Town of Nashville

SANITARY SEWER MASTER PLAN

PREPARED FOR

Town of Nashville, IN

ms consultants, inc.
engineers, architects, planners

JULY 2020

TOWN OF NASHVILLE, INDIANA

SANITARY SEWER MASTER PLAN

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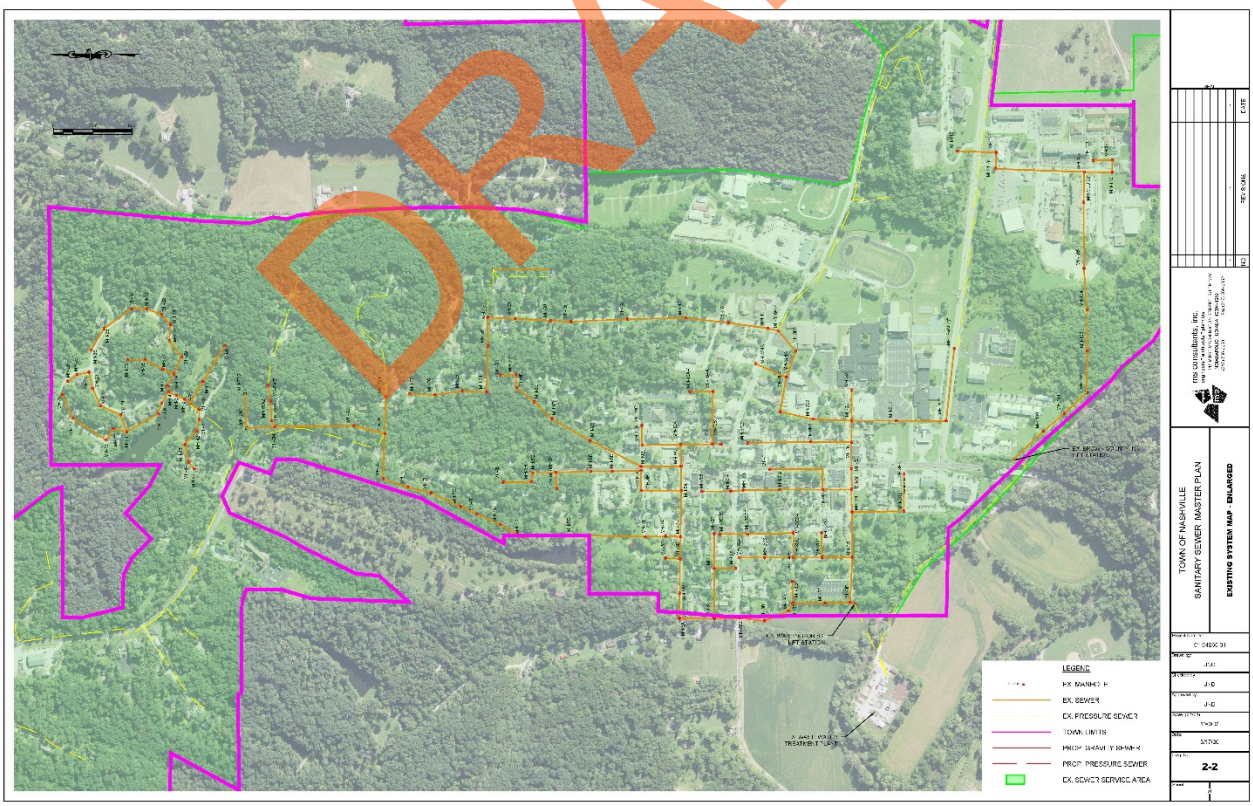

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1.0 EXECUTIVE SUMMARY

1.1 BACKGROUND & PURPOSE

The Town of Nashville, Indiana (the Town) engaged ms consultants, inc. (the Engineer) to prepare this Sanitary Sewer Master Plan (SSMP) for the purposes of long-term planning of capital infrastructure improvements related to the sanitary sewer system. The Town has experienced growth in the recent past from small developments, combined with regulatory pressures to serve areas outside the existing boundary of the utility. The SSMP provides the Town with the guidance necessary to plan the expansion of the existing sanitary sewer system.

The SSMP generally follows the Clean Water State Revolving Fund (CWSRF) Preliminary Engineering Report (PER) outline for chapters 1 – 3. This was intended to allow for large portions of this report to be used in the future when applying for financing of projects outline in the SSMP. This SSMP includes the following:

- Analysis of the condition of the existing sanitary sewer system through hydraulic modeling including development of sewer demands, identification of overflow areas, and wet/dry weather flows.
- Development of future population projections and sanitary sewer demands for the 10 year, 20 year and 40 year planning periods.
- Develop and document future economic development in the Town collaboratively with Town staff.
- Analysis of the future condition of the sanitary sewer system through hydraulic modeling and recommend capital improvement projects for the expansion of the system.
- Prioritize and develop budgetary cost estimates for the recommended capital improvement projects.

The SSMP has been prepared to provide the Town with a thorough evaluation of the sanitary sewer collection and conveyance system. The existing system has been evaluated with respect to the capacity of the various treatment and conveyance components and the ability to meet the current and future demands of the Town's customers. This SSMP provides recommendations for expansion of the system to meet future demands and to reduce operations and maintenance costs to the Town through regionalization of system components to increase efficiencies.

1.2 BACKGROUND INFORMATION

The Town is a steadily growing community northeast of Bloomington, Indiana in Brown County, Indiana. The Nashville Corporate Boundaries lie inside Washington Township. The Town's sewer system currently serves customers both inside the corporate limits, as well as, areas in Brown County. Appendix A, Figure No. 1-1 contains a General Location Map.

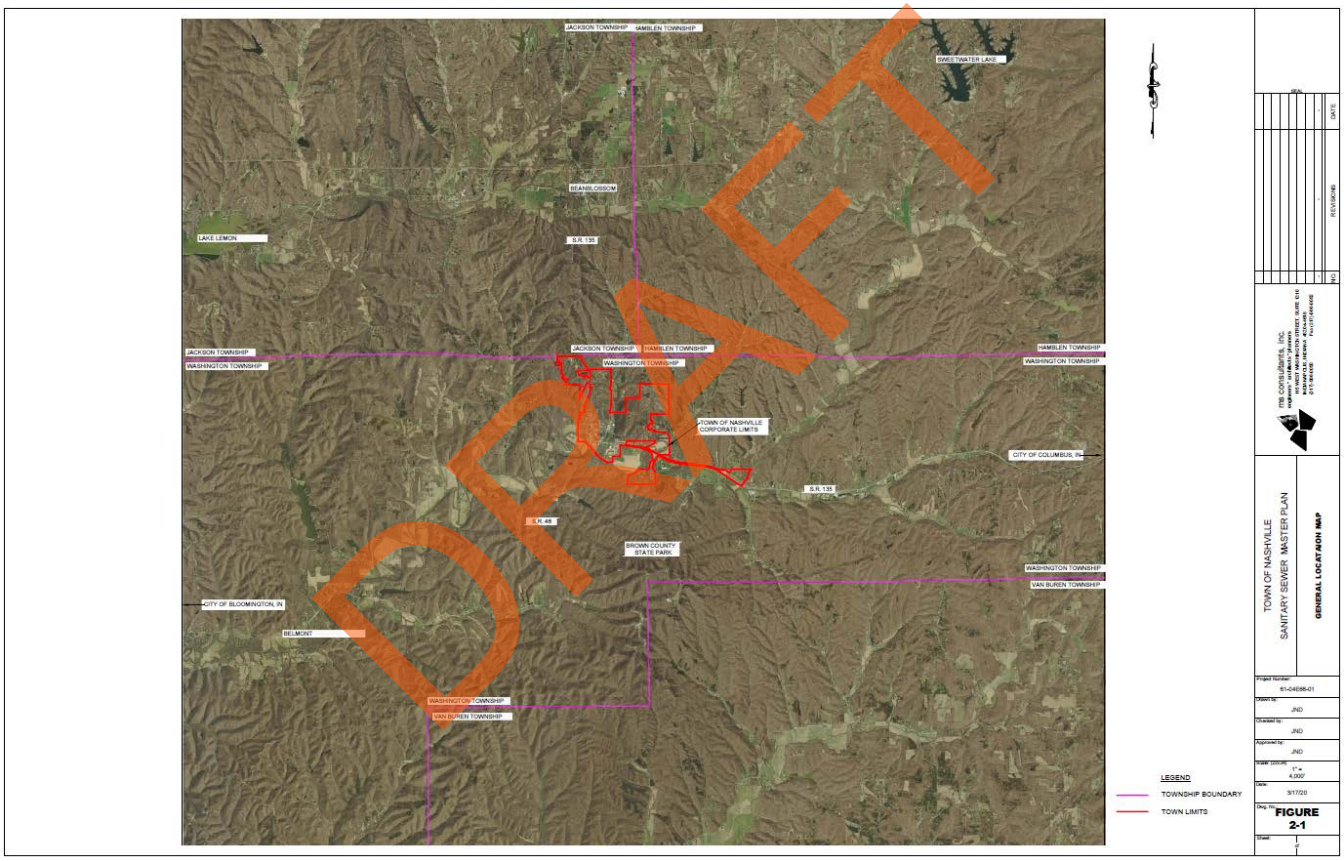
The topography of the service area has extreme variations in elevation, making sewer service challenging. The 40-year potential service considered for this SSMP generally consists of areas within a 2.50-mile radius of downtown Nashville. These areas vary in elevation from 590-ft to 790-ft in elevation. The geographical limits of the service area generally consist of the low lying areas along Salt Creek and Greasy Creek, up to the mountain tops surrounding the Town. However, this does not eliminate the potential of receiving flow from outside this geographical reach from another municipal entity.

2.0 SANITARY SEWER OVERVIEW

2.1 GENERAL

The Town of Nashville, Indiana (the Town) is generally located in Central Brown County. The Town lies within the boundaries of Washington Township. The Town currently owns and operates a sanitary sewer collection and treatment system comprised of gravity sewers, force mains, low pressure sanitary sewers, lift stations and a wastewater treatment plant. All of the Town's sanitary sewage is conveyed to and treated at a single wastewater treatment facility. This facility is located on the southwest part of town, 0.30 miles west northwest of the intersection of State Road 46 and State Road 135. A general location map is included in Appendix A as:

Figure 2-1 - General Location Map



2.2 EXISTING SERVICE AREA

The Town's existing Sanitary Sewer System (the System) consists of gravity sewer pipe networks, conveying sanitary sewer flows to a number of lift stations, comprising lift station sewersheds. The System includes a sanitary separate sewerage system. Appendix A includes the following figures:

- Figure 2-2 - Existing System Map
- Figure 2-3 - Existing System Map: Enlarged West
- Figure 2-4 - Existing System Map: Enlarged South
- Figure 2-5 - Existing System Map: Enlarged East

These figures include the existing Nashville Utilities Service Area and details both the corporate limits and the utility service area. The existing reach of the sanitary sewer system is generally bounded by the Nashville Corporate Limits. However, there are a small number of areas which are outside the corporate limits that receive service. Below is a summary table of the areas served by the System and their respective location:

Table 2-1 – Sanitary Sewer Service Areas by Corporate Boundary

NEIGHBORHOOD/AREA/DEVELOPMENT	CORPORATE BOUNDARY
KOA Campgrounds (S.R. 135)	Unincorporated Brown County
Brown County State Park	Unincorporated Brown County

The Town has not adopted any Extraterritorial Utilities Ordinance for Sewer at this time. We recommend that the Town pursue this type of ordinance as it provides for the authority to regulate sanitary sewer service to areas outside the corporate limits. A potential utility service area might include locations in Washington Township, southeastern Jackson Township and southwestern Hamblen Township in Brown County Indiana. The following USGS Quadrangle maps are included in this service area:

- Nashville, IN (NGA REF No.: USGSX24K3161)
- Belmont, IN (NGA REF No.: USGSX24K3238)

The existing service area can be better defined to include the following Sections, Townships and Ranges:

- Township 9 North, Range 3 East: Sections 18, 19 & 20
- Township 9 North, Range 2 East: Sections 5,6 & 7

Lists of historical sites in Washington Township, as well as the Town of Nashville are located in Appendix C

2.3 EXISTING SANITARY SEWER SYSTEM

As previously mentioned, the collection systems are comprised of gravity sewers, lift stations and forcemains. The sewer pipe network flows by gravity into one of three (3) main lift stations, comprising Lift Station Sewersheds. The natural topography of the area, along with hydraulic characteristics, constructability limitations, the development of housing or business subdivisions and capital expense,

have dictated the areas to be served by each lift station. Appendix A, Figure 3-1 - Existing Lift Station Sewersheds. Table 2-3, below is a summary of each lift station sewershed.

Table 2-2 - Lift Station Service Area and Composition

LIFT STATION	SERVICE AREA	AREA COMPOSITION
Washington Street	556	Institutional, Commercial, Residential
Brown County Inn	215	Institutional, Commercial, Residential
Parkview	75	Residential

The wastewater treatment plant (WWTP) is located on the southwest side of the town limits at 10 West State Road 46, Nashville, IN 47448.

2.3.1 SERVICE AREA

The service area of the Town is generally bounded by the existing corporate limits of the Town. Additionally, there are three areas which receive sewer service, however are located outside the corporate limits. Reference Appendix A, Figure 2-2 - Existing System Map for the service area limits. This area is included in the following USGS Quadrangle maps:

- Nashville, IN (NGA REF No.: USGSX24K3161)
- Belmont, IN (NGA REF No.: USGSX24K3238)

The Sections, Townships and Ranges of the future sanitary sewer service area are as follows:

- Township 9 North, Range 3 East: Sections 18, 19 & 20
- Township 9 North, Range 2 East: Sections 5,6 & 7

3.0 EXISTING SANITARY SEWER SYSTEM

3.1 DESCRIPTION OF EXISTING SYSTEM

3.1.1 SANITARY SEWER CONVEYANCE SYSTEM

The Town's collection and conveyance system includes approximately 25,705 linear feet of sewer pipe and three (3) lift stations. The collection system includes gravity sewer pipe as large as 10-inches and force mains up to 6-inches in diameter. Sewer lines are primarily comprised of vitrified clay pipe (VCP) and smaller, newer, areas of polyvinyl chloride (PVC) pipe. Appendix A, Figure Nos. 2-2 through 2-5 include maps of the sanitary sewer collection system. The below summary table indicates the breakdown of the existing sanitary sewer conveyance system:

Table 3-1 - Conveyance System Material Composition

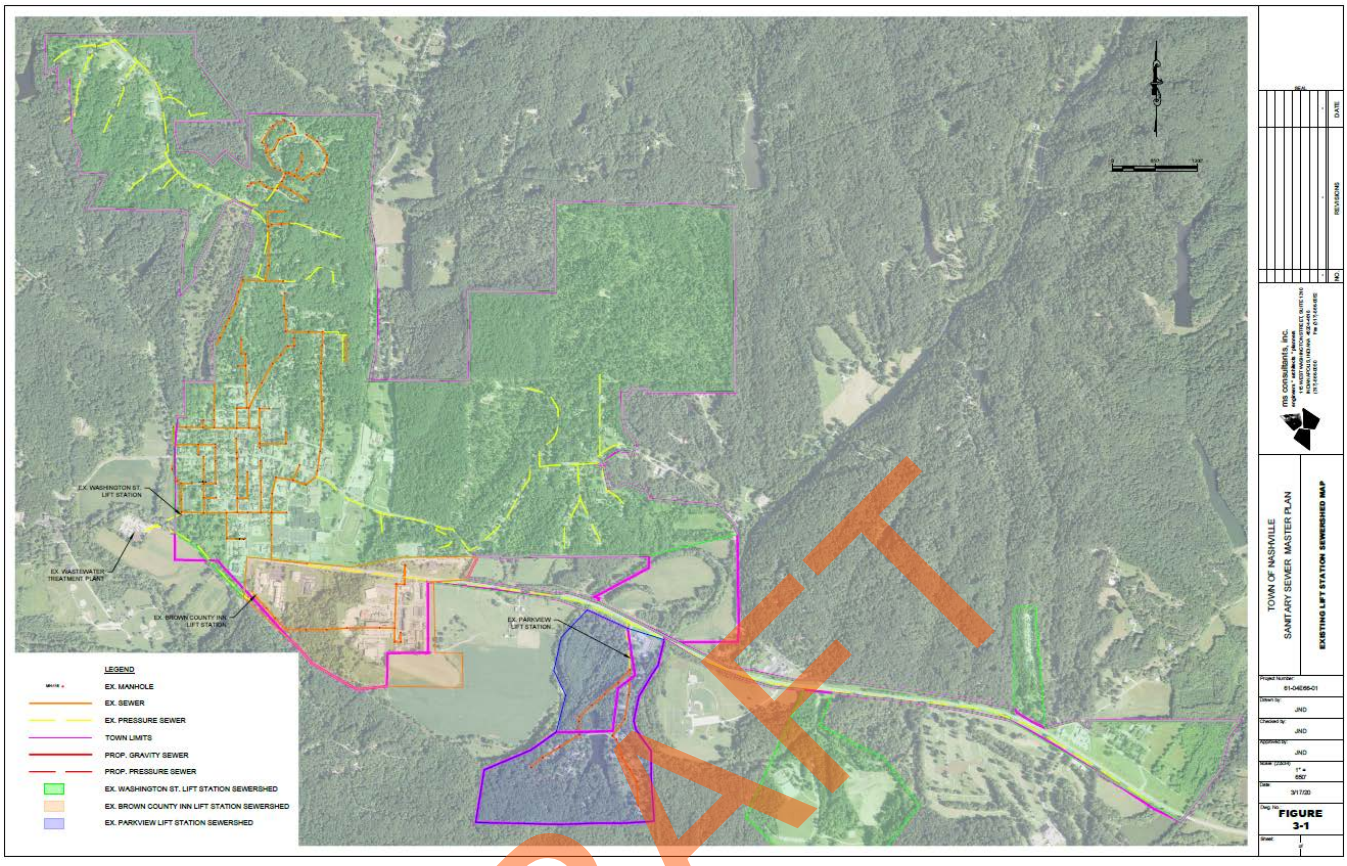
PIPE SIZE	PIPE MATERIAL		TOTAL (FT.)	TOTAL (%)
	Polyvinyl Chloride (PVC)	Vitrified Clay Pipe (VCP)		
6-inch	0	180	180	0.70%
8-inch	5,500	20,000	25,500	99.20%
10-inch	25	0,	25	0.09%
Total	5,525	20,180	25,705	---
Total	21.50%	78.50	100%	100%

The original wastewater treatment plant and collection system was installed in or around 1961 and comprised the majority of the Town's corporate limits. The design conveyed all flows to one lift station, the Washington Street station, and constructed a wastewater treatment plant at the Town's current site. The project removed all sanitary sewer flows from the stormwater conveyance system to the North Fork of Salt Creek. This system was installed as a result of the Federal Water Pollution Control Act of 1948, and subsequent public outcry to clean and protect surface waters. This piece of legislation provided for some limited state and local government financing of projects and technical assistance.

The collection system was expanded in 1968 with the construction of the new State Road 46 alignment. This project installed a lift station at what is now the Creekside Retreat along Old State Road 46, and routed a forcemain back to the Town's gravity collection system. After completion of this project the system remained relatively unchanged until 1981 when the Parkview and Brown County Inn lift stations were installed. It was also around this time period when small areas of unsewered development received low pressure grinder pumps to replace failing septic tanks.

There were no significant additions or expansions to the collection system until 2010, after a significant flooding event occurred 2008. In the 2010 expansion of the collection system, the Coffey Hill and Orchard Hill developments were sewered. Additionally, the Brown County Inn and Parkview lift stations were upgraded. A map of the existing lift station sewersheds for the entire Town is located in Appendix A and below:

Figure 3-1 - Existing Lift Station Sewersheds

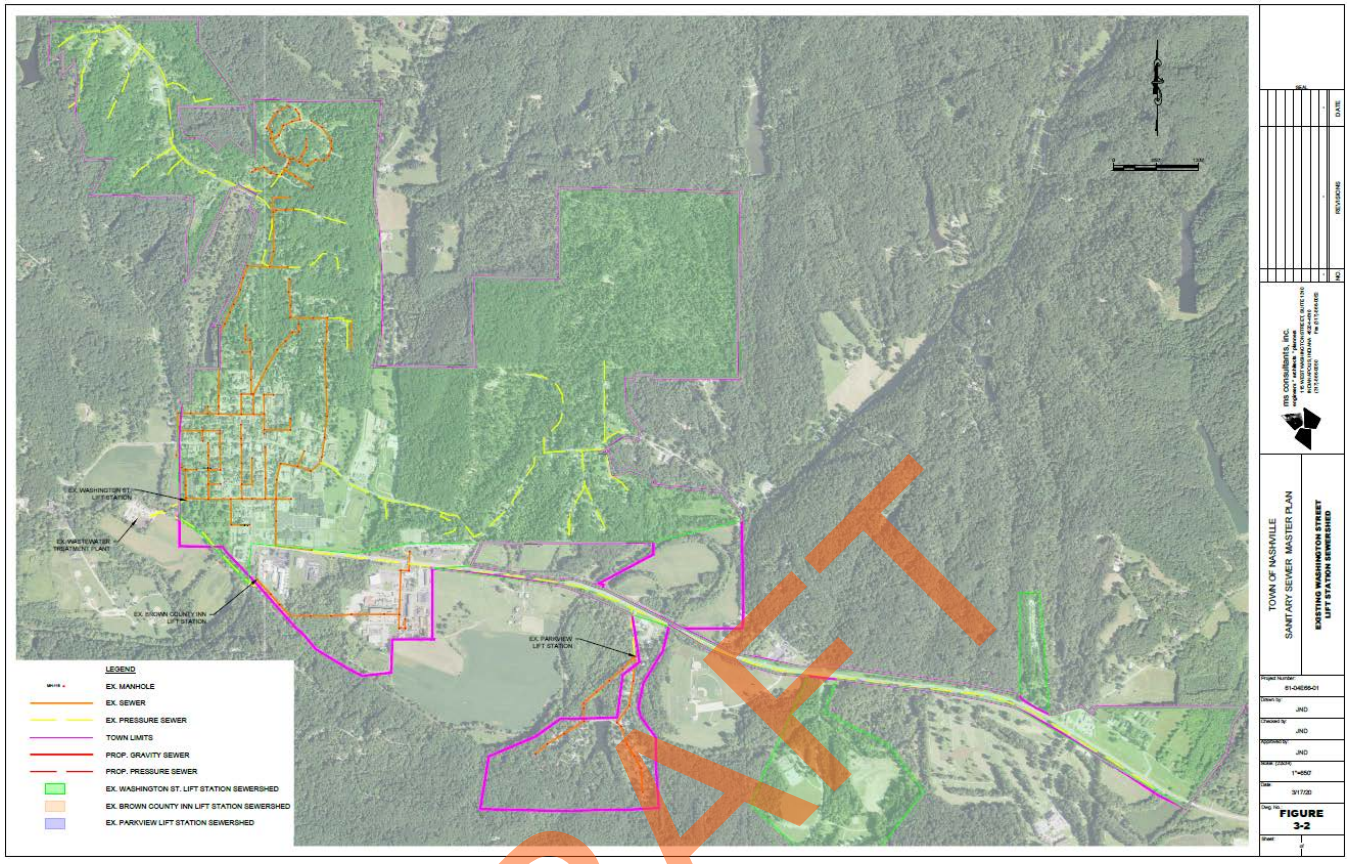


3.1.1.1 WASHINGTON STREET LIFT STATION

The Washington Street Lift Station is located at the dead end of Washington Street, west of Sycamore Street. This lift station is original to the Town's sewer collection system and the oldest lift station still in service today. It currently provides service to the majority of the Town, Orchard Hills and Coffey Hills areas. The lift station is a duplex configuration with a 6-inch diameter forcemain and approximate firm pumping capacity of 510 gpm. The forcemain discharges to the headworks of the Town's Wastewater Treatment Plant. Appendix A, Figure 3-2 - Existing Washington Street Lift Station Sewershed.

