950**
				10% CONSTRUCTION CONTINGENCY ($) =	**1,409,495**
				TOTAL CONSTRUCTION COST ($) =	**15,504,445**
				25% NON-CONSTRUCTION COSTS ($) =	**3,876,111**
				TOTAL COST ($) =	**19,380,556**

ALTERNATIVE 4					
ITEM	**DESCRIPTION**	**QNTY**	**UNIT**	**UNIT COST ($)**	**TOTAL COST ($)**
1	MOBILIZATION / DEMOBILIZATION (5%)	1	LS	542,000	542,000
2	CONTRACTOR CONSTRUCTION ENGINEERING (2%)	1	LS	213,000	213,000
3	MISC. UTILITY RELOCATION ALLOWANCE	1	LS	100,000	100,000
4	MAINTENANCE AND PROTECTION OF TRAFFIC	1	LS	125,000	125,000
5	TEMPORARY EROSION CONTROL	1	LS	120,000	120,000
6	BYPASS PUMPING	1	LS	300,000	300,000
7	18-INCH DIA. STORM SEWER	540	LF	300	162,000
8	12-INCH DIA. COMBINED SEWER	945	LF	365	344,925
9	15-INCH DIA. COMBINED SEWER	1,060	LF	405	429,300
10	18-INCH DIA. COMBINED SEWER	2,195	LF	445	976,775
11	24-INCH DIA. COMBINED SEWER	1,165	LF	520	605,800
12	30-INCH DIA. COMBINED SEWER	1,080	LF	600	648,000
13	48-INCH DIA. COMBINED SEWER	1,905	LF	875	1,666,875
14	48-INCH DIA. EFFLUENT SEWER	1,510	LF	900	1,359,000
15	CSO MODIFICATIONS	2	EA	120,000	240,000
16	10.5 MGD WET WEATHER LIFT STATION	1	LF	3,530,000	3,530,000
17	TIOGA ROAD MULTI-PURPOSE TRAIL	1	LS	400,000	400,000
				CONSTRUCTION COST ($) =	**11,362,675**
				10% CONSTRUCTION CONTINGENCY ($) =	**1,136,268**
				TOTAL CONSTRUCTION COST ($) =	**12,498,943**
				25% NON-CONSTRUCTION COSTS ($) =	**3,124,736**
				TOTAL COST ($) =	**15,623,679**

Monticello Collection System Improvements Alternatives
20-Year Life Cycle Cost Estimates

Twenty (20) Year Life Cycle Present Worth Cost Analysis

Alternative 1

Real Discount Rate (OMB Circular A-94) 0.30%

Construction Capital Costs (C)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
Alternative 1	1	$ 8,772,308	1	$ 8,772,308
Alternative 1 Non-Construction Costs	1	$ 2,193,077	1	$ 2,193,077
			Total Construction Capital Cost =	**$ 10,965,385**