The existing wetwell is constructed of a cast-in-place concrete wetwell, which had undergone a number of modifications over time. The original structure was built in a wet well/dry well configuration. This included a below grade chamber where the sewage collected and a separate below grade chamber which housed the pumps. At some point in time the wet well was converted to a valve vault, and the dry well converted to a wet well. Since this conversion was completed the submersible pumps have been replaced and are now physically located very close to each other. Any future upsizing of this lift station would likely require a complete replacement.

Figure 3-2 - Existing Washington Street Lift Station Sewershed

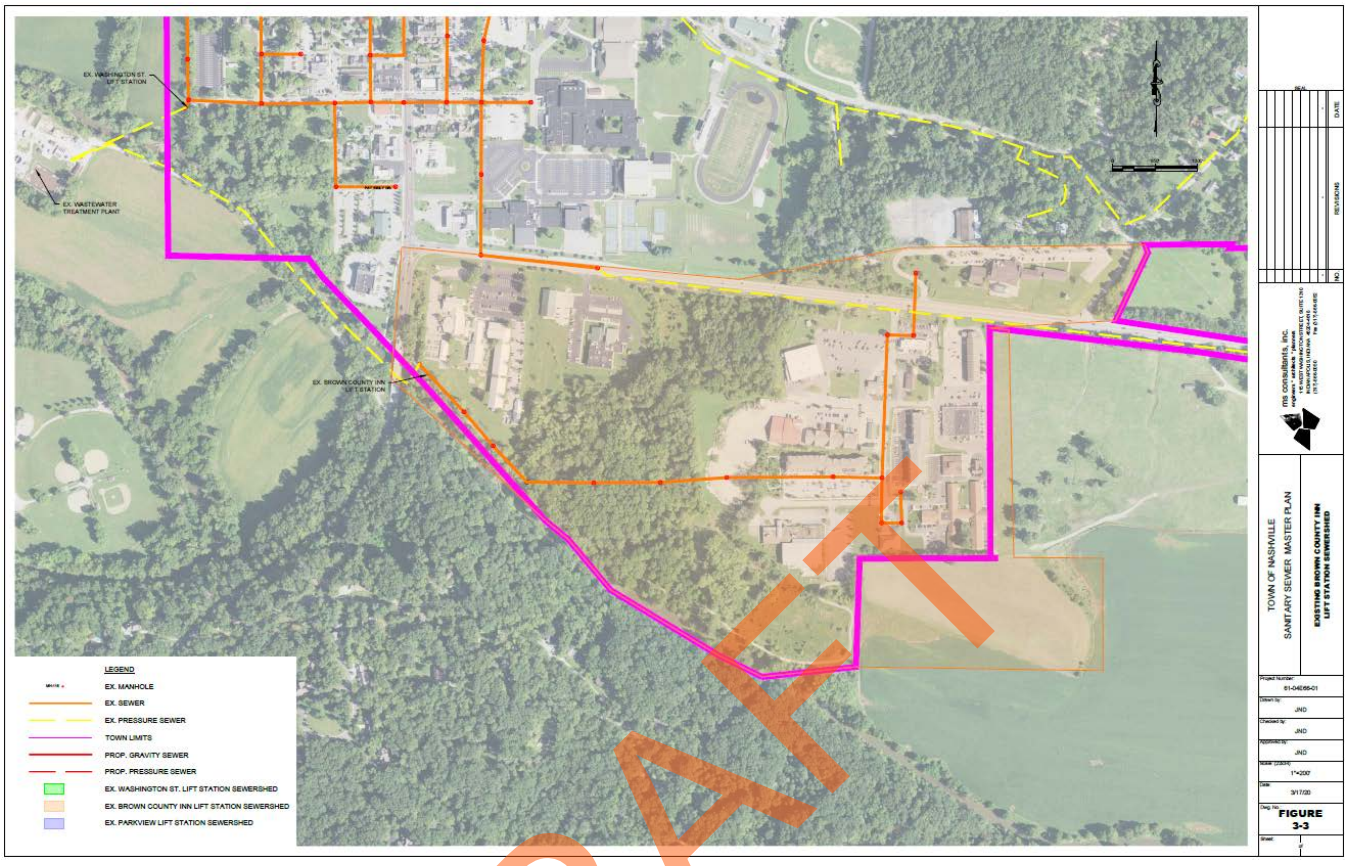


3.1.1.2 BROWN COUNTY INN LIFT STATION

The Brown County Inn Lift Station is located adjacent to 51 State Road 46, on the site of the Brown County Inn. This lift station currently provides service to areas along State Road 46, east of the Town. The lift station receives flow from multi-family residential, commercial and government facilities. Additionally, the Parkview Lift Station discharges to this lift station's collection system. The lift station is a duplex configuration with a 6-inch diameter forcemain and approximate firm pumping capacity of 485 gpm. The forcemain discharges directly to the Town's Wastewater Treatment Plant headworks. Appendix A, Figure 3-3 indicates the existing lift station service area for the Brown County Inn Lift Station.

The existing wetwell is constructed of precast concrete, installed in or around 1981. It is configured as a typical submersible pump wetwell with a below grade valve vault configuration. The condition of the structures is good, with little visible deterioration of the structure. The electrical equipment and controls are located adjacent to the wetwell and at a higher elevation. This is to protect them from occasional flooding due to the stations proximity to the North Fork of Salt Creek.

Figure 3-3 - Existing Brown County Inn Lift Station Sewershed

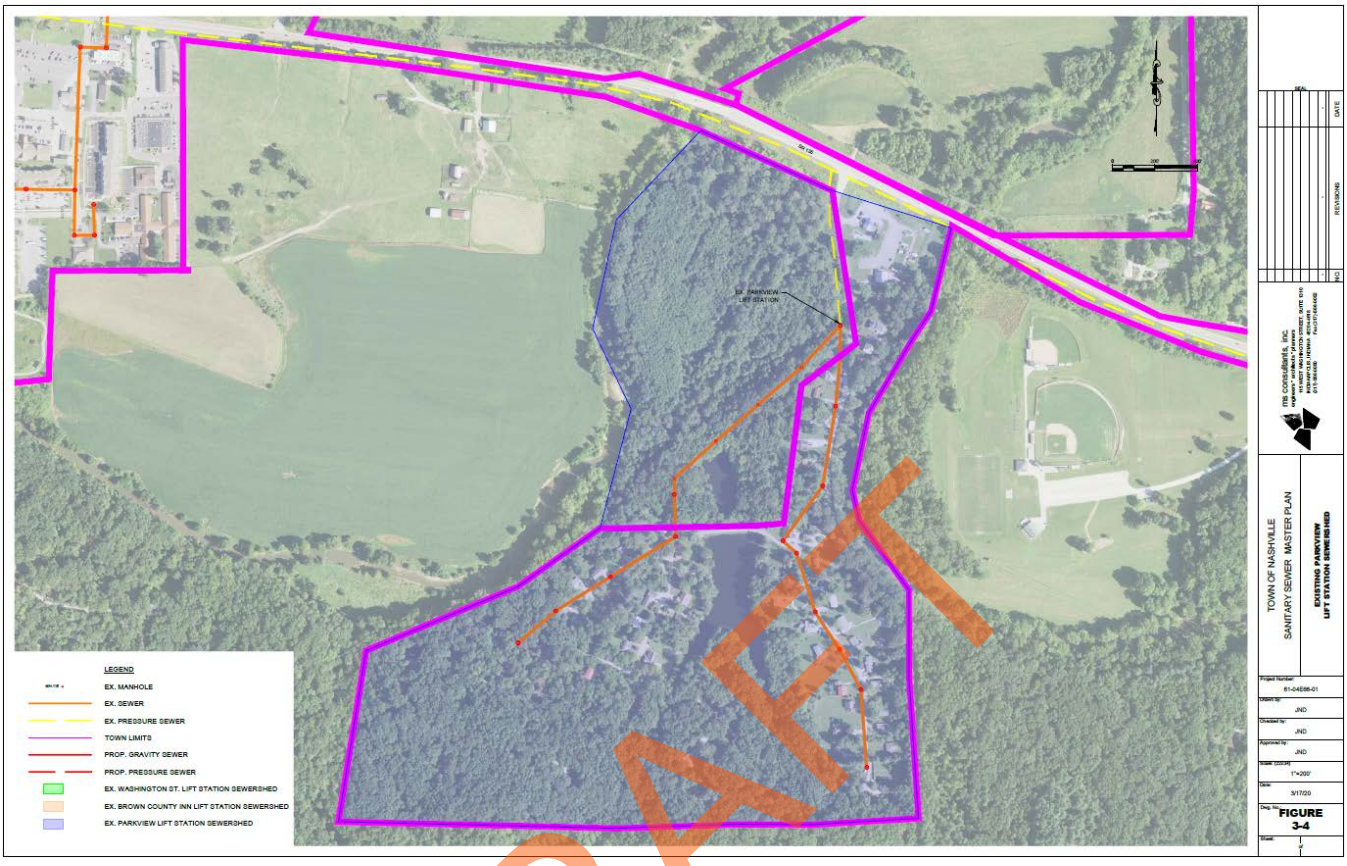


3.1.1.3 PARKVIEW LIFT STATION

The Parkview Lift Station is located at 100 Parkview Road. This lift station currently provides service to the Parkview Development located south of State Road 46 adjacent to the Brown County State Park. The lift station receives flow from fifty-eight (58) single family homes. The lift station is a duplex configuration with a 4-inch diameter forcemain and firm pumping capacity of 100 gpm. The forcemain discharges through a 4-inch forcemain to a 6-inch forcemain along State Road 46. Appendix A, Figure 3-4 indicates the existing lift station service area for the Parkview Lift Station.

The existing wetwell is constructed of precast concrete, installed in or around 1981. It is configured as a typical submersible pump wetwell with a below grade valve vault configuration. The condition of the structures is good, with little visible deterioration of the structure. The electrical equipment and controls are located adjacent to the wetwell and at a higher elevation. This is to protect them from occasional flooding due to the stations proximity to the floodplain.

Figure 3-4 - Existing Parkview Lift Station Sewershed



3.1.2 LIFT STATION SUMMARY

Table 3-2 - Lift Station Design Summary

LIFT STATION	DRIVE	FORCEMAIN	DESIGN		
			T.D.H.	Flow (gpm)	Flow (MGD)
Washington Street	Constant	6-inch	41’	510	0.734
Brown County Inn	Constant	6-inch	69’	485	0.698
Parkview	Constant	4-inch	69’	100	0.144

Notes:
1 – Pump performance was estimated without the benefit of actual flow data. Instead original design parameters and existing pump performance curves were used to estimate the capacities of the existing facilities.

Table 3-3 - Lift Station Flow Summary

LIFT STATION	EXISTING CAPACITY		EXISTING AVG. DAILY FLOW (GPD)	EXISTING PEAK DAILY FLOW (GPD)
	T.D.H.	Flow (gpm)		
Washington Street	42’	455	256,370	888,460
Brown County Inn	69’	485	88,660	354,640
Parkview	69’	100	20,150	80,600

Notes:
1 – Flow calculations were derived from establishing a count of equivalent dwelling units (EDUs) for the existing sewershed, then applying a 310 gpd/EDU flow. This assumed flow per EDU is derived from Indiana Administrative code 327 3-6-11.
2 – A peaking factor of 4 was assumed per Indiana Administrative Code 327 3-6-11

3.1.3 WASTEWATER TREATMENT PLANT

The Town owns and operates a minor municipal wastewater treatment plant, located at 10 West State Road 46 in Nashville Indiana. This facility’s primary treatment is comprised of a mechanical fine screen, aerated lagoon, two final clarifiers, UV disinfection and post aeration. The existing facility is rated for an average daily flow of 0.60 MGD (peak hourly flow 1.82 MGD). The facility’s sludge treatment is comprised of aerobic digestion and sludge drying beds with final disposal of biosolids in a landfill. The facility does have the option to land apply biosolids through a Land Application Permit. Table 3-4 below includes a summary of Monthly Reports of Operations for 2017 – 2019.

Table 3-4 - Historical Wastewater Treatment Plant Performance Metrics (2017 - 2019)

PERFORMANCE METRIC	Influent	EFFLUENT	EFFLUENT LIMIT		TREATMENT PERFORMANCE
			Summer	Winter	
Flow (MGD)	0.320	0.345	---	---	---
cBOD5 (mg/l)	197	2.38	20	25	98.8%
TSS (mg/l)	152	6.03	24	30	96.0%
Phosphorus (mg/l)	4.42	0.55	1.0	1.0	87.6%
Ammonia (mg/l)	17.23	0.11	1.2	1.8	99.4%

Notes:
1 – The discrepancy between what flow came into the plant and what left is common in both municipal and industrial facilities. This is often the result of different flow metering technologies and calibration.

1.1.1 NEIGHBORING UTILITIES

As a result of failing septic systems within and adjacent to the Town, the utility service area for the sewer system has expanded to include areas outside the corporate limits of the Town. These areas are generally located such that sewer service by the corporate entity would be difficult physically and financially. These areas are generally located inside unincorporated Brown County and are listed below:

- KOA Campground (State Road 135, east of Town)
- Brown County State Park (Partial Service)

1.1.2 EXISTING SERVICE AREA POPULATION

The population of Nashville in the year 2010 was 803 people. In the latest available U.S. Census Bureau estimate (2018) the population grew to 1110, or 38.00% in an 8-year period. This high growth rate can be attributed to residential growth in the area and annexation of the small portions of unincorporated Brown County. Brown County grew only 0.17% in that same time frame, which may be a result of the annexation into Nashville. This high growth rate in Nashville and steady rate in Brown County, is largely indicative of a slow and steady growth rate across the county.

Table 3-5 - Historical Population Trends

AREA	1960	1970	1980	1990	2000	2010	% Change 1950-2010
Brown County	7,027	9,057	12,377	14,080	14,957	15,242	5.391
Jackson Township	1,946	2,658	3,774	4,151	4,151	4,002	51.37
Washington Township	2,603	3,442	4,031	4,478	4,433	4,896	46.83
Hamblen Township	1,398	2,007	3,365	4,032	4,591	4,336	67.76
Town of Nashville	489	527	705	873	825	803	39.10

Source: http://www.stats.indiana.edu/population

Brown County's current number of housing units (estimated for 2018) is approximately 8,743 units. Using the 2018 estimated population of 18,013, there appears to be approximately 2.06 persons per housing unit. It is reasonable to assume that the Town is approximately equal to Brown County. A house count was conducted, utilizing aerial imagery of the Town. This count resulted in Table 3-6 - Population by Development below, which summarizes the population broken down by development area Sanitary Sewer Service Area.

Table 3-6 - Population by Development

DEVELOPMENT AREA	ESTIMATED POPULATION (YEAR 2018)
Town of Nashville	389 * 2.00 = 778
Orchard Hills	79 * 2.00 = 158
Coffey Hills	88 * 2.00 = 176
Grand Total (Est.)	1,112

*Estimated using Brown County population per housing unit.

1.1.3 EXISTING COLLECTION SYSTEM CONTRIBUTION DATA

An estimated summary of total flow data for all lift stations in the Town can be found below in Table 3-7.

Table 3-7 - Estimated Flows by Sewershed

LIFT STATION SEWERSHED	CONTRIBUTING LIFT STATIONS	NO. EDUS	EST. AVG. DAILY FLOW (GPD)[1]	EST. PEAK DAILY FLOW (GPD)[2]
Washington St. LS	Parkview LS, Other Various	827	256,370	888,460
Brown County Inn LS	---	286	88,660	354,640
	Grand Total	1,032	345,030	1,243,100

Notes:
1 - The number of equivalent domestic units (EDUs) is determined using the Indiana Administrative Code 327 3-6-11 regulatory document.
2 – The peak daily flow estimate utilized a peaking factor of 4 for areas of gravity sewer service. Areas with low pressure sewers utilized a peaking factor of 2.

The Town currently experiences sanitary sewer overflows during rain events. This overflows were noted to have occurred at manholes 3G, 3F & 5A. The modeling of the existing sewer system was able to confirm that these manholes are subject to surcharging and overflows resulting from rain events. Removal of inflow & infiltration into the older gravity sewer lines will become critical in reducing these overflows and freeing up capacity for future growth.

1.1.4 EXISTING LARGE SEWER CONTRIBUTORS

1.1.4.1 COMMERCIAL, INDUSTRIAL & INSTITUTIONAL

The Town is comprised mostly of residential sewer users, however there are a number of larger users in the service area. These users have the ability to significantly impact the strength of waste and volume to the wastewater treatment plant. The largest three sewer users of 2019 are listed below:

- Brown County State Park: 20,953,900 gal/year
- Brown County Health & Living: 3,796,000 gal/year
- Brown County Inn: 2,220,500 gal/year

The top sewer user for the Town is the State Park, whose annual flow dwarfs the following two largest users. This flow is sent to the Town seasonally when tourists and recreational users visit the park. After analyzing 3-years of flow data it was determined that this single user accounts for approximately 25% of the annual treated flow through the treatment facility.

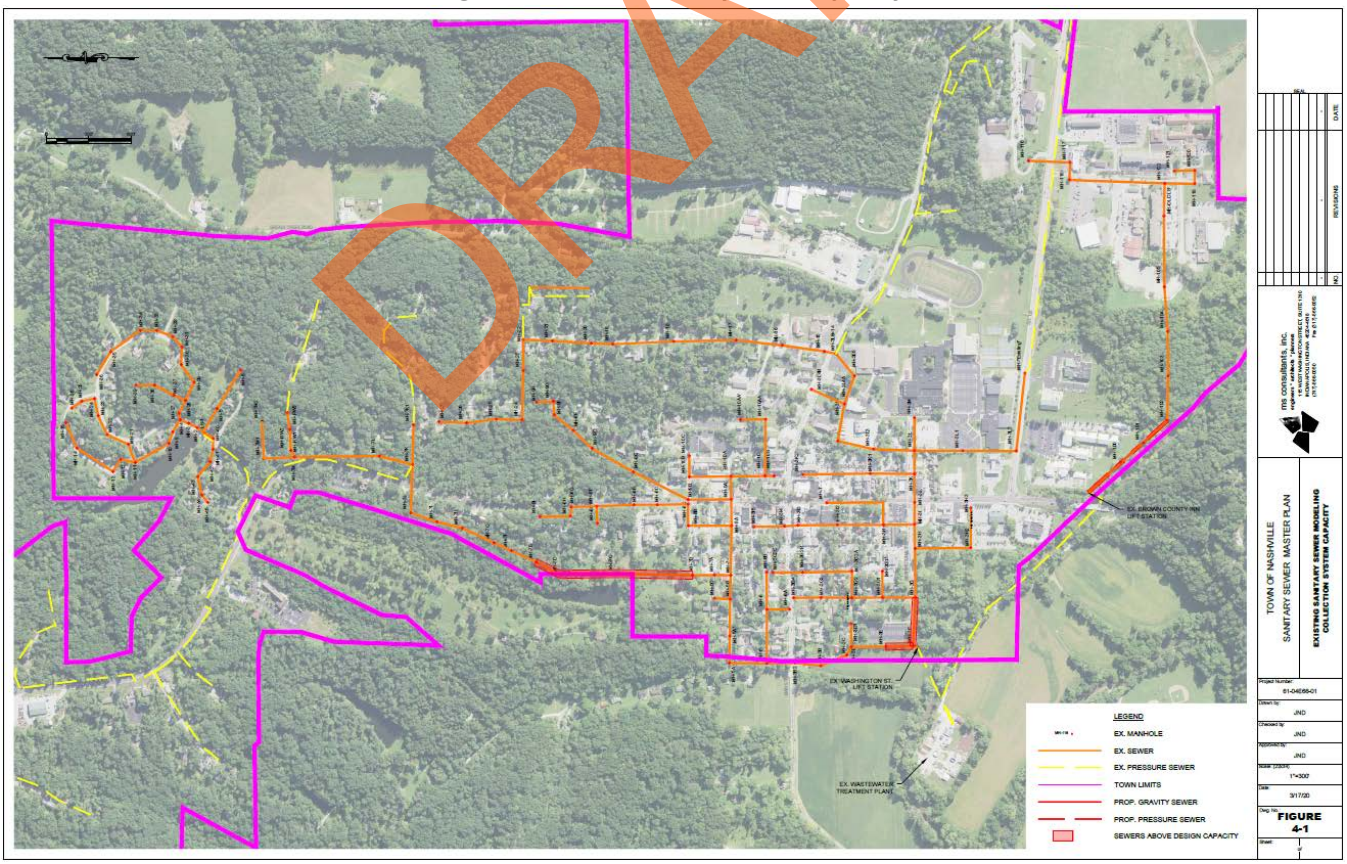
4.0 HYDRAULIC MODELING ANALYSIS

4.1 EXISTING CONDITIONS MODEL

The purpose of performing a hydraulic modeling was to develop an accurate model for use in the Town's Sanitary Master Plan. This model was used to evaluate the existing conditions of the system and to develop a framework for handling future growth. The hydraulic model for the sanitary sewer system was constructed using SewerCAD, which incorporates GIS information and uses a hydrology and hydraulics calculation engine. GIS data was obtained from publically available sources as well as relevant record plans to extract invert and rim elevation data, pipe materials, diameter, slope, etc. The constructed hydraulic model is a comprehensive model and includes all sanitary sewers with available record drawings within the Town. This was a complete model construction which used information from GIS and record drawings.

The existing conditions model used Indiana Administrative Code regulated flow assumptions for calibration, as real world flow data was unavailable at the time of the report. The first scenario evaluated average daily dry weather flow to identify areas of manhole surcharging and line backups. Hydrographs at each lift station were developed using the RTK method. Using an iterative process, the existing conditions model was calibrated. Calibration process and results can be found in Appendix G. Below is a summary of the areas reaching their design capacity. Additionally, Appendix A, Figure 4-1 includes a map of these locations:

Figure 4-1 - Collection System Capacity



- The 8-inch gravity line from the Washington St. LS, north (MHs 3F-3E, 7B – E):
  This section of line resulted in a 100 – 150% of capacity in the modeling. The reason for this is likely due to excessive inflow & infiltration into the line.