Operation & Maintenance (O&M)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
12-Inch Sanitary Sewer Cleaning	5	$ 20,000	0.99	$ 19,800
12-Inch Sanitary Sewer Cleaning	10	$ 21,000	0.97	$ 20,370
12-Inch Sanitary Sewer Cleaning	15	$ 22,000	0.96	$ 21,120
12-Inch Sanitary Sewer Cleaning	20	$ 23,000	0.94	$ 21,620
15-Inch Sanitary Sewer Cleaning	5	$ 27,000	0.99	$ 26,730
15-Inch Sanitary Sewer Cleaning	10	$ 28,000	0.97	$ 27,160
15-Inch Sanitary Sewer Cleaning	15	$ 29,000	0.96	$ 27,840
15-Inch Sanitary Sewer Cleaning	20	$ 30,000	0.94	$ 28,200
18-Inch Sanitary Sewer Cleaning	5	$ 22,000	0.99	$ 21,780
18-Inch Sanitary Sewer Cleaning	10	$ 23,000	0.97	$ 22,310
18-Inch Sanitary Sewer Cleaning	15	$ 24,000	0.96	$ 23,040
18-Inch Sanitary Sewer Cleaning	20	$ 25,000	0.94	$ 23,500
24-Inch Sanitary Sewer Cleaning	5	$ 36,000	0.99	$ 35,640
24-Inch Sanitary Sewer Cleaning	10	$ 37,000	0.97	$ 35,890
24-Inch Sanitary Sewer Cleaning	15	$ 38,000	0.96	$ 36,480
24-Inch Sanitary Sewer Cleaning	20	$ 39,000	0.94	$ 36,660
30-Inch Sanitary Sewer Cleaning	5	$ 46,000	0.99	$ 45,540
30-Inch Sanitary Sewer Cleaning	10	$ 47,000	0.97	$ 45,590
30-Inch Sanitary Sewer Cleaning	15	$ 48,000	0.96	$ 46,080
30-Inch Sanitary Sewer Cleaning	20	$ 49,000	0.94	$ 46,060
48-Inch Sanitary Sewer Cleaning	5	$ 54,000	0.99	$ 53,460
48-Inch Sanitary Sewer Cleaning	10	$ 55,000	0.97	$ 53,350
48-Inch Sanitary Sewer Cleaning	15	$ 56,000	0.96	$ 53,760
48-Inch Sanitary Sewer Cleaning	20	$ 57,000	0.94	$ 53,580
60-Inch Sanitary Sewer Cleaning	5	$ 68,000	0.99	$ 67,320
60-Inch Sanitary Sewer Cleaning	10	$ 70,000	0.97	$ 67,900
60-Inch Sanitary Sewer Cleaning	15	$ 72,000	0.96	$ 69,120
60-Inch Sanitary Sewer Cleaning	20	$ 74,000	0.94	$ 69,560
			Total O&M Cost =	$ 1,099,460

Salvage Value (SV)							
Item	**Useful Life (Years)**	**Initial Cost ($)**	**Percent Depreciated (%)**	**Depreciated Cost ($)**	**20 Year Salvage Value ($)**	**Present Worth Factor**	**Present Worth Salvage Value**
12-inch Dia. Sanitary Sewer	70	$ 344,925	29%	$ 100,000	$ 244,925	0.94	$ 230,200
15-inch Dia. Sanitary Sewer	70	$ 429,300	29%	$ 124,500	$ 304,800	0.94	$ 286,500
18-inch Dia. Sanitary Sewer	70	$ 384,925	29%	$ 111,600	$ 273,325	0.94	$ 256,900
24-inch Dia. Sanitary Sewer	70	$ 605,800	29%	$ 175,700	$ 430,100	0.94	$ 404,300
30-inch Dia. Sanitary Sewer	70	$ 897,000	29%	$ 260,100	$ 636,900	0.94	$ 598,700
48-inch Dia. Sanitary Sewer	70	$ 1,359,000	29%	$ 394,100	$ 964,900	0.94	$ 907,000
60-inch Dia. Sanitary Sewer	70	$ 2,047,785	29%	$ 593,900	$ 1,453,885	0.94	$ 1,366,700
						Total Salvage Value =	$ 4,050,300

Net Present Value (NPV) = (C) + (O&M) - (SV)	
Item	**Present Worth ($)**
Construction Capital Costs (C)	$ 10,965,385
Operation & Maintenance (O&M)	$ 1,099,460
Salvage Value (SV)	$ (4,050,300)
Net Present Value (ROUNDED) =	$ 8,015,000

Twenty (20) Year Life Cycle Present Worth Cost Analysis

Alternative 2

Real Discount Rate (OMB Circular A-94) 0.30%

Construction Capital Costs (C)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
Alternative 2	1	$ 9,445,865	1	$ 9,445,865
Alternative 2 Non-Construction Costs	1	$ 2,361,466	1	$ 2,361,466
			Total Construction Capital Cost =	**$ 11,807,331**

Operation & Maintenance (O&M)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
12-Inch Sanitary Sewer Cleaning	5	$ 20,000	0.99	$ 19,800
12-Inch Sanitary Sewer Cleaning	10	$ 21,000	0.97	$ 20,370
12-Inch Sanitary Sewer Cleaning	15	$ 22,000	0.96	$ 21,120
12-Inch Sanitary Sewer Cleaning	20	$ 23,000	0.94	$ 21,620
15-Inch Sanitary Sewer Cleaning	5	$ 27,000	0.99	$ 26,730
15-Inch Sanitary Sewer Cleaning	10	$ 28,000	0.97	$ 27,160
15-Inch Sanitary Sewer Cleaning	15	$ 29,000	0.96	$ 27,840
15-Inch Sanitary Sewer Cleaning	20	$ 30,000	0.94	$ 28,200
18-Inch Sanitary Sewer Cleaning	5	$ 22,000	0.99	$ 21,780
18-Inch Sanitary Sewer Cleaning	10	$ 23,000	0.97	$ 22,310
18-Inch Sanitary Sewer Cleaning	15	$ 24,000	0.96	$ 23,040
18-Inch Sanitary Sewer Cleaning	20	$ 25,000	0.94	$ 23,500
24-Inch Sanitary Sewer Cleaning	5	$ 36,000	0.99	$ 35,640
24-Inch Sanitary Sewer Cleaning	10	$ 37,000	0.97	$ 35,890
24-Inch Sanitary Sewer Cleaning	15	$ 38,000	0.96	$ 36,480
24-Inch Sanitary Sewer Cleaning	20	$ 39,000	0.94	$ 36,660
30-Inch Sanitary Sewer Cleaning	5	$ 99,000	0.99	$ 98,010
30-Inch Sanitary Sewer Cleaning	10	$ 101,000	0.97	$ 97,970
30-Inch Sanitary Sewer Cleaning	15	$ 103,000	0.96	$ 98,880
30-Inch Sanitary Sewer Cleaning	20	$ 105,000	0.94	$ 98,700
36-Inch Sanitary Sewer Cleaning	5	$ 66,000	0.99	$ 65,340
36-Inch Sanitary Sewer Cleaning	10	$ 67,000	0.97	$ 64,990
36-Inch Sanitary Sewer Cleaning	15	$ 69,000	0.96	$ 66,240
36-Inch Sanitary Sewer Cleaning	20	$ 71,000	0.94	$ 66,740
48-Inch Sanitary Sewer Cleaning	5	$ 54,000	0.99	$ 53,460
48-Inch Sanitary Sewer Cleaning	10	$ 55,000	0.97	$ 53,350
48-Inch Sanitary Sewer Cleaning	15	$ 56,000	0.96	$ 53,760
48-Inch Sanitary Sewer Cleaning	20	$ 57,000	0.94	$ 53,580
			Total O&M Cost =	$ 1,299,160

Salvage Value (SV)							
Item	**Useful Life (Years)**	**Initial Cost ($)**	**Percent Depreciated (%)**	**Depreciated Cost ($)**	**20 Year Salvage Value ($)**	**Present Worth Factor**	**Present Worth Salvage Value**
12-inch Dia. Sanitary Sewer	70	$ 344,925	29%	$ 100,000	$ 244,925	0.94	$ 230,200
15-inch Dia. Sanitary Sewer	70	$ 429,300	29%	$ 124,500	$ 304,800	0.94	$ 286,500
18-inch Dia. Sanitary Sewer	70	$ 384,925	29%	$ 111,600	$ 273,325	0.94	$ 256,900
24-inch Dia. Sanitary Sewer	70	$ 605,800	29%	$ 175,700	$ 430,100	0.94	$ 404,300
30-inch Dia. Sanitary Sewer	70	$ 1,941,000	29%	$ 562,900	$ 1,378,100	0.94	$ 1,295,400
36-inch Dia. Sanitary Sewer	70	$ 1,455,200	29%	$ 422,000	$ 1,033,200	0.94	$ 971,200
48-inch Dia. Sanitary Sewer	70	$ 1,359,000	29%	$ 394,100	$ 964,900	0.94	$ 907,000
						Total Salvage Value =	$ 4,351,500