- The 8-inch gravity at Washington Street and Johnson Street (MH 3F – 3G):
  This section of line resulted in a 100 – 150% of capacity in the modeling. The reason for this is likely due to excessive inflow & infiltration into the line.

- The 8-inch gravity upstream of the BCI Lift Station (BCI LF – MH 102):
  This section of line resulted in a 100 – 150% of capacity in the modeling. The reason for this is likely due to excessive inflow & infiltration into the line.

Future design considerations should moderate the loading upstream of these components to minimize the of exceeding their capacities. If exceeded, surcharging may occur. Moderate surcharging may be manageable for these areas due to their depth, but unmanaged loading could have undesired consequences.

4.2 ASSUMPTIONS

All assumptions made to predict future flows for the Town were based on the Sanitary District Standards for the City of Indianapolis and future population projections. One notable assumption is that residential homes are estimated at 310 gpd for average daily design flows and that a peaking factor of 4 was used to design for peak conditions.

4.3 PROPOSED CONDITIONS MODEL

The proposed conditions model evaluated the loading variables that may occur over a 20-year time frame. In this planning period there were a number of areas of existing development which will require sewer to replace aging/failing septic systems. There are nine areas that were identified as meeting this criteria, and will be discussed later in this report. These areas were each added to the existing sewer system in the model with assumed flows. The results of these scenarios were utilized in determining the infrastructure necessary to provide sewer service in the respective areas.

5.0 FUTURE SANITARY SEWER SYSTEM

5.1 FUTURE POPULATION PROJECTIONS

Population projections for the Nashville sewer service area are based primarily on expected development and secondarily based on historical growth projections. Table 5-1 summarizes the Town's population projections for the 20-year planning period.

Table 5-1 - Nashville Population Projections

YEAR	TOWN OF NASHVILLE
2010 (Census)	803
2018 (Census Est.)	1,110
2020	1<100
2025	1,153
2030 (10-Year)	1,209
2035	1,268
2040 (20-Year)	1,330

Based on Table 5-1, over the first 10-year period (2020-2030), the town population growth is anticipated to increase by 9.94%, or average 1.00% per year, which is double the growth for the prior census period (2010-2020). For the second 10-year period (2030 to 2040), the town population is anticipated to increase by another 10.00%, or average 1.00% per year. In total, over the 20-year planning period (2020-2040), the town population is anticipated to grow approximately 20.00%. These population figures are based on current growth patterns and depend upon several factors. These factors include the rate of economic growth and ability of the Town to sustain this growth by adequately serving these developments. Other factors that could affect the population of the Town is annexation of areas with unincorporated Brown County.

5.2 CENSUS DATA

The population trends in Brown County, and townships in the Nashville Sewer Service Areas were collected from a number of sources. These sources include the U.S. Census Bureau, Indiana Business Research Center (IBRC), and STATS Indiana. A comprehensive set of resource data used for population projections can be found in Appendix F.

Population information gathered from Stats Indiana was used to show population growth, as this data source utilizes U.S. Census Bureau information. The Brown County population in 1970 was 30,870, 1980 was 36,466, 1990 was 38,147, 2000 was 46,107, and in 2010 the population was 56,640. The Washington Township area of the County experienced the majority of the growth from 1990 through 2000. However, in the 2000 census showed a decrease of 22 people leaving the only metropolitan area (Nashville) or a loss of 2.70%. Historical trends for Brown County population for the period from 1970 through 2010 are show in Table 5-2.

Table 5-2 - Brown County Historical Population

COUNTY	1970	1980	1990	2000	2010
Brown County	9,057	12,377	14,080	14,957	15,242
Growth from 1970 (%)	---	26.80	12.10	5.90	1.90

The Stats Indiana website has projected the county population in 2030 to be 14,247 and in 2040 to be 13,293. Census projection data for Brown County indicates that overall growth to remain stagnant, neither growing or shrinking significantly, for the 20-year planning period. Population projections for Brown County are shown in Table below.

Table 5-3 - Brown County Population Projections

COUNTY	2010	2020	2030	2040
Brown County	15,242	14,707	14,247	13,293
Growth from 2010 (%)	---	-3.50	-3.12	-6.69

These growth rates are not considered an accurate representation of the Town or Townships. Anticipated growth over this same period for the Town and surrounding townships are based on current and future development plans and discussions with Town officials. Due to the Town's established reputation as a tourist destination, it is expected that growth will occur and population will actually increase relative to the rest of Brown County.

5.3 DEVELOPMENT TRENDS

There are a number of additional residential developments proposed throughout the Town's sanitary sewer service area. Below is a summary of the known developments:

Table 5-4 - Residential Developments Under Construction

DEVELOPMENT	YEAR PLATTED	PLATTED LOTS	CONSTRUCTED LOTS
Tuckaway Section 2	N/A	12-15	0
Miscellaneous[1]	N/A	1-6	0

1 – Development in this category typically consists of previously platted lots which remain vacant, but are planned for development of single family homes. These lots are scattered throughout the existing Town limits.

In addition to these current residential developments, there are a number of commercial developments that are in the planning process or under construction. These commercial areas are included in Table 5-7 below:

Table 5-5 - Commercial Developments Under Construction

DEVELOPMENT	PROJECTED USE	PROJECTED AREA
Music Center – Hotel	Hospitality Service	~30 Bed
Orchard Hill Apartments[1]	Multi-Family	75 Units

1 – This development is only in the conceptual phase.

Based on the development trends that the Town has experienced over the last several years, the type of future developments that the Town will likely experience can be deduced. This projection includes varying types of development such as retail, commercial, and residential. These developments will likely revolve around the arts/crafts and tourism industries. This type of industry lends itself to the construction of apartment buildings, hotels, bed & breakfast and establishments of the like.

As noted above, there is limited known growth for the Town within the existing Town limits. However, there are a number of existing areas within unincorporated Brown County that have failing or failed septic systems. These areas will require new sanitary sewer service in the near future, and are located adjacent to the Town, making them ideal to receive sewer service from Nashville. These areas are identified in Table 5-8 below:

Table 5-6 - Potential Sewer Extensions

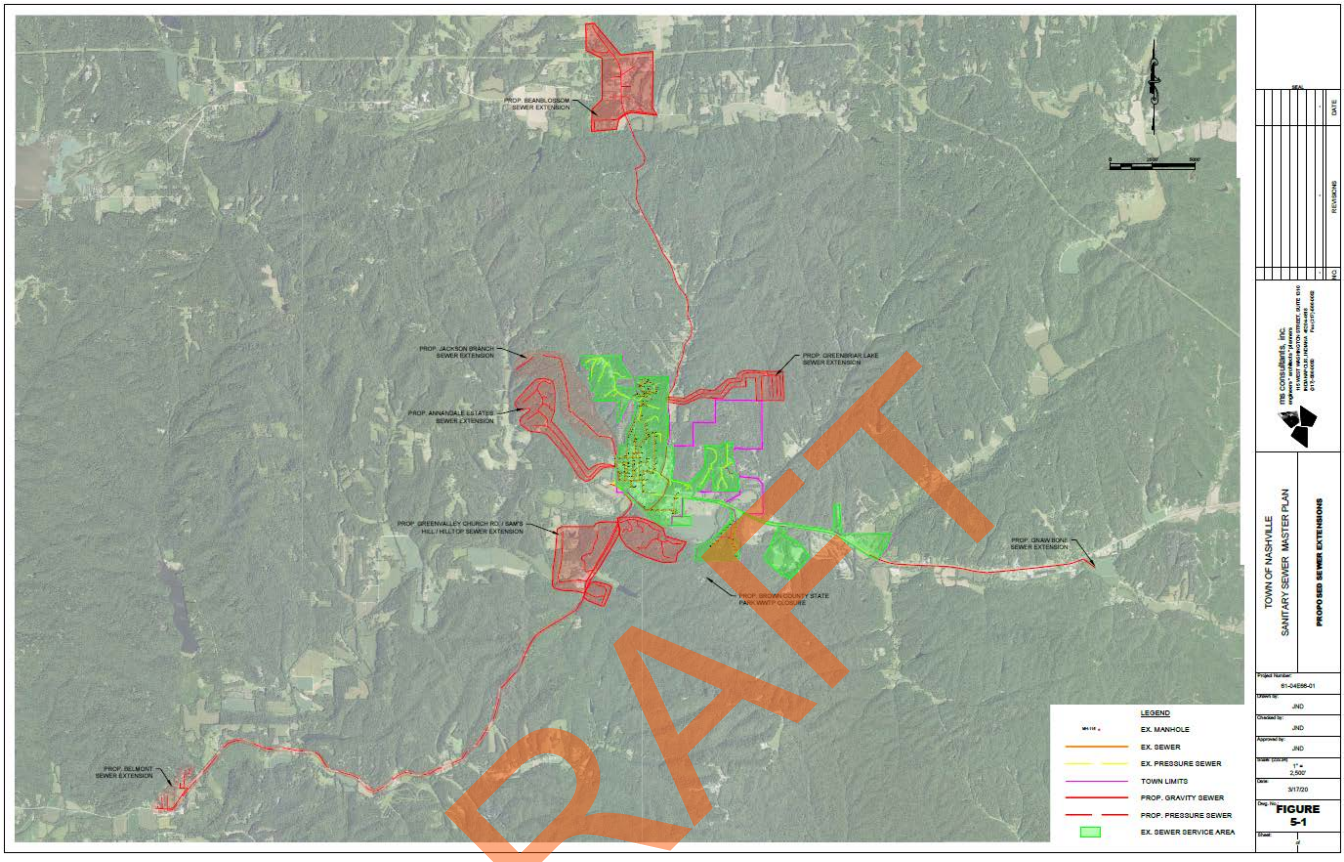
SEWER EXTENSION	TYPE OF DEVELOPMENT	PROJECTED EDUS
Annandale Estates	Residential	84
Jackson Run Branch	Residential	22
Greenvalley Church / Sam's Hill Branch	Residential	20
Hilltop Branch	Residential	72
Brown County State Park	Seasonal Tourist	32
Beanblossom	Residential	276
Greenbriar Lake	Residential	210
Belmont	Residential	50

5.4 PROJECTED SEWER DEMANDS

Assumptions were made to estimate the location and density in which development would occur within the Sanitary Service Area. Most residential parcels were estimated using aerial imagery and assigning an assumed 310 gpd/home. For developments that are currently planned out, unit counts were used. While not every parcel will be developed within the estimated forecast, each parcel will have a potential to be developed and will require the potential for sewer service. Likewise, the potential population will be in excess of the forecasted population due to all parcels not be developed in their projected development timeframe. This will result in sewer sizes which will be over sized initially to account for the incoming

development and the uncertainty of where development will occur. Appendix A Figure 5-1 indicates the areas to extend sewer service to, and below is a summary of those areas with a brief description.

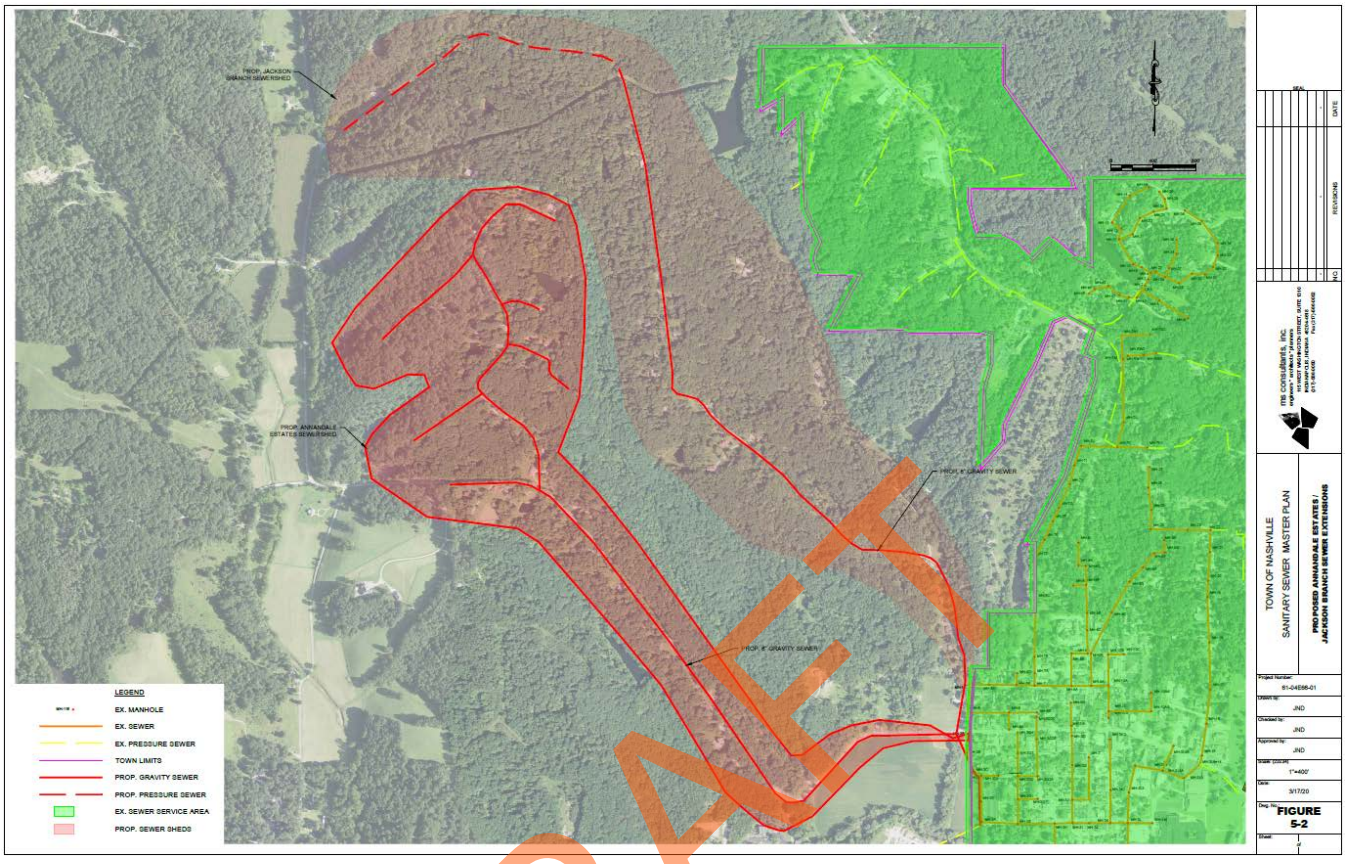
Figure 5-1 - Sewer Service Extension Overall



5.4.1 ANNANDALE ESTATES SANITARY SEWER EXTENSION

Annandale Estates is a small subdivision located approximately 1.5 miles northwest of the Town. The community consists of approximately 84 equivalent dwelling units (EDUs), including those along the proposed sanitary sewer route. The sewer extension would consist of an 8-inch gravity sewer, extending west on Main Street, then northwest along Helmsburg Road to Annandale Drive. The gravity portion of the sewer extension would continue north along Annandale Drive for a few hundred feet. Low pressure grinder stations would then be required for the remaining portion of Annandale Rd. and along the spur roads, such as Tanglewood Ln., Olsen Ln., Annandale East Dr., Annandale West Dr., and areas west of the intersection of Helmsburg Road and Annandale Drive. See Appendix A, Figure 5-2, for a map of this sewer extension. The engineer's opinion of probable project costs is $2,840,000.

Figure 5-2 - Annandale/Jackson Branch Sewer Extension



5.4.2 JACKSON BRANCH SANITARY SEWER EXTENSION

The Jackson Branch sewer extension would include an 8-inch gravity sewer routed along Jackson Branch Road. The sewer would begin at the Washington St. Lift Station, extend north along Jackson Branch Road and end at the crest of the roadway (the power line easement). The remaining portions of Jackson Branch Road and Nob Hill Drive would be served by low pressure grinder sewers. The total sewer service through this line includes approximately 22 EDUs. See Appendix A, Figure 5-2, for a map of this sewer extension. The engineer's opinion of probable project costs is $1,881,000.

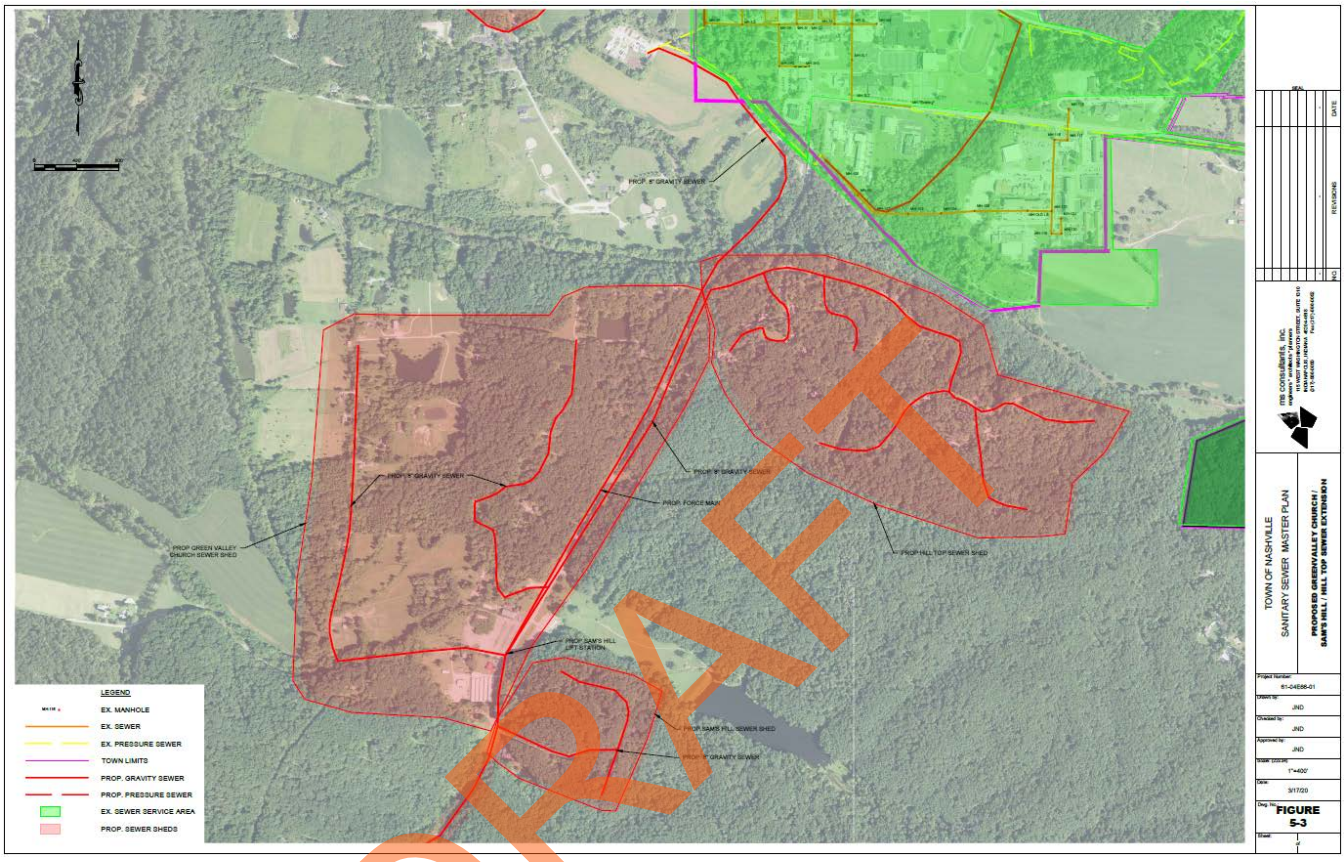
5.4.3 GREENVALLEY CHURCH, SAM'S HILL & HILLTOP SANITARY SEWER EXTENSION

This sewer extension is comprised of three (3) local development areas in close proximity to one another. Their proximity and topographical condition make for an ideal location for a new sanitary sewer lift station sewershed. This sewershed has a low point near the intersection of Greenvalley Road and State Road 46, which is where the new Sam's Hill Lift Station is proposed to be constructed. Gravity sewer lines are proposed to run through all of the Sam's Hill development, Greenvalley Road, Kelp Grove Road, and a sizable portion of Town Hill Road. Approximately 35% of the Hill Top development would be served by gravity, while the remaining would require low pressure grinder service.

The Sam's Hill Lift Station forcemain would extend along State Road 46, north, to the existing Wastewater Treatment Plant. It is estimated that this new sewershed would serve approximately 92 EDUs. Additionally, if future development occurs south of town this lift station could provide service to those areas. Preliminary topographical research indicates that gravity sewer could be extended another 1.30

miles to the intersection of State Road 46 and Brown County State Park West Entrance. See Appendix A, Figure 5-3, for a map of this sewer extension. The engineer's opinion of probable project costs is $6,018,000.

Figure 5-3 - Greenvalley Rd. / Sam's Hill / Hilltop Sewer Extension

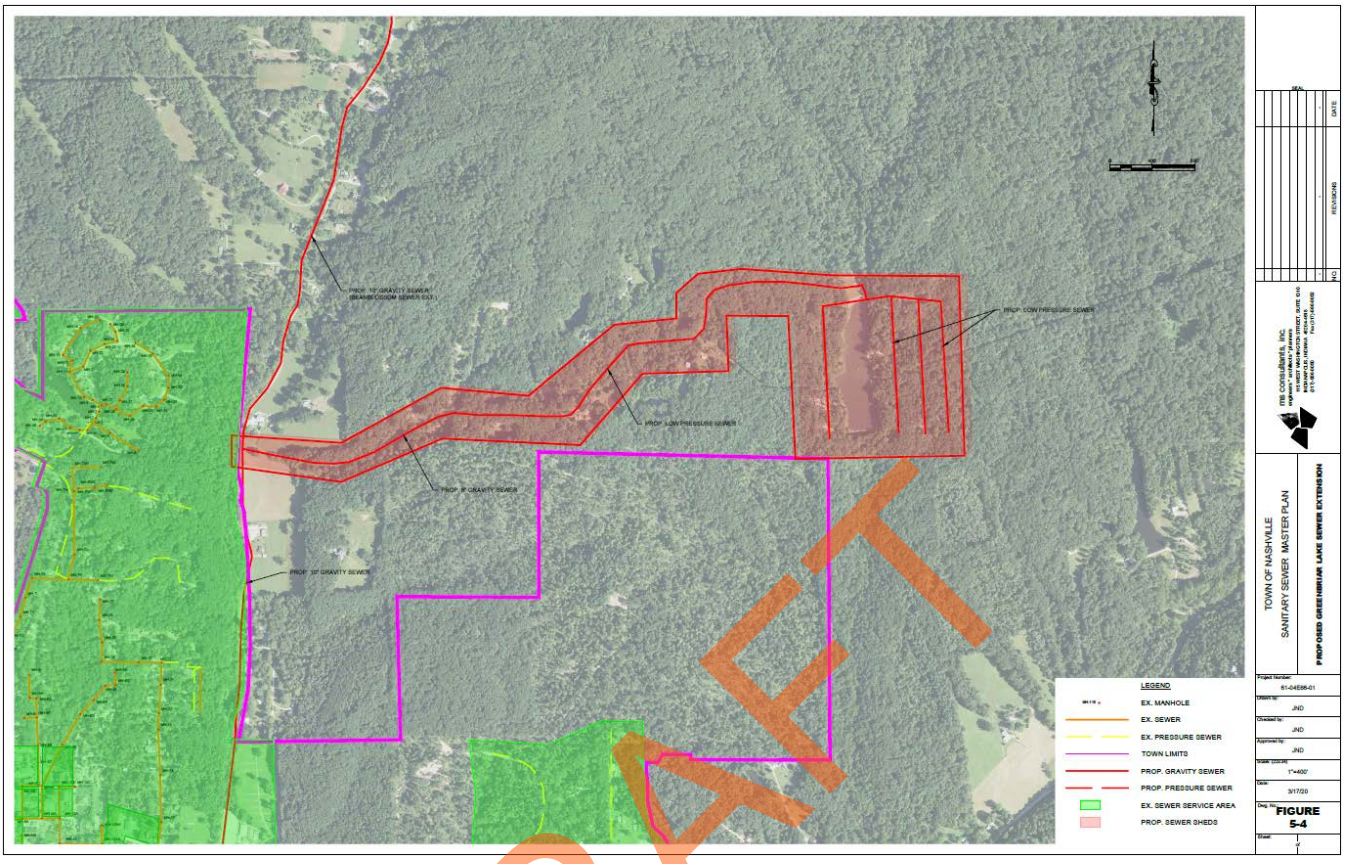


5.4.4 GREENBRIAR LAKE SANITARY SEWER EXTENSION

The Greenbriar Lake development is located approximately 1.80 miles northeast of downtown Nashville. This sewer extension would consist of extending a 10" gravity sewer from the Brown County Inn Lift Station southeast along Salt Creek. Then it would route north along the west bank of Greasy Creek, north, to Old State Road 46. There the line would turn west on Old State Road 46 to Greasy Creek Rd. The new sewer line would run along Greasy Creek Road, north, to Creamer Road. At this point the sewer would reduce to an 8-inch gravity line, routing along Creamer Rd. for approximately 3,000 linear feet. The remaining portion of the sewer extension would be low pressure grinder stations.

This sewer extension would provide service to existing failing septic systems and also provide for the future development. It is estimated that this extension could provide for approximately 210 EDUs of existing development, with spare capacity for 455 EDUs of future growth. See Appendix A, Figure 5-4, for a map of this sewer extension. The engineer's opinion of probable project costs is $4,978,000.

Figure 5-4 - Greenbriar Lake Sewer Extension



5.4.5 BROWN COUNTY STATE PARK WWTP CLOSURE

The sewer extension to Brown County State Park is a bit unique relative to the previously discussed extensions. This area does not include the construction of any infrastructure on the part of the Town. Extensive research was conducted on the existing sewer system in the park, and ms consultants reached out to the Indiana Department of Natural Resources on a number of occasions with little results.

This research revealed that the majority of the park already discharges sewer to the Town. This was determined by the 2019 total metered flow from the existing lift station, which is owned and operated by the State. This flow totaled 20,953,900 gallons of flow, which equates to an average 57,408 gal/day or 185 EDUs. There is one other wastewater treatment plant in the Park, NPDES Discharge Permit No. 0030325. This wastewater facility is permitted to discharge 40,000 gal/day or 32 EDUs. At some point in the future the State may approach the Town about taking on this flow. An engineer's opinion of probable project cost was not prepared for this option.

5.4.6 GNAW BONE WWTP CLOSURE

The Gnaw Bone Regional Sewer District owns and operates a Class I wastewater treatment plant approximately 5.0 miles east of town. While this facility appears to have sufficient capacity, there is feasible to consider that this facility could send flow to the Town. Over the past couple decades local, state and federal authorities have pushed for the regionalization of wastewater facilities. This directive has become more intense the last 2-3 years through efforts within the federal government to apply regionalization mandates on federal grant and loan moneys.

These increased efforts for regionalization could lead to the Gnaw Bone Regional Sewer District to close their treatment facility and send their flow to the Town. If that were the case, there could be an additional 40 EDUs of flow directed to the existing system. This flow would likely be conveyed through the existing 6-inch forcemain along State Road 135. The expenses associated with this sewer extension would likely be the responsibility of the Gnaw Bone RSD. An engineer's opinion of probable project cost was not prepared for this option.

5.4.7 BEANBLOSSOM SANITARY SEWER EXTENSION

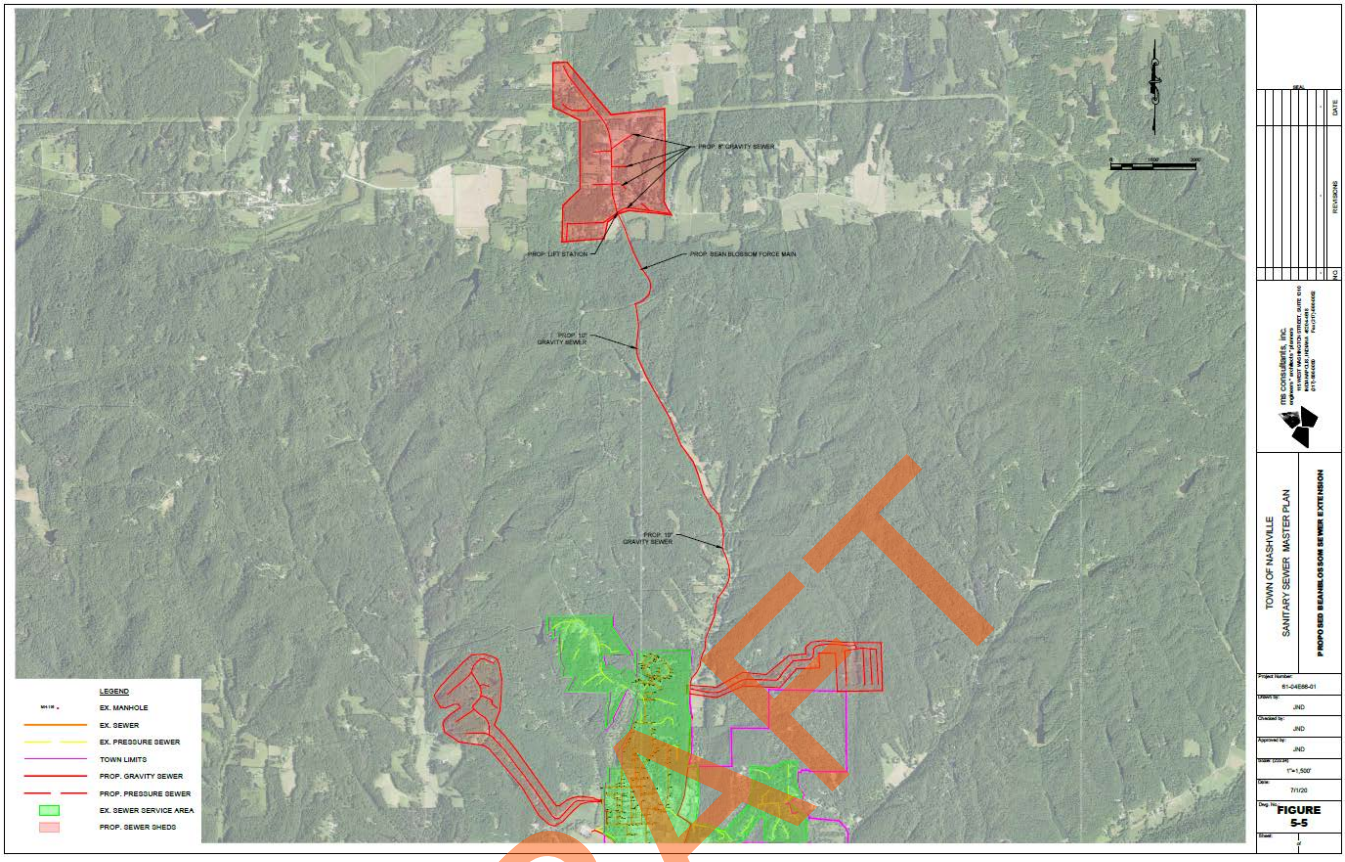
The Town of Beanblossom is located approximately 4.25 miles north of the Town. Beanblossom currently consists of single family homes, and small commercial businesses, all of which utilize septic systems for sewer service. Beanblossom currently lies within the Brown County Regional Sewer District (Brown County RSD) service area, however there are no sewer facilities constructed as of the date of this report. The Brown County RSD recently concluded a study to determine ways to best serve the area.

This report was completed by Hometown Engineering, LLC in December 2019. The report generally consisted of options available to the Brown County RSD to regionalize them along with the Helmsburg Regional Sewer District (Helmsburg RSD). Within this report there are seven (7) options evaluated, which range in cost from $10,151,200 - $29,474,100.

One option which the Brown County RSD report did not explore is routing Beanblossom's sewer to the Town for treatment. This option could consist of a gravity sewer extension, from the previously mentioned Greenbriar Lake sewer extension, north along Greasy Creek Road. Sufficient grade is present to route a 10-inch gravity line from Greasy Creek Road at Creamer Road, north for approximately 2.80 miles to Freeman Ridge Road. At this point a forcemain would be required to convey flow from the Beanblossom town limits (approx. 1.0 mile).

The number of EDUs in which this sewer extension could serve was derived from the Brown County RSD report. In their report they estimate that 276 EDUs are currently in the Town of Beanblossom, and approximately 60 additional EDUs along Greasy Creek Road. See Appendix A, Figure 5-5, for a map of this sewer extension. The engineer's opinion of probable project costs is $6,283,000.

Figure 5-5 - Beanblossom Sewer Extension



1.1.5 BELMONT SANITARY SEWER EXTENSION

The Town of Belmont is located approximately 6.50 miles southwest of the Town. This community consists of approximately thirty (30) single family homes, and two (2) commercial businesses. The sewer extension to this community would likely consist of a lift station on the southwest side of Belmont, pumping northeast to the proposed Sam's Hill Lift Station. This forcemain would be approximately 5.30 miles long, with a 1.30-mile 8-inch gravity line to the Sam's Hill Lift Station. This sewer extension would likely serve approximately 50 EDUs, when including development along the forcemain/gravity route to the Town. See Appendix A, Figure 5-6, for a map of this sewer extension. The engineer's opinion of probable project costs is $6,087,000.

Figure 5-6 - Belmont Sewer Extension

5.5 PROJECTED SEWER FLOW

The above referenced sewer extensions are wide ranging and variable in nature. That being the case, the additional flows which they will convey to the system can be quantified for future planning. Table 5-7 below summarizes the additional flows contributed to the Town's collection system:

Table 5-7 - Summary of Future Flows

LIFT STATION SEWERSHED	SEWER EXTENSION	PROJECTED GROWTH (EDUS)	PROJECTED AVG. DAILY FLOW (GPD)
Washington Street	Annandale Estates	84	26,040
	Jackson Branch	22	6,820
	Original Town Growth	46	14,260
	Total	**152**	**47,120**
Brown County Inn	Greenbriar Lake	210	65,100
	Original Town Growth	46	14,260
	Gnaw Bone RSD	40	12,400
	Beanblossom	336	104,160
	Brown County State Park	32	9,920
	Total	**664**	**205,840**
Prop. Sam's Hill	Greenvalley Church / Sam's Hill / Hilltop	92	28,520
	Belmont	50	15,500
	Total	**142**	**44,020**
	GRAND TOTAL	**958**	**296,980**

6.0 RECOMMENDED FUTURE PROJECTS

6.1 INTRODUCTION

In an effort to collect the increasing flow demands for Nashville over the next 20 years, a plan has been developed to accommodate the projected flows. The proposed projects utilize the existing system and minimize the addition of new lift stations. Each of these projects will provide sewer service to failing areas and may open up new developable area for the Town. For example, the Bean Blossom sewer line project provides service to Bean Blossom and areas between the two towns. This sewer line allows for future growth along the line route without additional capital improvements to those facilities. It is important to note that when new developments are presented to the Town, this plan can be used as a guide. Each new development will need to be evaluated on a case by case basis.

6.2 RECOMMENDED COLLECTION SYSTEM IMPROVEMENTS

6.2.1 INFLOW & INFILTRATION IMPROVEMENTS

The Town is currently under and Agreed Order, Case No. 2019-26278-W, (Order) through the Indiana Department of Environmental Management. This Agreed Order found, among other items, that the Town's existing collection system experienced a sanitary sewer overflow on February 24, 2019. This Order also noted that there had been a number of unreported overflows in the recent past. The overflows are a direct result of inflow & infiltration (I & I) into the collections system. The Order mandates the Town implement a program to locate and eliminate the I & I into the system. A copy of the Order is included in Appendix H.

It is recommended that the Town implement a program of sanitary sewer rehabilitation of all existing sanitary sewers. This program will include the lining of sewers using a cured-in-place rehabilitation method. This method utilizes uncured polyvinyl chloride pipe being inserted through the existing sewer pipe, inflated with steam or water, and cured in place. This method is a trenchless technology which has little to impact to the streets above. Additionally, the existing manholes should be inspected for cracks and holes which allow groundwater into the system. A phased approach to rehabilitating the system is recommended in Table 6-1 below:

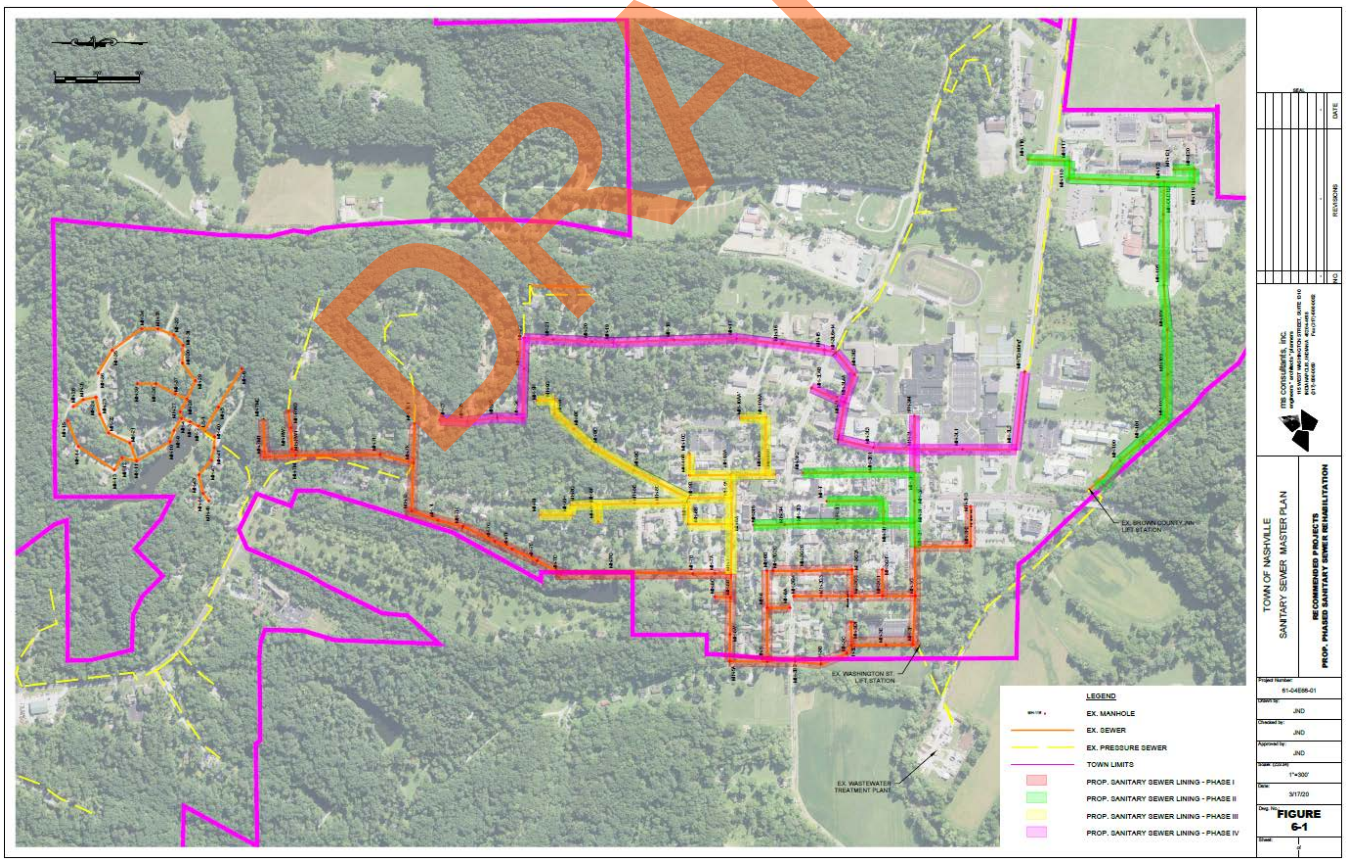
Table 6-1 - Recommended Phased Sanitary Sewer Rehabilitation

PHASE	GENERAL LOCATION	TIMLINE	EST. TOTAL PROJECT COST
Phase I	West of Jefferson St.; North of Washington St.; South of Pine Hills Dr.	2020 – 2021	$1,175,000
Phase II	North of Washington St.; East of Jefferson St.; South of Gould St.; West of Schoolhouse Ln.; BCI LS Collection System	2022 – 2024	$674,000
Phase III	North of Main St.; East of Jefferson St.; West of Schoolhouse Ln.	2024 – 2026	$600,000
Phase IV	Areas around Brown County Schools; Artist Drive	2026 - 2028	$685,000
	Grand Total Project Costs		**$3,134,000**

Notes:
1 – All costs in this table include construction, engineering and administrative costs. These costs are estimated based on the Engineer's prior work history and experience. These cost are subject to variations in the marketplace. The Engineer makes no warranty, expressed or implied, as to the accuracy of such cost estimated.

The cost estimates for this projects recommended in this section are located in Appendix B. Appendix A, Figure 6-1 includes a map of the phased sanitary sewer rehabilitation.

Figure 6-1- Phased Sanitary Sewer Rehabilitation



6.2.2 SANITARY SEWER EXTENSIONS

Section 5.4 of this report describes all of the sanitary sewer extensions considered for this report. While all of these extensions are possible, there are a number of them which are not feasible for the Town to commit to. When evaluating the feasibility of each project there are a number of metrics considered. These metrics include the following:

- Technical Limitations
- Governmental Limitations
- Financial Impact
- Environmental Impact
- Public Support

Each of the above metrics was placed on an escalating scale from 1-5, rating the difficulty of undertaking the project. For example, a rating of 1 for technical limitations would indicate that the technology available to physically convey the flow does not exist or is highly specialized. A rating of 5, on the other hand, would indicate that technology is widely available. Table 6-2 below is an analysis of the projects considered:

Table 6-2 - Recommended Sewer Matrix

SEWER EXTENSION	TECHNICAL	GOVERNMENTAL	FINANCIAL	ENVIRONMENTAL	PUBLIC SUPPORT	TOTAL
Annandale Estates	5	4	2	4	4	19
Jackson Branch	5	4	1	4	4	18
Greenvalley Church/Sam's Hill/Hilltop	4	4	2	4	4	18
Greenbriar Lake	4	4	2	5	3	18
Brown County State Park	5	5	2	3	4	19
Gnaw Bone RSD	4	4	2	3	2	15
Beanblossom	3	3	1	4	1	12
Belmont	1	1	1	4	3	10

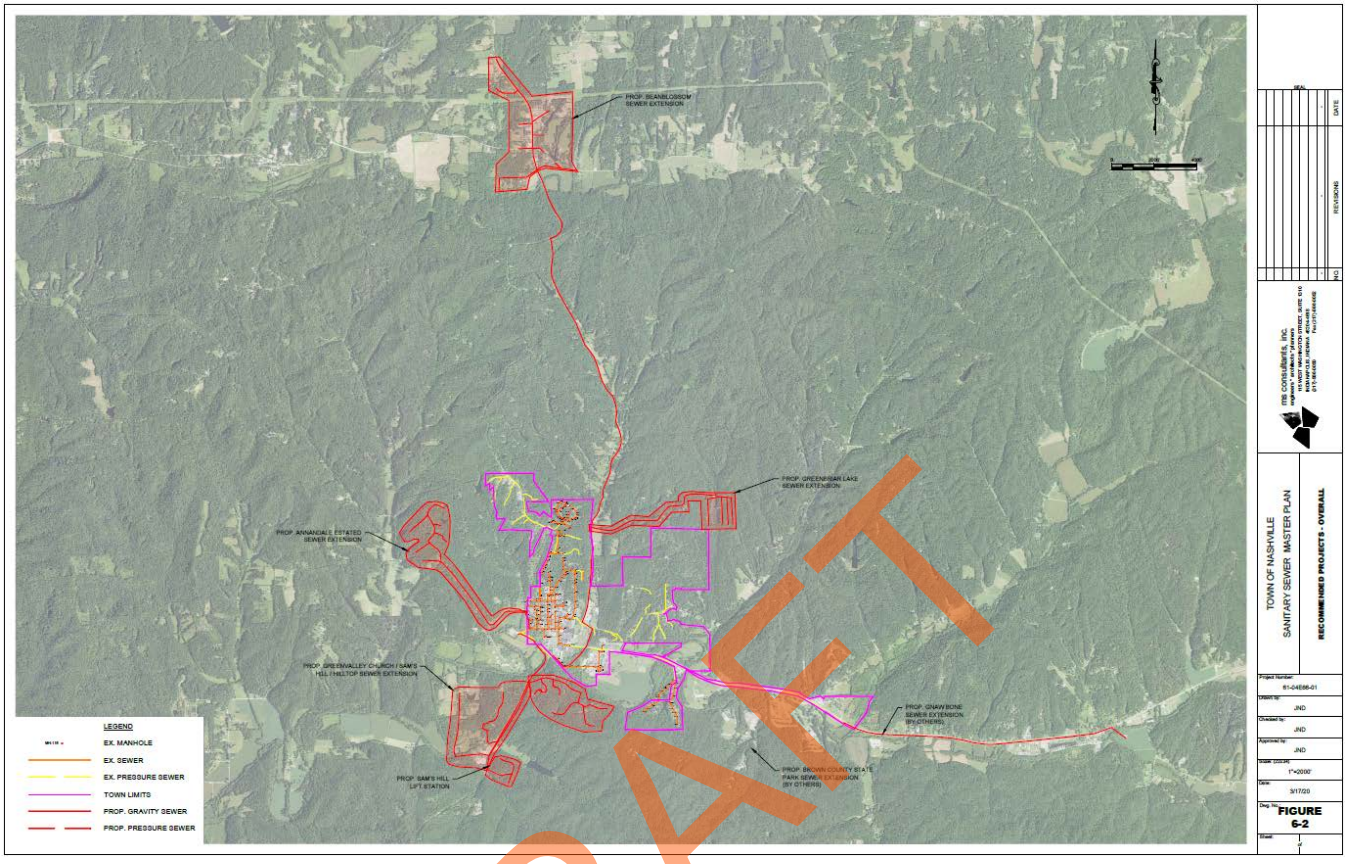
The above table was evaluated based on the criteria in Table 6-2 below:

Table 6-3 - Matrix Criteria

METRIC	METRIC SCALE				
	1	**2**	3	4	5
Technical	Technology may or may not exist to achieve the desired goal.	If technology exists, it is highly specialized and difficult to source	Technology generally exists, but may not be available regionally	Technology is common & available regionally	Technology is widely accepted & available locally
Governmental	Proj. impact is negative & adjacent gov. entity support is negative	Proj. impact is negative & adjacent gov. entity support is unknown	Proj. impact is positive & adjacent gov. entity support is negative	Proj. impact is positive & adjacent gov. entity support is unknown	Proj. impact is positive & adjacent gov. entity support is positive
Financial	Requires borrowing w/ high impact on rates	Requires borrowing w/ unknown impact on rates	Requires borrowing w/ low impact on rates	Absorbed within existing budget	Existing budgeted project
Environmental	Little to no removal of contamination	Limited removal of contamination	No impact positive or negative	High removal of contamination	Complete removal of contamination
Public Support	Highly Negative	Slightly Negative	Unknown	Positive	Highly Positive

From Table 6-2 a list of recommended projects was derived utilizing a minimum total score of 15 (of max. 25). Appendix A, Figure 6-2includes a summary map of the projects recommended in this report.