Net Present Value (NPV) = (C) + (O&M) - (SV)	
Item	**Present Worth ($)**
Construction Capital Costs (C)	$ 11,807,331
Operation & Maintenance (O&M)	$ 1,299,160
Salvage Value (SV)	$ (4,351,500)
Net Present Value (ROUNDED) =	$ 8,755,000

Twenty (20) Year Life Cycle Present Worth Cost Analysis

Alternative 3

Real Discount Rate (OMB Circular A-94) 0.30%

Construction Capital Costs (C)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
Alternative 3	1	$ 15,504,445	1	$ 15,504,445
Alternative 3 Non-Construction Costs	1	$ 3,876,111	1	$ 3,876,111
			Total Construction Capital Cost =	**$ 19,380,556**

Operation & Maintenance (O&M)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
12-Inch Sanitary Sewer Cleaning	5	$ 20,000	0.99	$ 19,800
12-Inch Sanitary Sewer Cleaning	10	$ 21,000	0.97	$ 20,370
12-Inch Sanitary Sewer Cleaning	15	$ 22,000	0.96	$ 21,120
12-Inch Sanitary Sewer Cleaning	20	$ 23,000	0.94	$ 21,620
15-Inch Sanitary Sewer Cleaning	5	$ 27,000	0.99	$ 26,730
15-Inch Sanitary Sewer Cleaning	10	$ 28,000	0.97	$ 27,160
15-Inch Sanitary Sewer Cleaning	15	$ 29,000	0.96	$ 27,840
15-Inch Sanitary Sewer Cleaning	20	$ 30,000	0.94	$ 28,200
18-Inch Sanitary Sewer Cleaning	5	$ 22,000	0.99	$ 21,780
18-Inch Sanitary Sewer Cleaning	10	$ 23,000	0.97	$ 22,310
18-Inch Sanitary Sewer Cleaning	15	$ 24,000	0.96	$ 23,040
18-Inch Sanitary Sewer Cleaning	20	$ 25,000	0.94	$ 23,500
24-Inch Sanitary Sewer Cleaning	5	$ 36,000	0.99	$ 35,640
24-Inch Sanitary Sewer Cleaning	10	$ 37,000	0.97	$ 35,890
24-Inch Sanitary Sewer Cleaning	15	$ 38,000	0.96	$ 36,480
24-Inch Sanitary Sewer Cleaning	20	$ 39,000	0.94	$ 36,660
30-Inch Sanitary Sewer Cleaning	5	$ 106,000	0.99	$ 104,940
30-Inch Sanitary Sewer Cleaning	10	$ 108,000	0.97	$ 104,760
30-Inch Sanitary Sewer Cleaning	15	$ 110,000	0.96	$ 105,600
30-Inch Sanitary Sewer Cleaning	20	$ 112,000	0.94	$ 105,280
48-Inch Sanitary Sewer Cleaning	5	$ 54,000	0.99	$ 53,460
48-Inch Sanitary Sewer Cleaning	10	$ 55,000	0.97	$ 53,350
48-Inch Sanitary Sewer Cleaning	15	$ 56,000	0.96	$ 53,760
48-Inch Sanitary Sewer Cleaning	20	$ 57,000	0.94	$ 53,580
			Total O&M Cost =	$ 1,062,870

Salvage Value (SV)							
Item	**Useful Life (Years)**	**Initial Cost ($)**	**Percent Depreciated (%)**	**Depreciated Cost ($)**	**20 Year Salvage Value ($)**	**Present Worth Factor**	**Present Worth Salvage Value**
12-inch Dia. Sanitary Sewer	70	$ 344,925	29%	$ 100,000	$ 244,925	0.94	$ 230,200
15-inch Dia. Sanitary Sewer	70	$ 429,300	29%	$ 124,500	$ 304,800	0.94	$ 286,500
21-inch Dia. Sanitary Sewer	70	$ 384,925	29%	$ 111,600	$ 273,325	0.94	$ 256,900
24-inch Dia. Sanitary Sewer	70	$ 605,800	29%	$ 175,700	$ 430,100	0.94	$ 404,300
30-inch Dia. Sanitary Sewer	70	$ 2,088,000	29%	$ 605,500	$ 1,482,500	0.94	$ 1,393,600
48-inch Dia. Sanitary Sewer	70	$ 1,359,000	29%	$ 394,100	$ 964,900	0.94	$ 907,000
						Total Salvage Value =	$ 3,478,500