Figure 6-2 - Recommended Projects



Additionally, Table 6-4 below includes a list of recommended projects, including initial total project costs.

Table 6-4- Recommended Collection System Projects

Project	Service Area (EDUs)	Est. Total Project Cost	Cost per EDU	Project Rec (Yes/No)
Annandale Estates Sewer Extension	84	$2,900,000	$34,524	Yes
Jackson Branch Sewer Extension	22	$1,950,000	$88,636	No
Greenvalley Church / Sam's Hill / Hilltop	92	$5,950,000	$64,674	Yes
Greenbriar Lake	210	$5,000,000	$23,810	Yes
Brown County State Park	32	N/A[1]	N/A	N/A
Gnaw Bone RSD	40	N/A[1]	N/A	N/A
Beanblossom	336	$6,300,000	$18,750	Yes
Belmont	50	$6,100,000	$122,000	No

Notes:
1 – Capital costs for collection system infrastructure improvements were not included as it was assumed that the respective customer would bear those costs. Capital costs for treatment are evaluated later in this report.

6.2.3 LIFT STATION IMPROVEMENTS

As previously stated, the current system consists three (3) main lift stations, which service the entirety of the Town's system. The recommended projects contain only one (1) new lift station be constructed, with the remaining projects being collection system extensions, or lift stations built by others. By evaluating the existing and proposed lift station capacities as projected development occurs, system limitations can be identified.

Table 6-5 summarizes each of the existing and proposed lifts station capacities as compared to the projected flows. The majority of the projected loadings that were identified in Table 6-5 were multiplied by four (4) to account for design standards and obtain a peak flows. However, areas where low pressure gravity sewers exist or are proposed, a peaking factor of 2 was applied. Flows that will exceed the stations capacity are highlighted in red and show that an improvement to the station may be needed based off projections.

Table 6-5 - Existing Lift Station Capacity

LIFT STATION SEWERSHED	EXISTING CAPACITY (MGD)	PEAK DAILY FLOW (MGD)		
		Existing	Future	Total[2]
Washington Street	0.655	0.888	-0.092[1]	0.797
Brown County Inn	0.698	0.355	0.693	1.048
Parkview	0.144	0.074	0.000	0.074
Prop. Sam's Hill	---	---	0.176	0.176

Notes:
1 – The reduced flow projected for the future is a result of rerouting an existing forcemain, as will be discussed later in this section.
2 – Flow totals in red text are projected to exceed the existing lift station capacity and will require upgrades.

The above table was used to route flow and identify whether existing lift stations are capable of servicing new upstream areas. Because the loading evaluation for each sewershed capacity included a factor of four (4) or two (2) as appropriate, discretion can be made when the time for a proposed improvement is scheduled to occur. This is certainly variable with respect to the Town taking on flows from neighboring regional sewer authorities. The model for this report utilized a conservative approach to account for unknowns and provide the Town with the greatest flexibility. Appendix A, Figure No. 6-3 contain an existing and proposed one-line diagram depicting the sewer system at the end of the 20-year planning period.

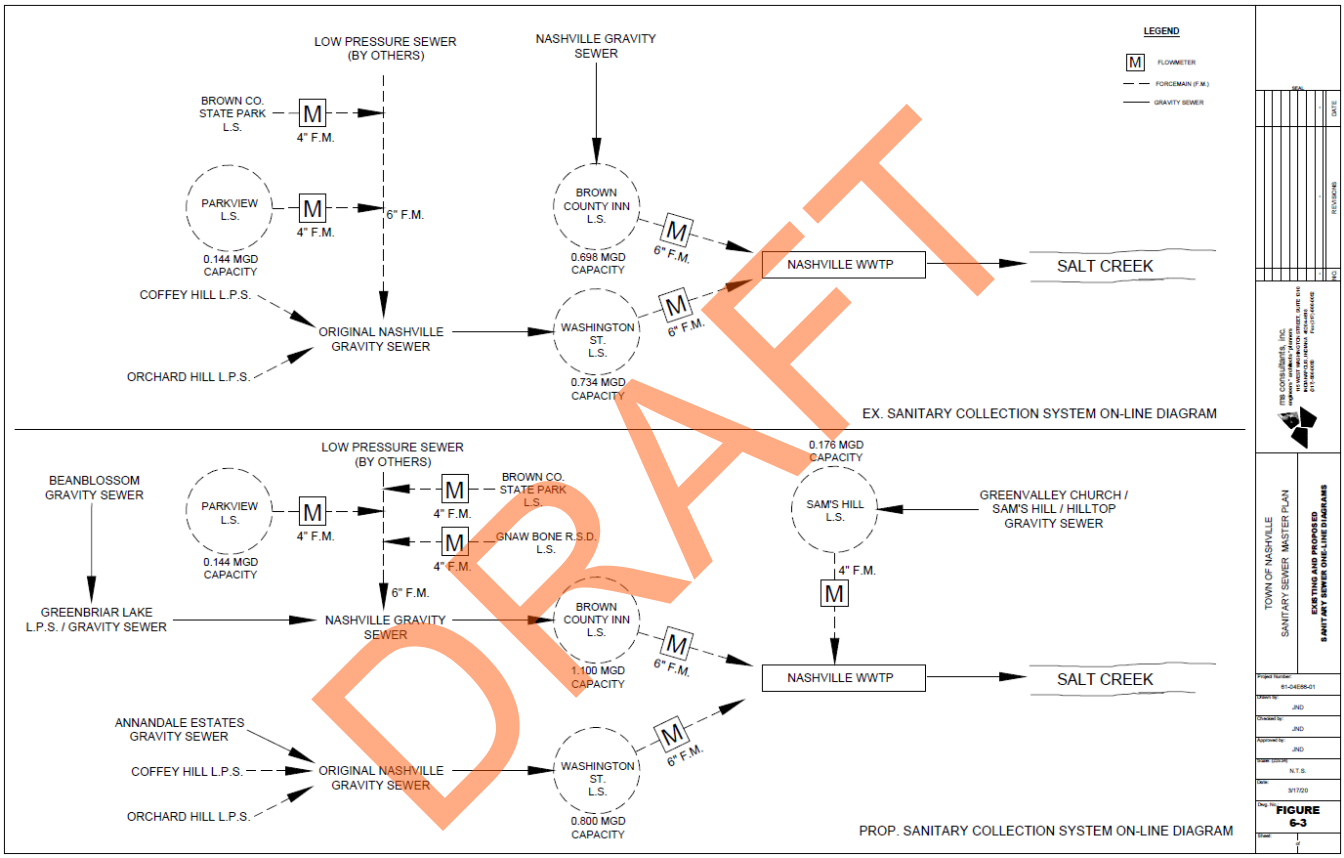
As noted in Table 6-5 above, both the Washington St. and Brown County Inn lift stations will be over capacity as a result of the recommended projects. Therefore, it is recommended these lift stations be upgraded to accommodate the projected flows. The upgrades that are included for this project include:

- New 8-inch PVC forcemain from each lift station, back to the existing Wastewater Treatment Plant;
- New submersible style chopper pumps for each lift station with the following design flows;
  - → Washington St. Lift Station: 560 gpm (0.806 MGD)
  - → Brown County Inn Lift Station: 730 gpm (1.050 MGD)
- New valve vault(s) to accommodate larger discharge piping, valves and metering;
- New emergency backup generators;
- New wetwell for the Washington St. Lift Station only.

The cost for the above upgrades at the Washington Street Lift station is estimated to cost $922,000. The cost for the above upgrades at the Brown County Inn Lift Station is estimated to cost $1,253,000. Appendix B contains detailed cost estimates for both lift station upgrade projects.

The last recommended project for the collection & conveyance system includes the construction of the new Sam's Hill Lift Station. This lift station opens up a new sewershed area south of town, and established sewer service to the Greenvalley Church Road, Sam's Hill and Hilltop areas. This lift station is preliminarily sized for a peak flow of 150 gpm through a 4-inch diameter forcemain to the wastewater treatment plant. The estimated cost for this recommended project is $981,000, and is included in Appendix B.

Figure 6-3 - Future Collection System One-Line Diagram



6.2.4 WASTEWATER TREATMENT PLANT

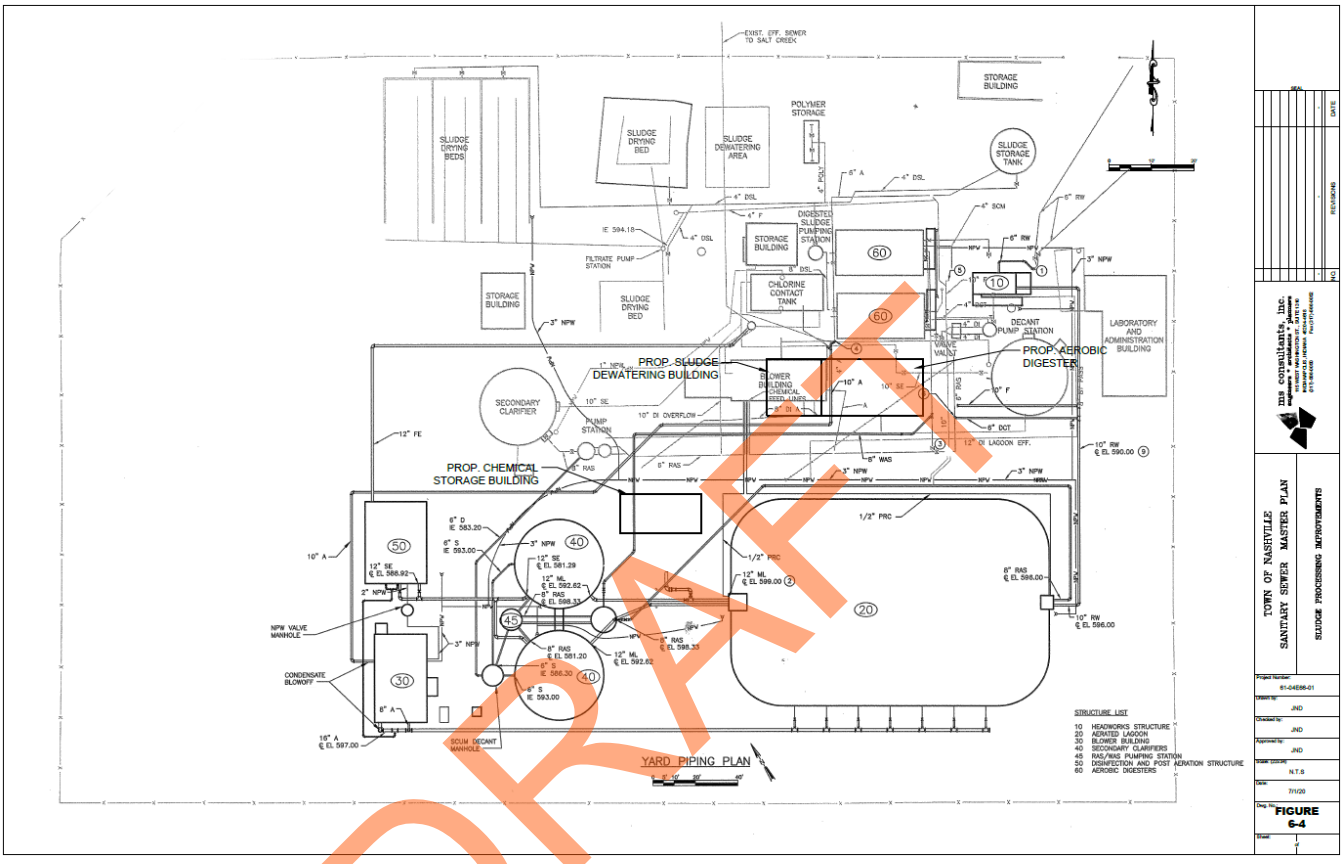
6.2.4.1 *SLUDGE PROCESSING IMPROVEMENTS*

The existing WWTP has some existing deficiencies that were noted upon embarking on this report. An interview with the Town's operator was conducted, at which time it was noted that the existing sludge processing facilities were often beyond their capacity. A review of the existing treatment components revealed that the aerobic sludge digesters were in fact beyond their design capacity. This limits the time that the sludge is digested, which results in more sludge to dewater and haul off-site.

Another item of note is that the existing dewatering method is the use of sludge drying beds, located adjacent to Salt Creek. The elevation of these sludge drying beds lends them to river flooding, leading to the escape of dewatered solids into the river. This was noted to have occurred in February 2019,

which led to a notice of violation and subsequent Agreed Order. A temporary dewatering method was implemented, which consists of waste dumpsters and geosynthetic dewatering bags. However, these temporary dewatering facilities are still located adjacent to Salt Creek and subject to inundation by floodwaters.

Figure 6-4 - Prop. WWTP Sludge Processing Improvements



It is recommended that a sludge processing improvements project be implemented. This project would include a new aerobic digester to allow for complete digestion of sludge, leading to a smaller volume to be disposed of. Additionally, a new sludge dewatering building would be constructed above the floodplain. This building would contain a new mechanical dewatering unit, polymer feed system, sludge pumps, and other process equipment. Additionally, the existing digester blowers would be relocated to this building, and an additional blower added. The estimated costs for this project is included in Appendix B, and is estimated to be $2,983,000.

6.2.4.2 *WASTEWATER TREATMENT PLANT EXPANSION*

As previously stated, the existing Wastewater Treatment Plant (WWTP) is rated for 0.60 MGD of average daily design flow. Influent flows for the previous three (3) years were trended to predict at what point(s) the WWTP may require expansion. For the previous three (3) years the WWTP averages a 0.01 MGD annual increase in average daily flows. Extrapolating this out for the next 20 years in this report we arrive at the below predicted average daily influent flows:

Table 6-6 - Wastewater Treatment Plant Anticipated Flows

PLANNED YEAR	AVG. DAILY FLOW (MGD)*	EVENT TRIGGER
2020	0.305	
2022	0.325	
2024	0.365	
2026	0.385	
2028	0.405	
2030	0.425	
2032	0.445	
2034	0.465	
2036	0.485	
2038	0.505	
2040	0.525	90% Plant Capacity Reached – Plant Expansion Under Design

**These flows are estimated flows.*

As noted in the above table, the estimated average daily influent flow is expected stay within permitted capacity through 2040. At this point the plant would require an expansion and should be under design and financing of the project identified. However, this does not factor in flow increases from sanitary sewer extensions. If a timeline is established for extending sewer to these areas, a projected flow to the wastewater treatment plant can be established to predict an expansion to the plant. For instance, Table 6-7 below outlines a potential timeline for sewer extensions based on the recommended projects.

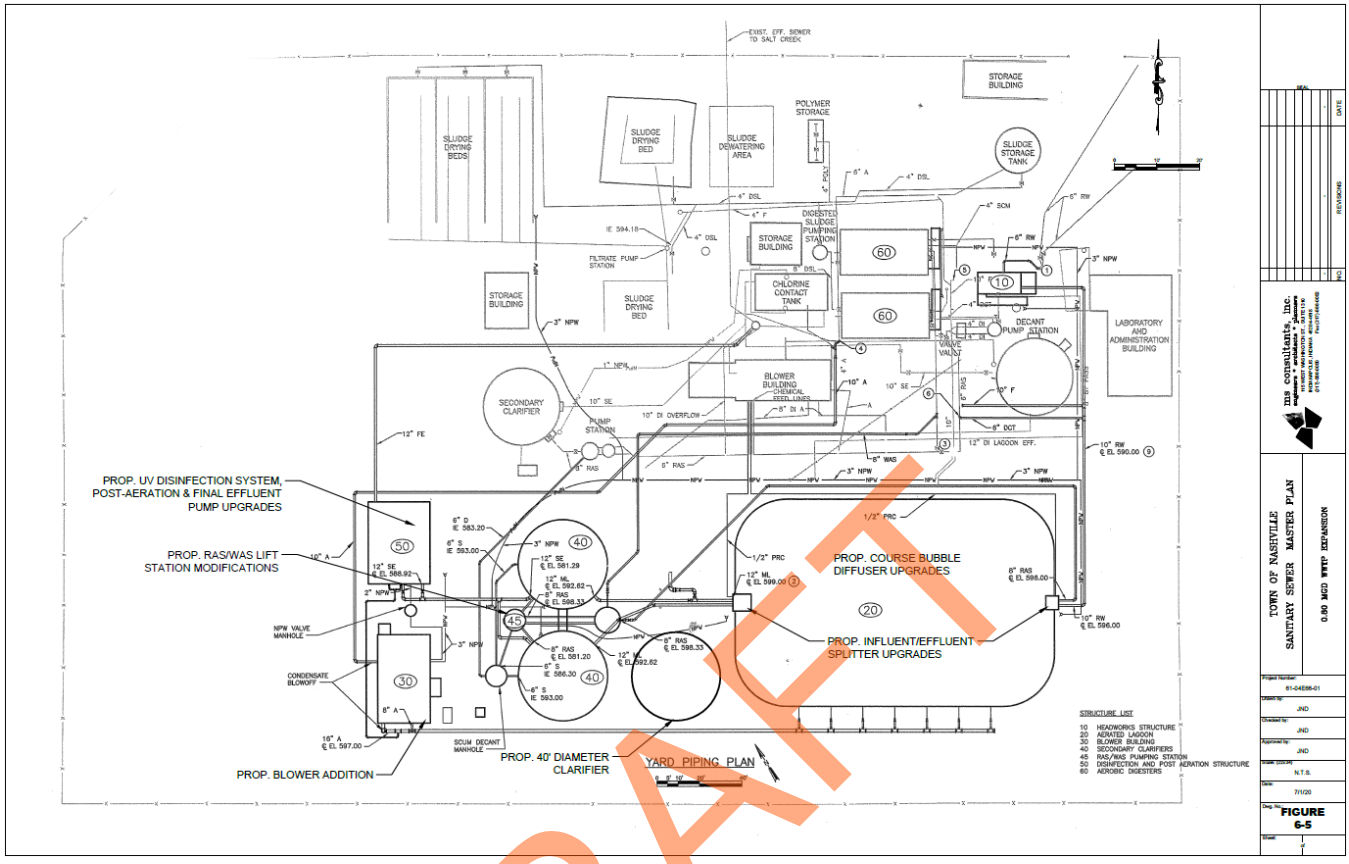
Table 6-7 - Wastewater Treatment Plant Flows (Projected)

PLANNED YEAR	SEWER EXTENSION	ADDED FLOW (MGD)	AVG. DAILY FLOW (MGD)	EVENT TRIGGER
2020	---	---	0.305	
2022	Annandale Estates	0.026	0.351	
2024	Greenvalley Church / Sam's Hill / Hilltop	0.028	0.399	
2026	---	---	0.419	
2028	Greenbriar Lake	0.065	0.504	90% Plant Capacity Reached – Plant Expansion Under Design
2030	Beanblossom	0.104	0.628	Plant Expansion to 0.800 MGD Complete
2032	---	---	0.648	
2034	---	---	0.668	
2036	Gnaw Bone	0.012	0.70	
2038	---	---	0.720	90% Plant Capacity Reached – Plant Expansion Under Design
2040	Brown County State Park	0.010	0.75	

*These flows are estimated flows.

In the above scenario, after maximizing the existing facilities to treat an average daily flow of 0.60 MGD, a plant expansion may be required in or around 2028. It is anticipated that the existing facility layout could be expanded upon to accommodate an expansion to 0.80 MGD. This expansion would likely include improvements to biological treatment, a new clarifier, UV disinfection upgrades and improvements to other miscellaneous areas of the plant. Knowing that an expansion of the plant could be less than 10 years away, the previously recommended sludge improvements design would include sizing of facilities to meet this expansion. The estimated costs for this project is included in Appendix B, and is estimated to be $2,715,000.

Figure 6-5 - Future 0.80 MGD WWTP Expansion



As the Town nears the timeframe where an expansion is warranted, a dedicated engineering study should be conducted to evaluate the Town's options for expansion.

7.0 FUNDING CONSIDERATIONS

The funding of these projects is determined at the time of the project, using the most appropriate source as determined by the Town. There are a number of potential funding sources available which could vary upon the project. These sources could include developer funded improvements, general town revenue, bonds state revolving fund (SRF) loan/grant, or State/Federal grants. Additionally, the Town's utility rate structure could provide a source of funding for these projects. This could include a recoupment fee from new developers. This recoupment fee could be structured to apply only to a specific geographical area serviced specifically by a proposed project. Below are a number of funding sources which could be available to the Town:

7.1.1 INDIANA FINANCE AUTHORITY – STATE REVOLVING FUND (SRF)

The Indiana Finance Authority (IFA) is the authorized state entity charged with financing revenue bonds for the state. As a result, they are also charged with administering the Wastewater/Water State Revolving Loan Programs (SRF). The SRF program provides low-interest fixed rate loans to municipalities and political subdivisions of the state for public works projects. Interest rates are reset quarterly and are at or below 90% of the average 20-year AA rated, general obligation bond Municipal Market Data. Rates are further discounted based on applicant's median household income (from current census data) and local user rates.

The user rates are developed based on a 20-year payback period and require a 25% debt service reserve. The user rates are based on a three tiered structures that combines three levels of median household income and three levels of user rates. Based on the current tiered system valid through June 30, 2020 the interest rate for the Town could be 2%. This rate typically depends upon median household income and sewer user rates; however current market rates happen to be flat at this time. Communities wishing to apply must submit an application along with a preliminary engineering report (PER). Once the staff at SRF have reviewed the PER, a public hearing is held to discuss the potential project. SRF develops a priority list to establish the order in which communities receive funds. The application can be submitted at any time during the year and the communities are added to a priority list that is updated each quarter. In addition to low interest loans, in some instances the SRF program also offers forgivable loans that function as grant funds to "buy down" the estimated sewer user rates. The current monthly sewer user rate threshold for grant eligibility is typically $65± per month.

There may be additional stimulus funding available from the federal government in 2020. This additional funding will likely be administered through the SRF program. In order to qualify, it is important to complete an SRF Preliminary Engineering Report to get on the state's priority list.

7.1.2 U.S.D.A. RURAL DEVELOPMENT – WATER & WASTE DISPOSAL LOAN & GRANT PROGRAM (WWDL)

The United States Department of Agriculture (U.S.D.A.) administers this program to provide funding for clean and reliable sanitary sewage disposal systems. The WWDL program is primarily for rural residents, small cities, and towns with populations of 10,000 or less. The program uses low interest loan funds and grant funds to assist in the funding of water and sanitary sewer projects. Interest rates are adjusted quarterly and may be obtained from any USDA office. The intermediate, 2020 3rd quarter interest rate is 1.875%. If awarded, grant assistance, in some instances, can be up to 75% of eligible project costs. In actuality, grant funds would typically be much lower than the 75% limit, particularly for large projects. Eligibility requirements for grant assistance are the same as for direct loans. Payback periods for debt

service can be as long as 40 years; however, no repayment period will exceed the expected useful life of the proposed facilities.

Similar to the SRF program, WWDL requires an application submittal along with a PER. Upon approval, a financing package of loans and grants is developed based on the community's income level and its ability to meet a certain user rate. The WWDL program estimates an acceptable user rate for the community based on median income levels and rates of similar systems. Consequently, the program typically does not provide grant assistance to projects that would have rates below the acceptable user rate. WWDL considers acceptable user rates to be in the range of $55 to $65 per month. The RUS program is allocated a certain amount of money each year. Once the demand has exhausted the supply, the applicants are prioritized based on several factors including income levels, service population, health hazards, and violations of local health ordinances.

7.1.3 INDIANA OFFICE OF COMMUNITY AND RURAL AFFAIRS (OCRA)

The Indiana OCRA administers the Community Focus Funds (CFF) grants which are funded with federal Community Development Block Grant (CDBG) dollars from the U.S. Department of Housing and Urban Development (HUD). This program has recently undergone several changes and for the year 2020 as there is expected to be two rounds of applications for water and wastewater projects. The areas to be served must have a substantial low to moderate income population (51% or greater) or is designated a slum or blighted area by local resolution. The project must address the long term planning and development efforts of the community. The funds granted must have a significant impact on the proposed project.

Funding is very competitive between cities and towns. Competition for this grant money is evaluated on a points system. At this time, the maximum construction grant amount is $500,000. Furthermore, the recipient is required to match a minimum of 10% of the grant, or total project cost, with local funds. The funded project should be completed in 18 months from the time of award. Past recipients have generally involved water and sewer projects with a minimum user rate threshold of approximately $68/month for wastewater or a combined water and wastewater monthly bill of $136 or an increase in the existing monthly user rate of greater than $5 per month. Readiness to proceed and income level are both critical factors. Regional Sewer Districts cannot be the primary applicant for these funds. The local elected official of an incorporated City, Town or the County would be the primary applicant and the Town would be considered the sub-recipient.

7.1.4 BOND FUNDING

This type of funding is not typical of municipalities in Indiana, however it is an option available to the Town. This option involves retaining the services of legal bond council to coordinate the sale of a municipal revenue bond on the open market. There are savings associated with option through lowered regulatory compliance, lack of federal labor wage rates, and other items. However, the interest rates from the sale of a revenue bond on the open market are typically higher than can be obtained through SRF or USDA.

APPENDIX A

Appendix A: Report Figures

LEGEND

TOWNSHIP BOUNDARY

TOWN LIMITS

SEAL

NO.	REVISIONS	DATE
-	-	-

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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

GENERAL LOCATAION MAP

Project Number: 61-04E66-01

Drawn by: JND

Checked by: JND

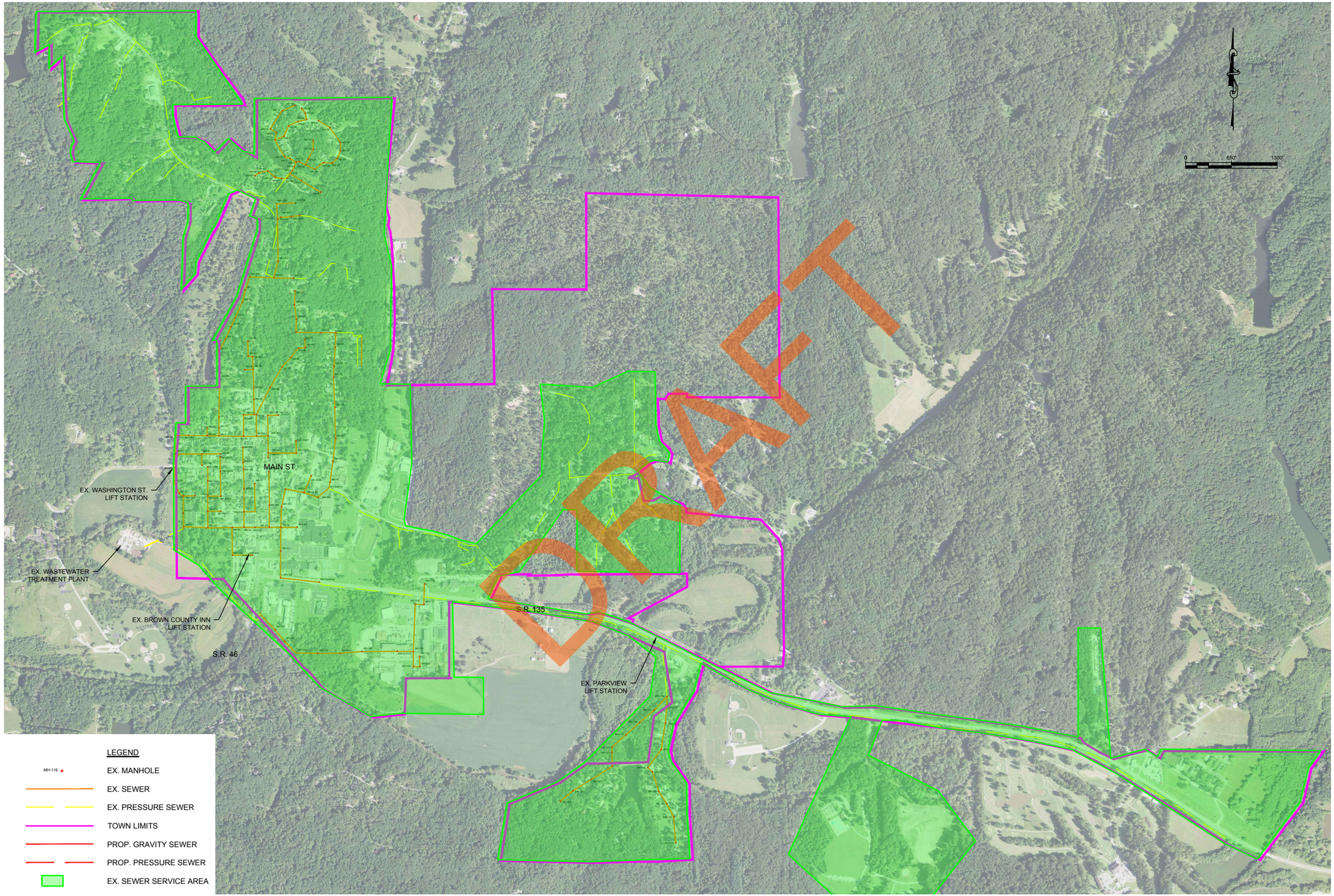
Approved by: JND

Scale: (22x34) 1" = 4,000'

Date: 3/17/20

Dwg. No.: **FIGURE 2-1**

Sheet: of



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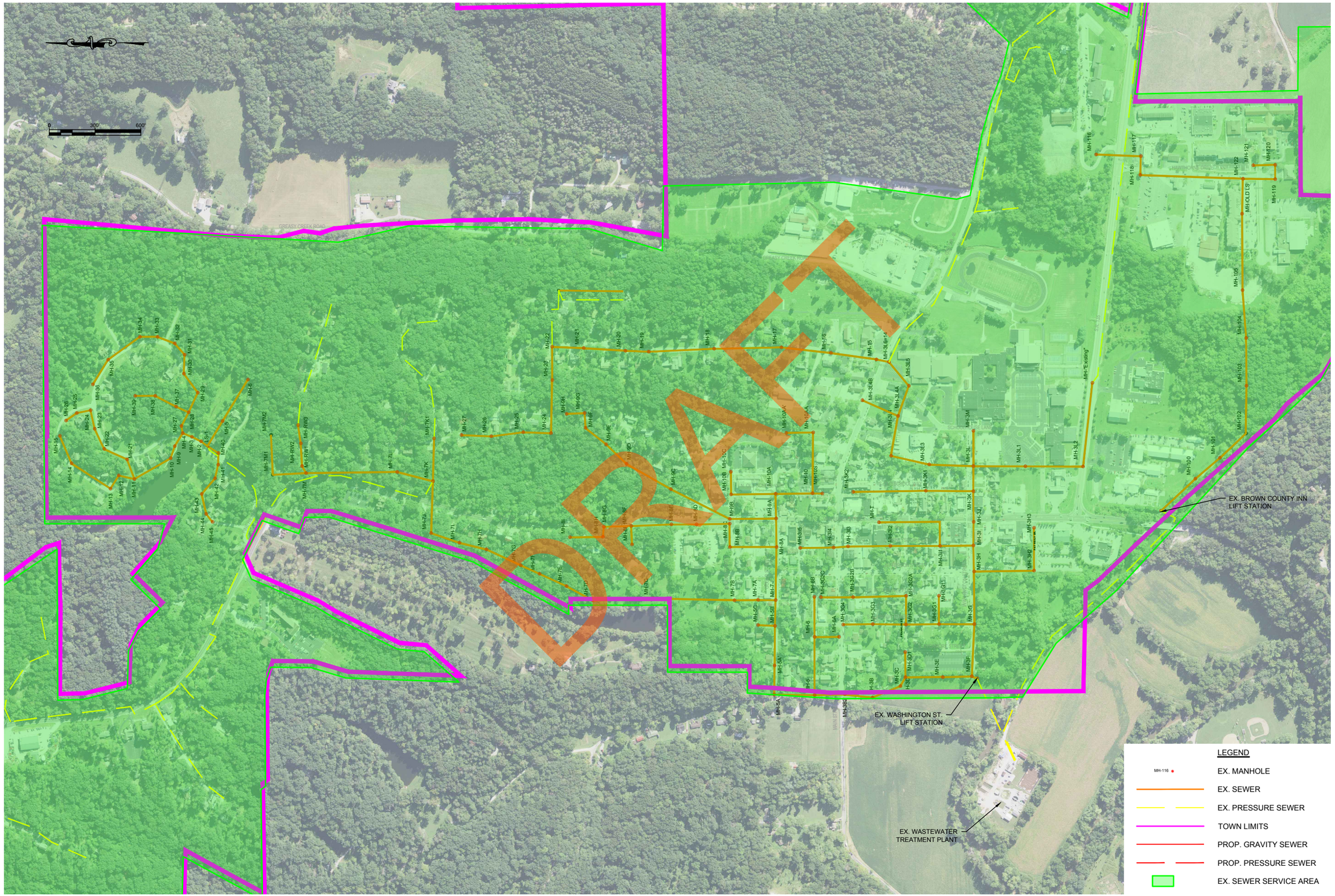
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING SYSTEM MAP

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=650'
Date: 7/1/20
Dwg. No.: **FIGURE 2-2**
Sheet: of



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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING SYSTEM MAP - ENLARGED

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=300'
Date: 3/17/20
Dwg. No.: **FIGURE 2-3**
Sheet: of

EX. WASHINGTON ST. LIFT STATION

EX. WASTEWATER TREATMENT PLANT

EX. BROWN COUNTY INN LIFT STATION

EX. PARKVIEW LIFT STATION

MH-"Existing"

MH-OLD LS

0 300' 600'

DRAFT

LEGEND

- EX. MANHOLE
- EX. SEWER
- EX. PRESSURE SEWER
- TOWN LIMITS
- PROP. GRAVITY SEWER
- PROP. PRESSURE SEWER
- EX. SEWER SERVICE AREA

SEAL

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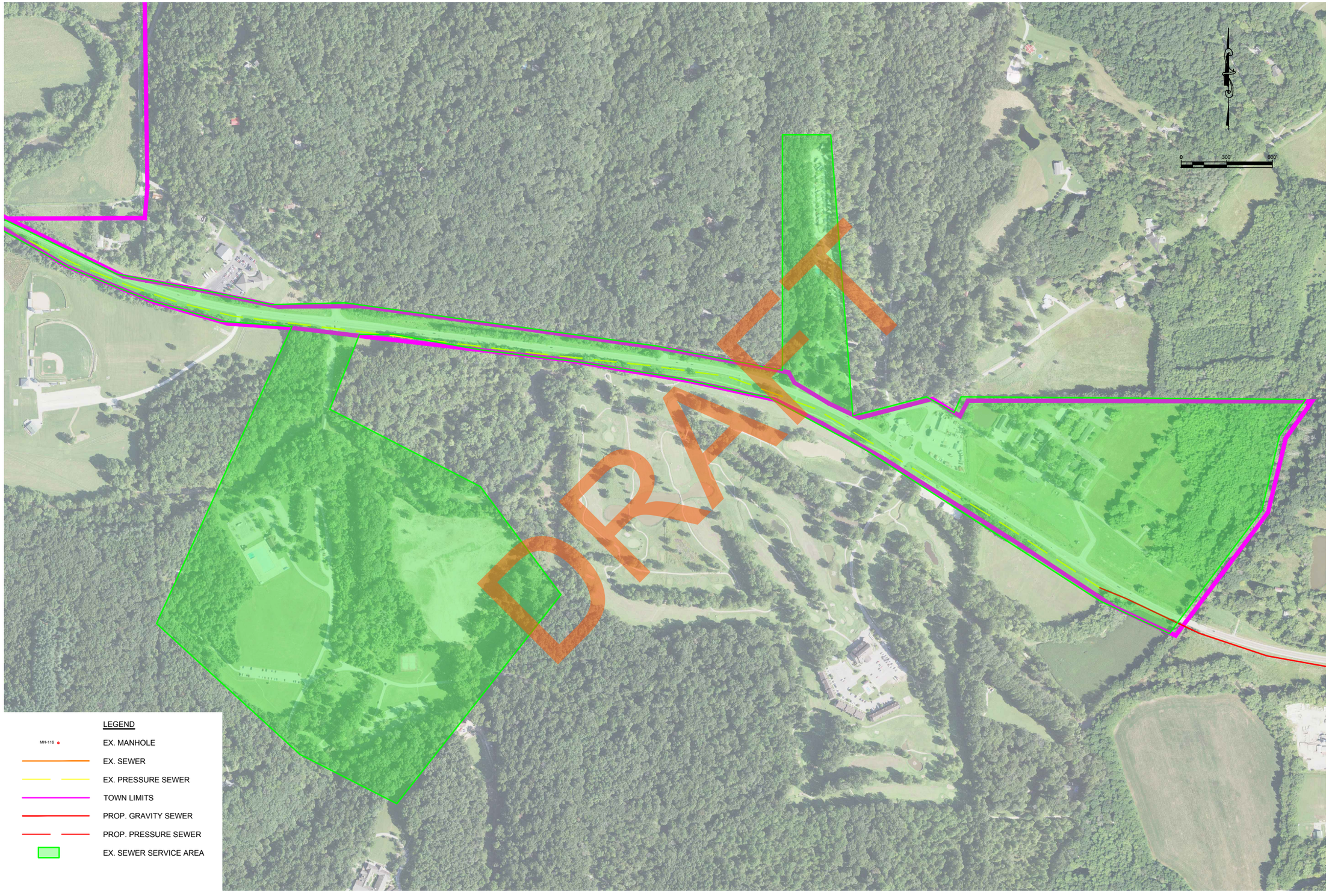
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING SYSTEM MAP - ENLARGED

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=300'
Date: 3/17/20
Dwg. No.: **FIGURE 2-4**
Sheet: of



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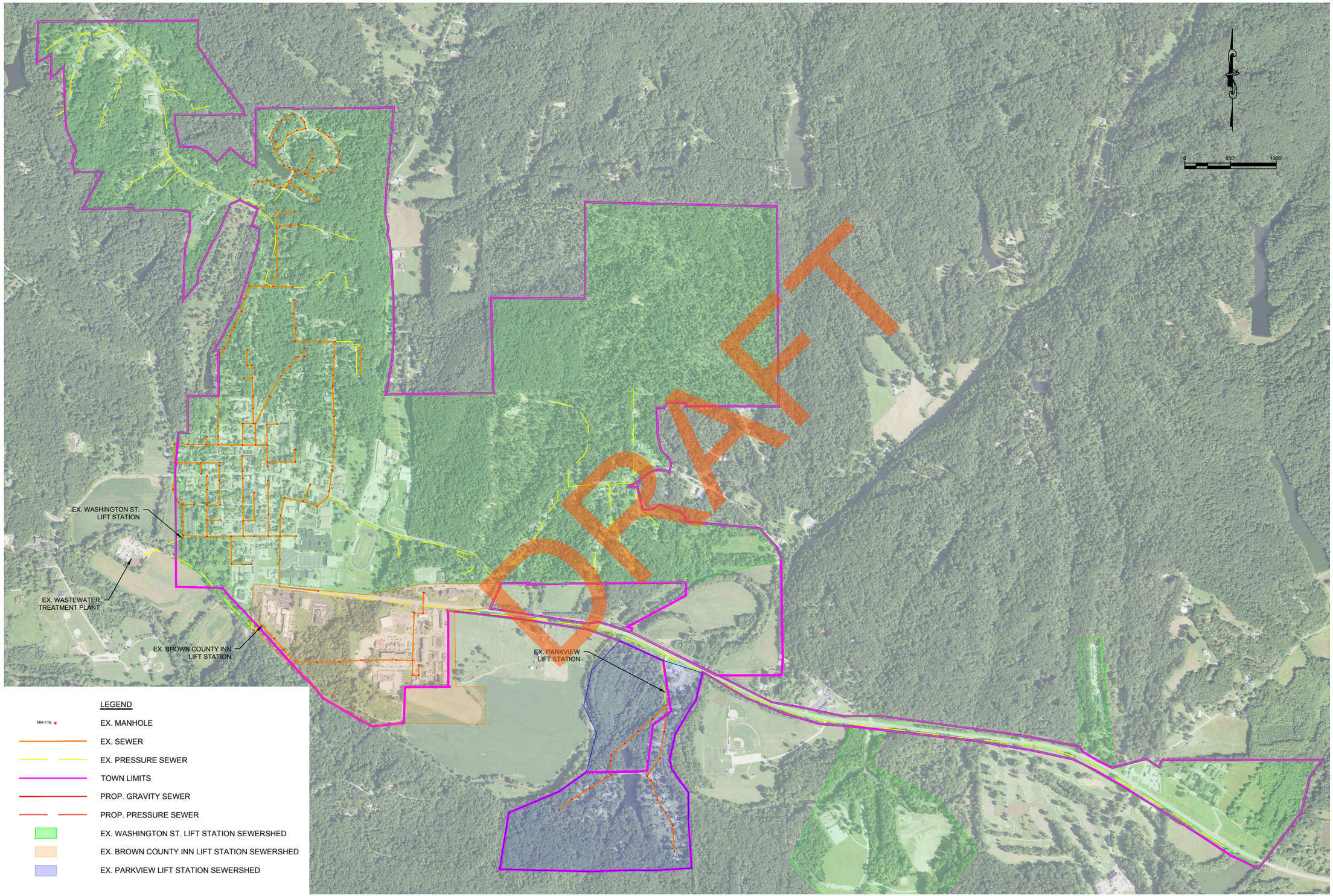
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING SYSTEM MAP - ENLARGED

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=300'
Date: 3/17/20
Dwg. No. **FIGURE 2-5**
Sheet: of



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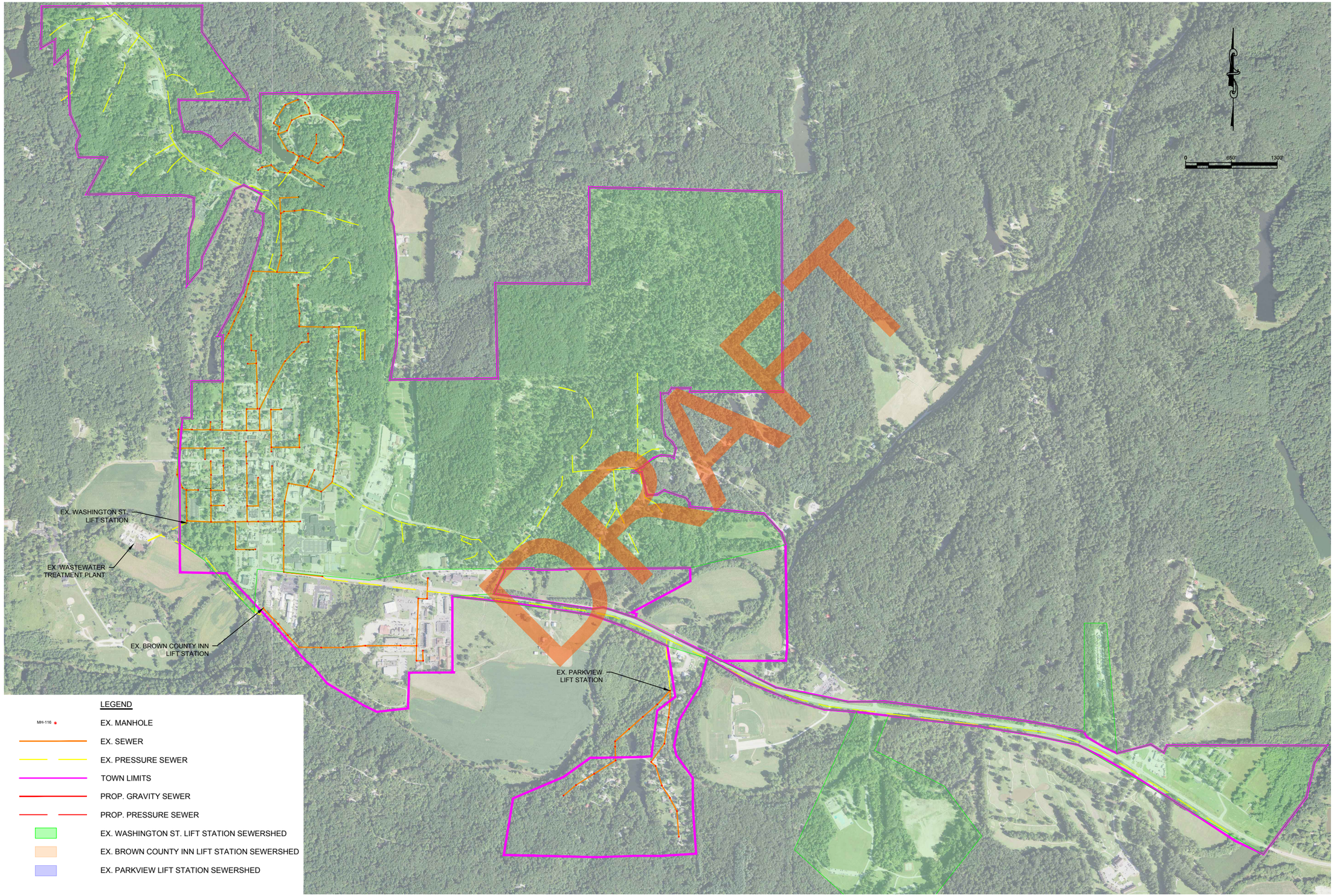
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING LIFT STATION SEWERSHED MAP