Net Present Value (NPV) = (C) + (O&M) - (SV)	
Item	**Present Worth ($)**
Construction Capital Costs (C)	$ 19,380,556
Operation & Maintenance (O&M)	$ 1,062,870
Salvage Value (SV)	$ (3,478,500)
Net Present Value (ROUNDED) =	$ 16,965,000

Twenty (20) Year Life Cycle Present Worth Cost Analysis

Alternative 4

Real Discount Rate (OMB Circular A-94) 0.30%

Construction Capital Costs (C)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
Alternative 4	1	$ 12,498,943	1	$ 12,498,943
Alternative 4 Non-Construction Costs	1	$ 3,124,736	1	$ 3,124,736
			Total Construction Capital Cost =	**$ 15,623,679**

Operation & Maintenance (O&M)				
Item	**Year(s)**	**Cost ($)**	**Present Worth Factor**	**Present Worth ($)**
12-Inch Sanitary Sewer Cleaning	5	$ 20,000	0.99	$ 19,800
12-Inch Sanitary Sewer Cleaning	10	$ 21,000	0.97	$ 20,370
12-Inch Sanitary Sewer Cleaning	15	$ 22,000	0.96	$ 21,120
12-Inch Sanitary Sewer Cleaning	20	$ 23,000	0.94	$ 21,620
15-Inch Sanitary Sewer Cleaning	5	$ 27,000	0.99	$ 26,730
15-Inch Sanitary Sewer Cleaning	10	$ 28,000	0.97	$ 27,160
15-Inch Sanitary Sewer Cleaning	15	$ 29,000	0.96	$ 27,840
15-Inch Sanitary Sewer Cleaning	20	$ 30,000	0.94	$ 28,200
18-Inch Sanitary Sewer Cleaning	5	$ 22,000	0.99	$ 21,780
18-Inch Sanitary Sewer Cleaning	10	$ 23,000	0.97	$ 22,310
18-Inch Sanitary Sewer Cleaning	15	$ 24,000	0.96	$ 23,040
18-Inch Sanitary Sewer Cleaning	20	$ 25,000	0.94	$ 23,500
24-Inch Sanitary Sewer Cleaning	5	$ 36,000	0.99	$ 35,640
24-Inch Sanitary Sewer Cleaning	10	$ 37,000	0.97	$ 35,890
24-Inch Sanitary Sewer Cleaning	15	$ 38,000	0.96	$ 36,480
24-Inch Sanitary Sewer Cleaning	20	$ 39,000	0.94	$ 36,660
30-Inch Sanitary Sewer Cleaning	5	$ 106,000	0.99	$ 104,940
30-Inch Sanitary Sewer Cleaning	10	$ 108,000	0.97	$ 104,760
30-Inch Sanitary Sewer Cleaning	15	$ 110,000	0.96	$ 105,600
30-Inch Sanitary Sewer Cleaning	20	$ 112,000	0.94	$ 105,280
48-Inch Sanitary Sewer Cleaning	5	$ 122,000	0.99	$ 120,780
48-Inch Sanitary Sewer Cleaning	10	$ 124,000	0.97	$ 120,280
48-Inch Sanitary Sewer Cleaning	15	$ 126,000	0.96	$ 120,960
48-Inch Sanitary Sewer Cleaning	20	$ 128,000	0.94	$ 120,320
Wet Weather Lift Station Pump Rebuild (Year 15)	15	$ 882,500	0.96	$ 847,200
Wet Weather Lift station O&M	1 - 20	$ 30,000	19.38	$ 581,400
			Total O&M Cost =	$ 2,759,660