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1" = 650'
Date: 3/17/20
Dwg. No.: **FIGURE 3-1**
Sheet: of



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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING WASHINGTON STREET LIFT STATION SEWERSHED

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=650'
Date: 3/17/20
Dwg. No.: **FIGURE 3-2**
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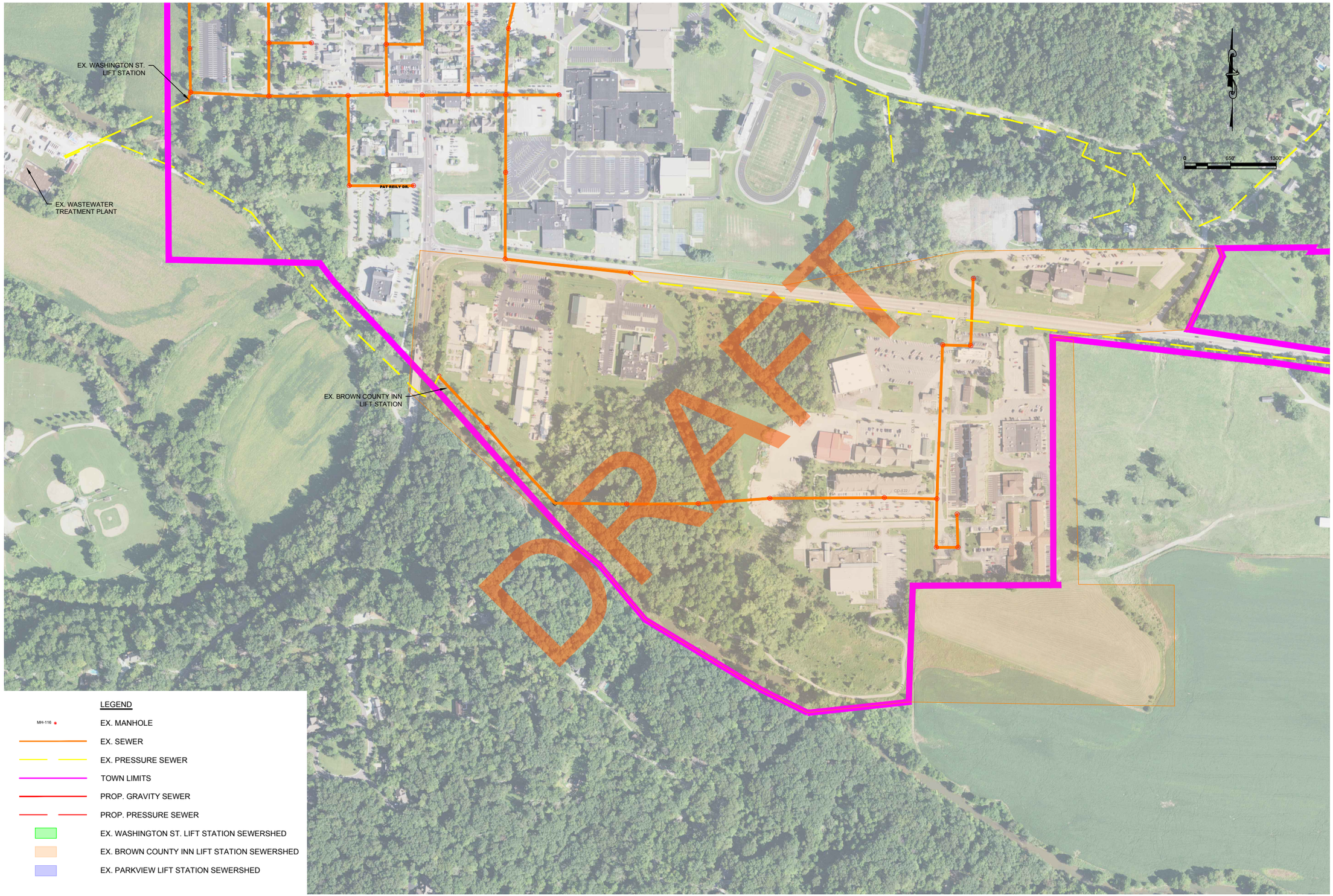

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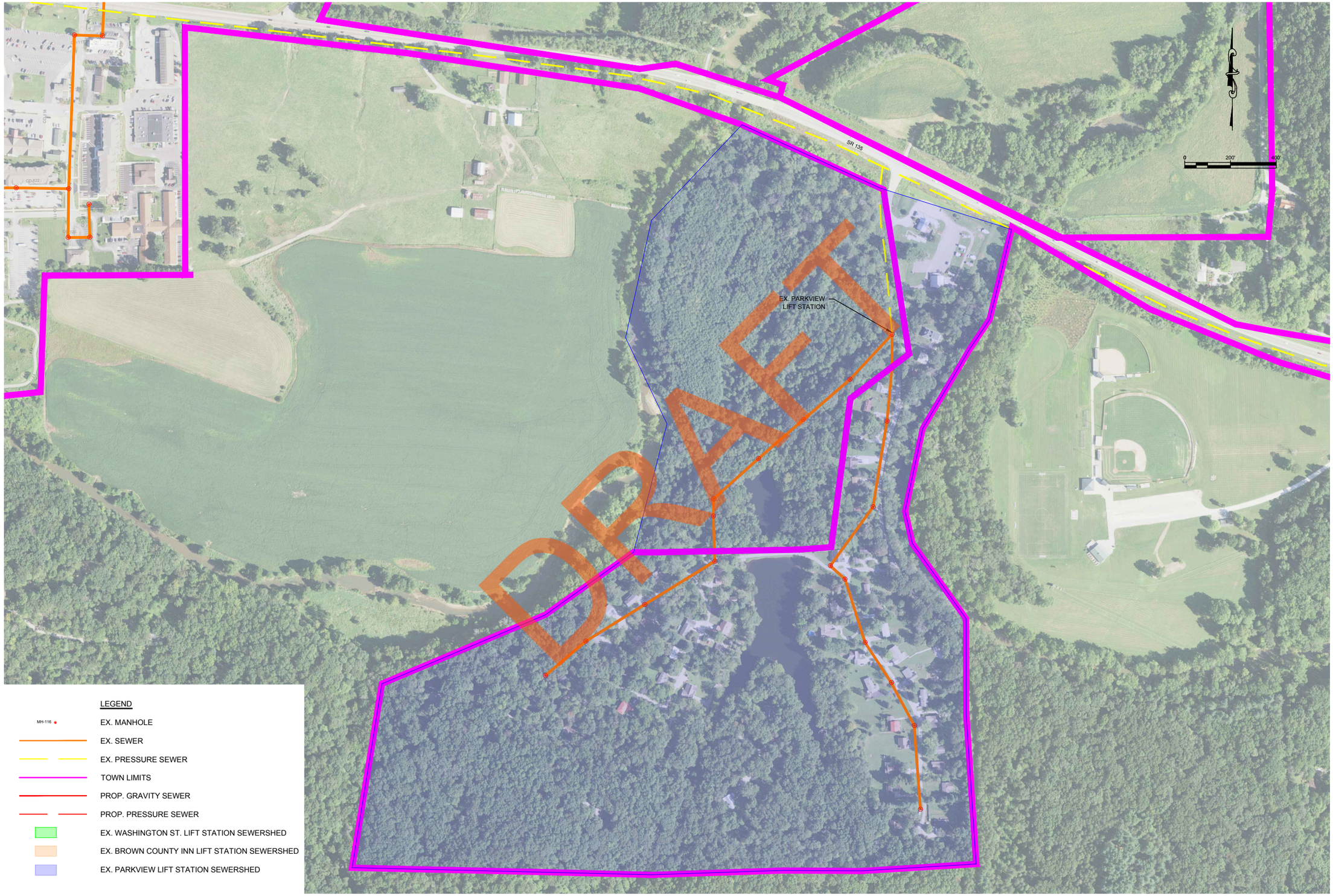
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING BROWN COUNTY INN LIFT STATION SEWERSHED

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=200'
Date: 3/17/20
Dwg. No.: **FIGURE 3-3**
Sheet: of



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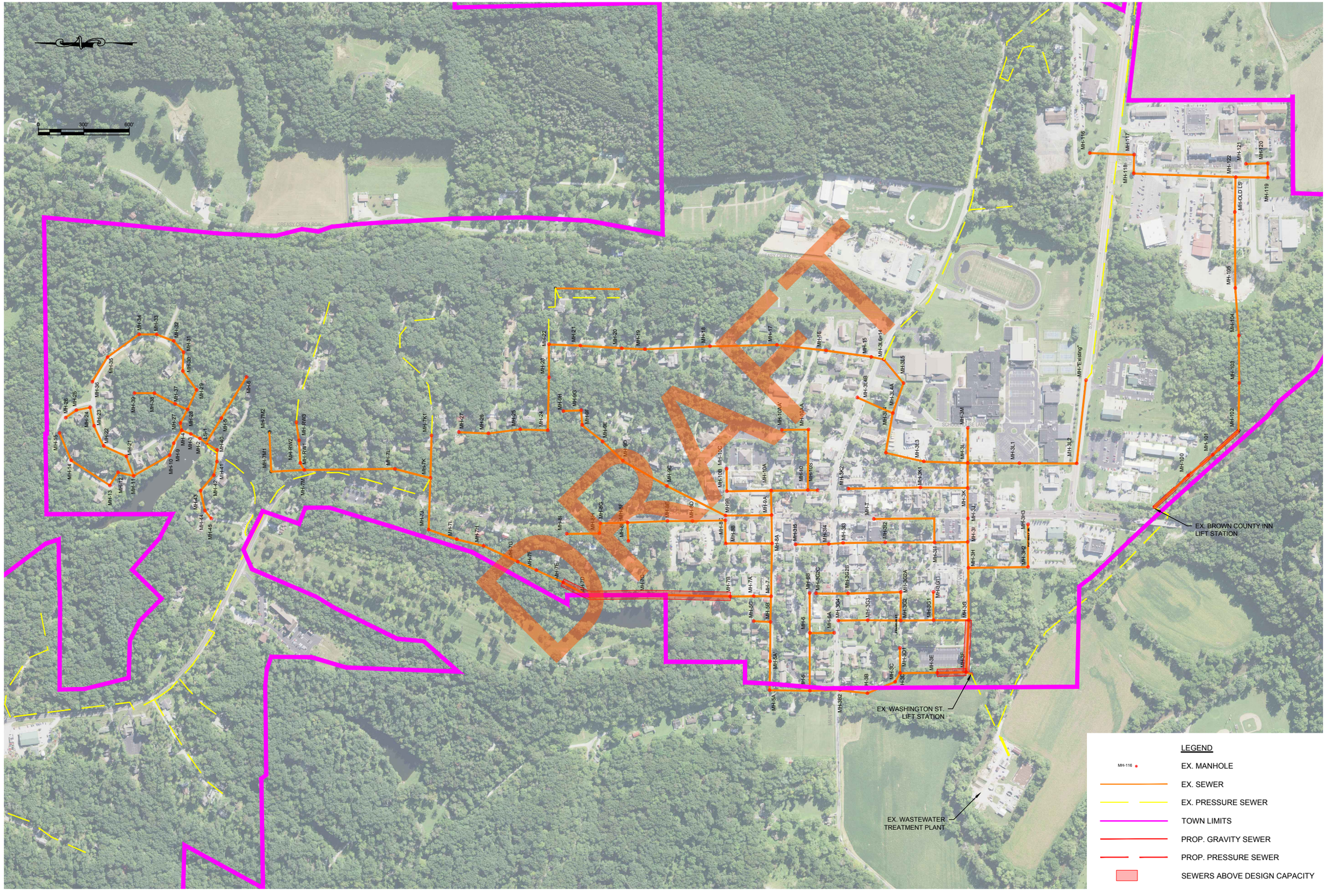
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING PARKVIEW LIFT STATION SEWERSHED

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=200'
Date: 3/17/20
Dwg. No.: **FIGURE 3-4**
Sheet: of



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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING SANITARY SEWER MODELING COLLECTION SYSTEM CAPACITY

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=300'
Date: 3/17/20
Dwg. No. **FIGURE 4-1**
Sheet: of

PROP. BEANBLOSSOM SEWER EXTENSION

PROP. JACKSON BRANCH SEWER EXTENSION

PROP. GREENBRIAR LAKE SEWER EXTENSION

PROP. ANNANDALE ESTATES SEWER EXTENSION

PROP. GREENVALLEY CHURCH RD. / SAM'S HILL / HILLTOP SEWER EXTENSION

PROP. GNAW BONE SEWER EXTENSION

PROP. BROWN COUNTY STATE PARK WWTP CLOSURE

PROP. BELMONT SEWER EXTENSION

0 2500' 5000'

LEGEND

- MH-116 — EX. MANHOLE
- EX. SEWER
- EX. PRESSURE SEWER
- TOWN LIMITS
- PROP. GRAVITY SEWER
- PROP. PRESSURE SEWER
- EX. SEWER SERVICE AREA

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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

PROPOSED SEWER EXTENSIONS

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1" = 2,500'
Date: 3/17/20
Dwg. No.: **FIGURE 5-1**
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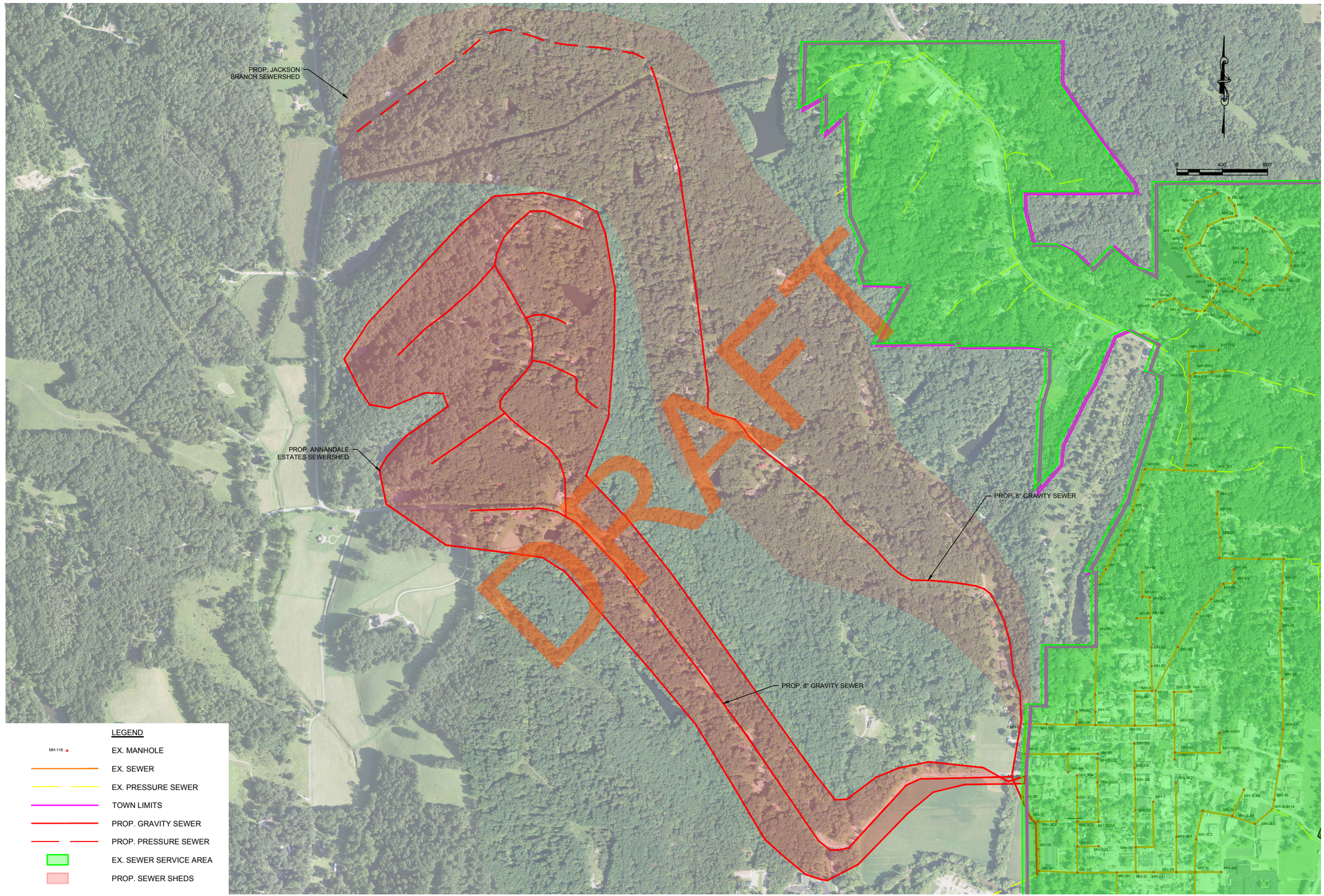

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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

PROPOSED ANNANDALE ESTATES / JACKSON BRANCH SEWER EXTENSIONS

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=400'
Date: 3/17/20
Dwg. No.: **FIGURE 5-2**
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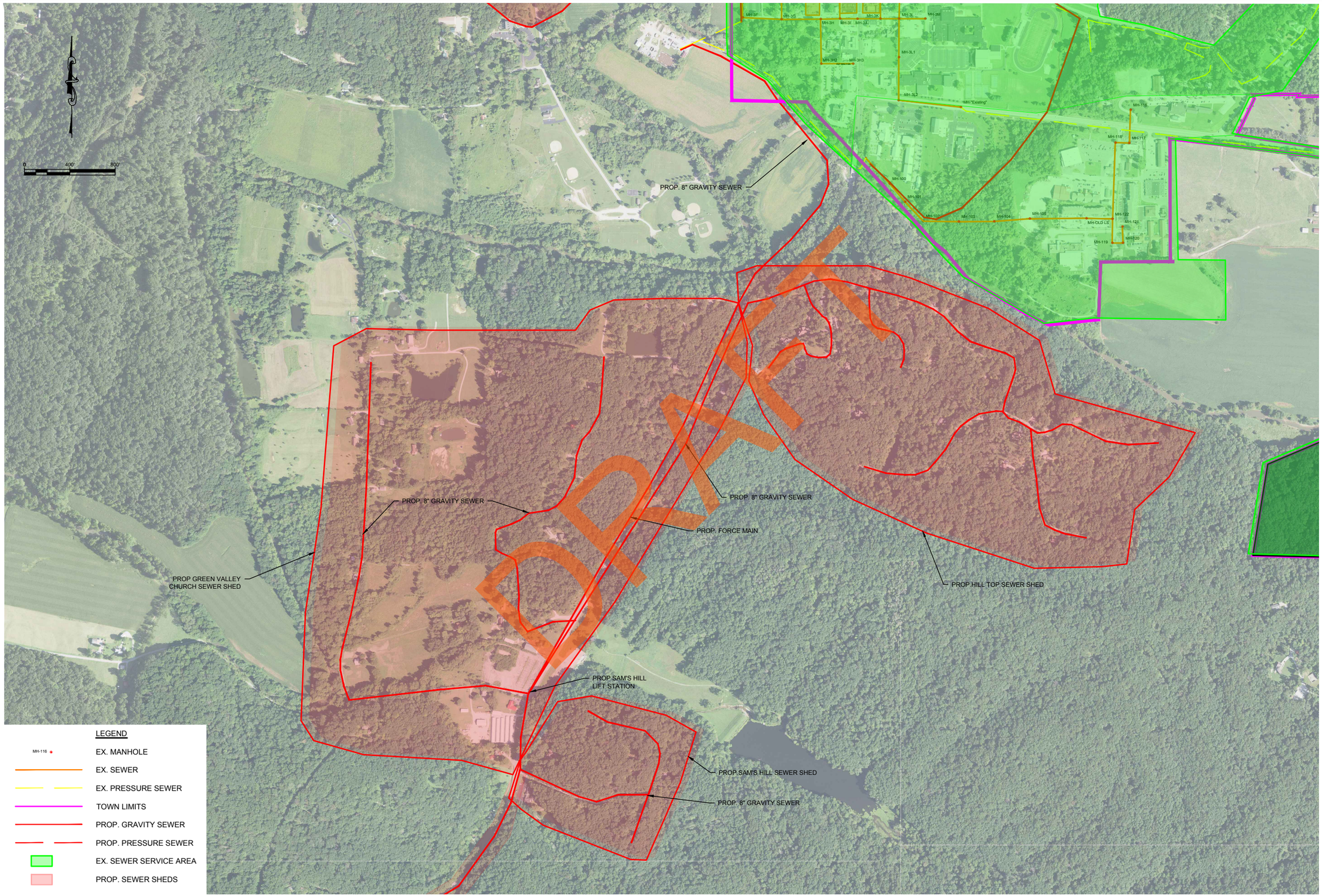

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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

PROPOSED GREENVALLEY CHURCH / SAM'S HILL / HILL TOP SEWER EXTENSION

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=400'
Date: 3/17/20
Dwg. No.: **FIGURE 5-3**
Sheet: of

PROP. 10" GRAVITY SEWER
(BEANBLOSSOM SEWER EXT.)