Salvage Value (SV)							
Item	**Useful Life (Years)**	**Initial Cost ($)**	**Percent Depreciated (%)**	**Depreciated Cost ($)**	**20 Year Salvage Value ($)**	**Present Worth Factor**	**Present Worth Salvage Value**
12-inch Dia. Sanitary Sewer	70	$ 344,925	29%	$ 100,000	$ 244,925	0.94	$ 230,200
15-inch Dia. Sanitary Sewer	70	$ 429,300	29%	$ 124,500	$ 304,800	0.94	$ 286,500
18-inch Dia. Sanitary Sewer	70	$ 976,775	29%	$ 283,300	$ 693,475	0.94	$ 651,900
24-inch Dia. Sanitary Sewer	70	$ 605,800	29%	$ 175,700	$ 430,100	0.94	$ 404,300
30-inch Dia. Sanitary Sewer	70	$ 648,000	29%	$ 187,900	$ 460,100	0.94	$ 432,500
48-inch Dia. Sanitary Sewer	70	$ 3,025,875	29%	$ 877,500	$ 2,148,375	0.94	$ 2,019,500
						Total Salvage Value =	$ 4,024,900

Net Present Value (NPV) = (C) + (O&M) - (SV)	
Item	**Present Worth ($)**
Construction Capital Costs (C)	$ 15,623,679
Operation & Maintenance (O&M)	$ 2,759,660
Salvage Value (SV)	$ (4,024,900)
Net Present Value (ROUNDED) =	$ 14,359,000

Cost & Effectiveness Certification Form

(Pursuant to Section 602(B)(13) of the Federal Water Pollution Control Act)
(Applies to all assistance recipients submitting an application on or after October 1, 2015)
(To be submitted prior to Participant's Wastewater Loan Closing)

Participant Name City of Monticello		
Street Address 705 East Street	P. O. Box Number	
City Monticello	State Indiana	Zip Code 47960

Section 602(B)(13) of the Federal Water Pollution Control Act (FWPCA) requires a recipient of a loan to certify that the recipient:

1) has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under the Clean Water State Revolving Fund Loan Program; and
2) has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account –
   (i) the cost of constructing the project or activity;
   (ii) the cost of operating and maintaining the project or activity over the life of the project or activity; and
   (iii) the cost of replacing the project or activity

Certification

We hereby certify pursuant to Section 602(B)(13) that the Participant has completed the requirements of Section 602(B)(13) as set forth in items (1) and (2) above.

Signature of the Authorized Representative

Printed Name: Adam Downey

Signature: ______________________

Date: ______________________

Signature of Consulting Engineer

Printed Name: Brian Desharnais, Ph.D. P.E.

Signature: ______________________

Date: ______________________

Appendix H

Public Participation

Appendix I

SRF Resolutions

CITY OF MONTICELLO

RESOLUTION X-2020

AUTHORIZED REPRESENTATIVE RESOLUTION

WHEREAS, The City of Monticello, Indiana, has plans to proceed for required work on the Wastewater Collection System Improvements Project, to meet state and federal regulations pertaining to the Combined Sewer Overflow (CSO) Long-Term Control Plan.

WHEREAS, The City of Richmond has adopted this Resolution dated May XX, 2020.

NOW, THEREFORE, BE IT RESOLVED BY THE Board of Public Works and Safety of the City of Monticello that:

1. Cathy Gross, Mayor of the City of Monticello, be authorized to make application for an SRF Loan and provide the State Revolving Fund Loan Program such information, data, and documents pertaining to the loan process as may be required, and otherwise act as the authorized representative of the community.

2. The City of Monticello agrees to comply with the Indiana Finance Authority, State of Indiana and Federal requirements as they pertain to the SRF.

3. That two copies of the resolution be prepared and submitted as part of the City of Monticello's Preliminary Engineering Report and application of the SRF loan.

All of which is adopted and approved this Xth day of May, 2020.

______________________________, Mayor
Cathy Gross

______________________________,Member
Andy Harmon

______________________________, Member
Maury Waymouth

ATTEST: ________________________, Clerk Treasurer
Jim Mann

SRF LOAN PROGRAM
PER ACCEPTANCE RESOLUTION

RESOLUTION X-2020

WHEREAS, The City of Monticello, Indiana has caused a Preliminary Engineering Report ("PER"), dated April 2020, to be prepared by the consulting firm of Commonwealth Engineers, Inc.

WHEREAS, Said PER has been presented to the public at a public hearing held on May XX, 2020 at XX:XX AM for public comment; and

WHEREAS, The City of Monticello Board of Public Works and Safety finds that there was not sufficient evidence presented in the objection to the recommended project in the PER.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The PER dated April 2020 be approved and adopted by the District Board; and

2. Said PER shall be submitted to the State Revolving Fund Loan Program for review and approval.

Adopted and Passed by the City of Monticello Board of Public Works and Safety this XXnd day of May 2020.

City of Monticello Board of Public Works and Safety

____
Cath Gross,
Mayor

ATTEST: ________________________, Clerk Treasurer
Jim Mann

Appendix J
SRF Project Cost / Financial Information Form

SRF PROJECT FINANCING INFORMATION
(Wastewater)

1. Project Cost Summary

a.	Collection/transport system cost	$ 7,974,825
b.	Treatment System Cost	-
c.	Non-Point-Source (NPS) cost (septic tank removal)	-
	Subtotal Construction Cost	$ 7,974,825
d.	Capacity Reservation Fees	-
e.	Contingencies (Should not exceed 10% of construction cost)	$ 797,483
f.	Non-construction Cost e.g. engineering/design services, field exploration studies, project management & construction inspection, legal & administrative services, land costs (including capitalized costs of leased lands, ROWs, & easements), start-up costs (e.g. O&M manual, operator training).	$ 2,193,077
g.	Total Project Cost (lines a+b+c+d+e+f)	$ 10,965,385
h.	Total ineligible SRF costs* (see next page) * Total ineligible SRF costs will not be covered by the SRF loan.	-
i.	Other funding sources (list other grant/loan sources & amounts)	
	(1) Local Funds (hook-on fees, connection fees, capacity fees, etc.)_	$ -
	(2) Cash on hand	-
	(3) Community Development Block Grant – Community Focus Fund (CFF)	-
	(4) US Dept. of Agriculture Rural Development (RD)	-
	(5) Other	-
	Total Other Funding Sources	$ -

2. SRF Loan Amount (line g minus line item h+i*) $ 10,965,385
   * If there are adequate funds available under (i) to cover (h) then subtract (i) only.

3. Financial Advisor
   a. Firm: Baker Tilly Municipal Advisors, LLP
   b. Name: Jessica Eckerle Lynch
   c. Phone Number: (317) 465-1532

4. Bond Counsel
   a. Firm: Ice Miller, LLP
   b. Name: Lisa A. Lee
   c. Phone Number: (317) 236-2100

The following costs are not eligible for SRF reimbursement:

1.	Land Costs (*unless it's for sludge application*) Only the actual cost of the land is **not eligible**; associated costs (such as attorney's fees, site title opinion and the like) **are eligible**.	$ -
2.	Materials & work done on private property *(Installation/repair of laterals, including disconnection of inflow into laterals; abandonment of on-site systems [septic tank or mound systems]).* Grinder pumps, vacuum stations and other appurtenances/installations on private property to treat/transport <u>ARE</u> fundable <u>IF owned and maintained by the participant</u>.	$ -
3.	Grant applications and income surveys done for other agencies (e.g. OCRA, RUS, etc.)	$ -
4.	Any project solely designed to promote economic development and growth is ineligible.	$ -
5.	Costs incurred for preparing NPDES permit applications and other tasks unrelated to the SRF project.	$ -
6.	Cleaning of equipment, such as digesters, sand filters, grit tanks, and settling tanks. These items should have been maintained through routine operation, maintenance, and replacement by the political subdivision. Sewer cleaning is **ineligible** for SRF *unless* the cleaning is required for sewer rehabilitation such as sliplining and cured in place piping (CIPP).	$ -
7.	Interest During Construction	$ -

Appendix K

Sewer Easements

Appendix L

Fiscal Sustainability Plan

Appendix M

Asset Management Plan