PROP. LOW PRESSURE SEWER

PROP. LOW PRESSURE SEWER

PROP. 8" GRAVITY SEWER

PROP. 10" GRAVITY SEWER

0 400' 800'

DRAFT

LEGEND

- EX. MANHOLE (MH-116)
- EX. SEWER
- EX. PRESSURE SEWER
- TOWN LIMITS
- PROP. GRAVITY SEWER
- PROP. PRESSURE SEWER
- EX. SEWER SERVICE AREA
- PROP. SEWER SHEDS

SEAL

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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

PROPOSED GREENBRIAR LAKE SEWER EXTENSION

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=400'
Date: 3/17/20
Dwg. No.: **FIGURE 5-4**
Sheet: of

PROP. 8" GRAVITY SEWER

PROP. LIFT STATION

PROP. BEAN BLOSSOM FORCE MAIN

PROP. 10" GRAVITY SEWER

PROP. 10" GRAVITY SEWER

0 1500' 3000'

DRAFT

LEGEND

- MH-116 EX. MANHOLE
- EX. SEWER
- EX. PRESSURE SEWER
- TOWN LIMITS
- PROP. GRAVITY SEWER
- PROP. PRESSURE SEWER
- EX. SEWER SERVICE AREA
- PROP. SEWER SHEDS

SEAL

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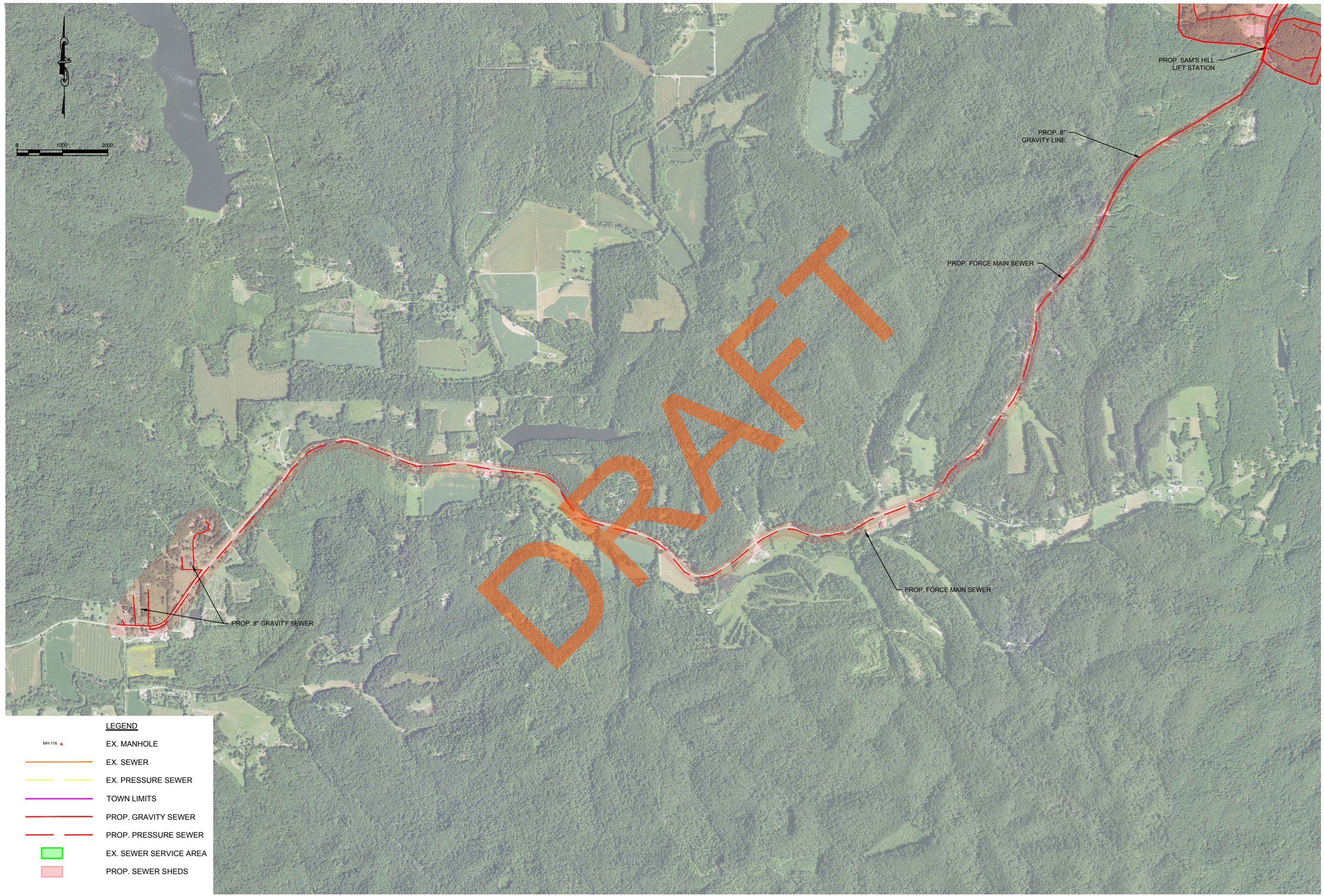
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

PROPOSED BEANBLOSSOM SEWER EXTENSION

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=1,500'
Date: 7/1/20
Dwg. No.: **FIGURE 5-5**
Sheet: of



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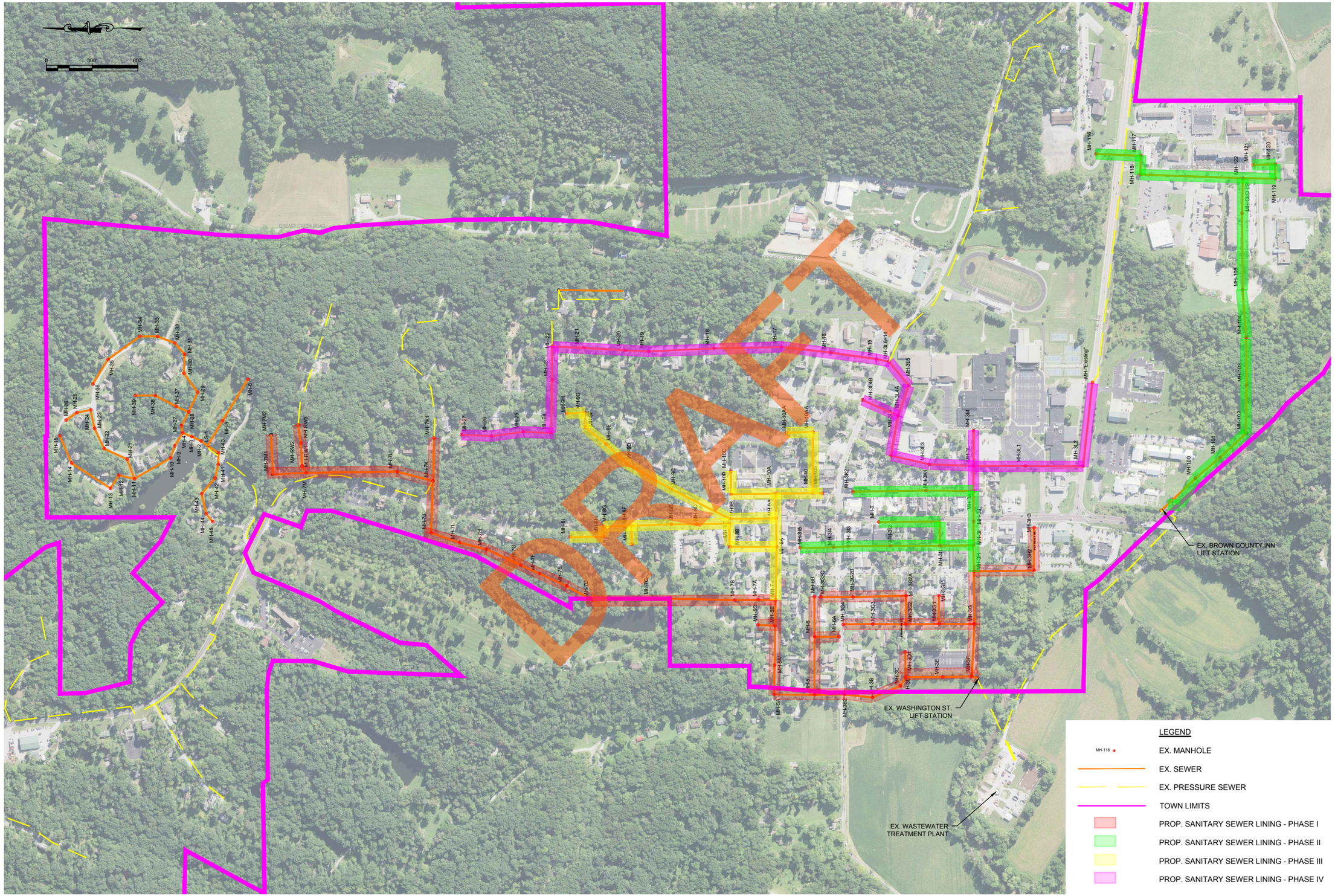
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

PROPOSED BELMONT SEWER EXTENSION

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=1,000'
Date: 7/1/20
Dwg. No.: **FIGURE 5-6**
Sheet: of



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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

RECOMMENDED PROJECTS
PROP. PHASED SANITARY SEWER REHABILITATION

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=300'
Date: 3/17/20
Dwg. No.: **FIGURE 6-1**
Sheet: of

PROP. BEANBLOSSOM
SEWER EXTENSION

0 2000' 4000'

PROP. GREENBRIAR LAKE
SEWER EXTENSION

PROP. ANNANDALE ESTATED
SEWER EXTENSION

PROP. GREENVALLEY CHURCH / SAM'S
HILL / HILLTOP SEWER EXTENSION

PROP. GNAW BONE
SEWER EXTENSION
(BY OTHERS)

PROP. SAM'S HILL
LIFT STATION

PROP. BROWN COUNTY STATE
PARK SEWER EXTENSION
(BY OTHERS)

DRAFT

LEGEND

- MH-116 EX. MANHOLE
- EX. SEWER
- EX. PRESSURE SEWER
- TOWN LIMITS
- PROP. GRAVITY SEWER
- PROP. PRESSURE SEWER

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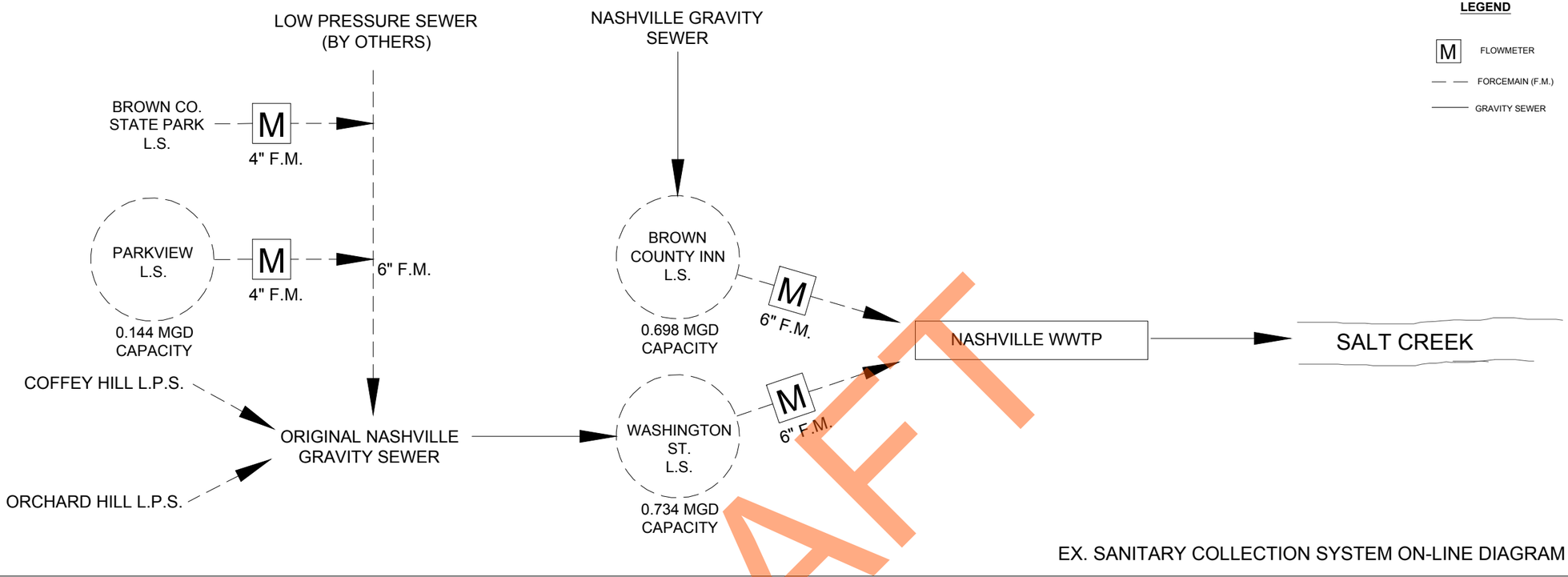
TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

RECOMMENDED PROJECTS - OVERALL

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) 1"=2000'
Date: 3/17/20
Dwg. No.: **FIGURE 6-2**
Sheet: of



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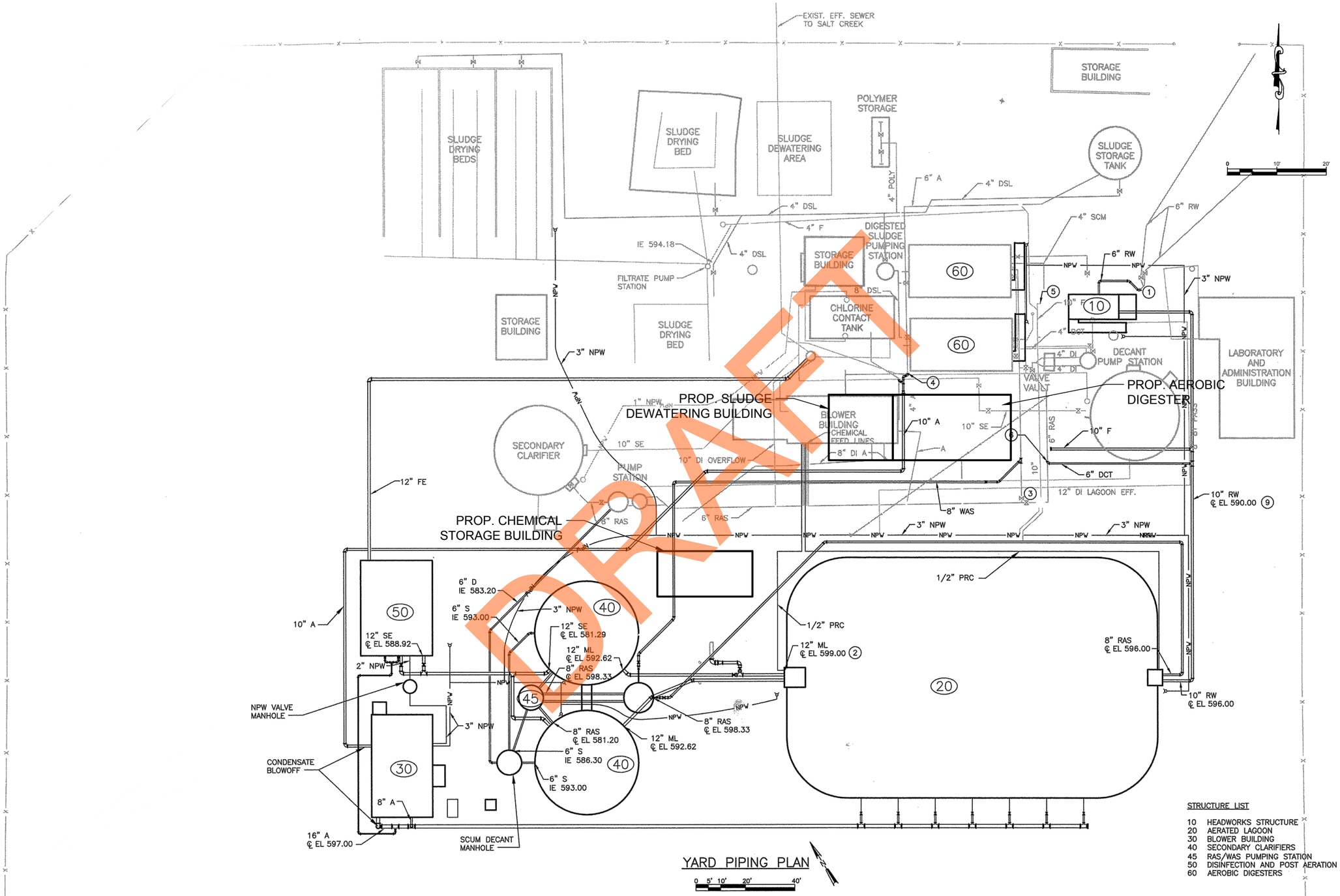
(317)-636-0050 Fax (317)-586-0052

TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

EXISTING AND PROPOSED SANITARY SEWER ONE-LINE DIAGRAMS

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) N.T.S.
Date: 3/17/20
Dwg. No.: **FIGURE 6-3**
Sheet: of



DRAFT

STRUCTURE LIST

10 HEADWORKS STRUCTURE
20 AERATED LAGOON
30 BLOWER BUILDING
40 SECONDARY CLARIFIERS
45 RAS/WAS PUMPING STATION
50 DISINFECTION AND POST AERATION STRUCTURE
60 AEROBIC DIGESTERS

SEAL

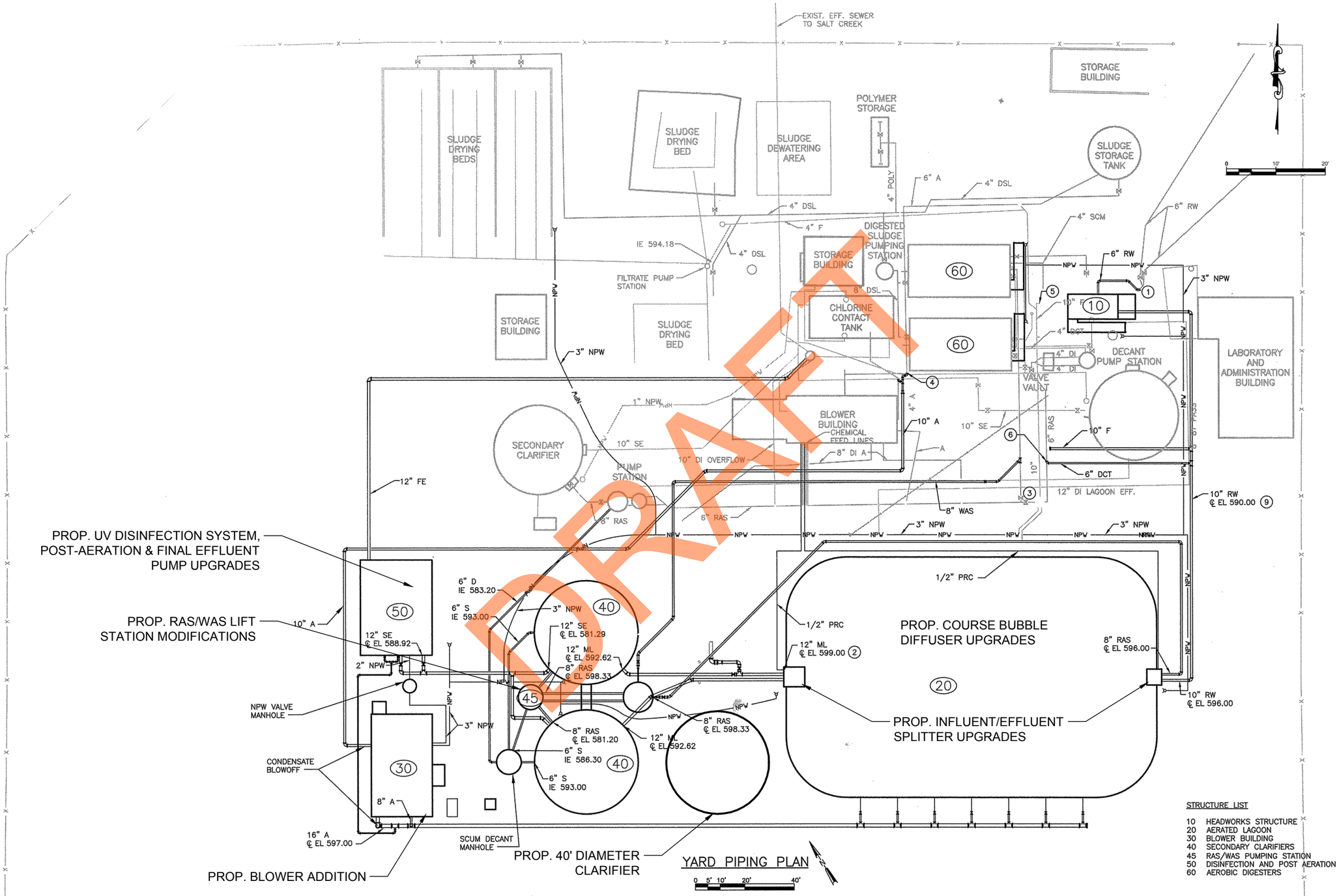
NO.	REVISIONS	DATE
-	-	-

ms consultants, inc.
engineers ♦ architects ♦ planners
115 WEST WASHINGTON ST., SUITE 1310
INDIANAPOLIS, INDIANA 46204-4418
(317)-566-0050 Fax (317)-566-0052

TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

SLUDGE PROCESSING IMPROVEMENTS

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) N.T.S
Date: 7/1/20
Dwg. No.: **FIGURE 6-4**
Sheet: of



STRUCTURE LIST

10	HEADWORKS STRUCTURE
20	AERATED LAGOON
30	BLOWER BUILDING
40	SECONDARY CLARIFIERS
45	RAS/WAS PUMPING STATION
50	DISINFECTION AND POST AERATION STRUCTURE
60	AEROBIC DIGESTERS

SEAL

NO.	REVISIONS	DATE
-	-	-

ms consultants, inc.
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INDIANAPOLIS, INDIANA 46204-4418
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TOWN OF NASHVILLE
SANITARY SEWER MASTER PLAN

0.80 MGD WWTP EXPANSION

Project Number: 61-04E66-01
Drawn by: JND
Checked by: JND
Approved by: JND
Scale: (22x34) N.T.S.
Date: 7/1/20
Dwg. No.: **FIGURE 6-5**
Sheet: of

APPENDIX B

Appendix B: Engineer's Opinion of Probable Construction Costs

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Sanitary Sewer Extensions - Annandale Estates

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 85,000	$ 85,000
2	Construction Engineering	1	LSUM	$ 26,000	$ 26,000
3	Erosion & Sediment Control	1	LSUM	$ 17,000	$ 17,000
4	Maintenance of Traffic	1	LSUM	$ 8,000	$ 8,000
5	Final Cleanup & Restoration	1	LSUM	$ 9,000	$ 9,000
6	Gravity Sewer - 8" Diameter w/ granular backfill	10,500	LF	$90	$ 945,000
7	Sewer Manhole - 4' Diameter	21	EACH	$6,000	$ 126,000
8	6" Sewer Lateral	2,025	LF	$40	$ 81,000
9	HDPE L.P.S. Forcemain - 1½"	4,000	LF	$68	$ 272,000
10	Grinder Station w/ HDPE L.P.S. Forcemain - 1"	22	EACH	$12,000	$ 264,000
				Subtotal	$ 1,833,000
				25% Construction Contingency	$ 458,000
				Total Probable Construction Costs	**$ 2,291,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 229,000
2	Construction Inspection	$ 183,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ 80,000
4	Legal & Financial	$ 57,000
	Total Probable Non-Construction Costs	**$ 549,000**
	Total Probable Project Costs	**$ 2,840,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

(3) The cost for sanitary sewer laterals was assumed using the number of anticipated EDUs, multiplied by 25 LF per sewer lateral. This cost assumed to be paid for by the Town for existing development, and all future development would pay for their own sewer lateral.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Sanitary Sewer Extensions - Jackson Branch

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 56,000	$ 56,000
2	Construction Engineering	1	LSUM	$ 17,000	$ 17,000
3	Erosion & Sediment Control	1	LSUM	$ 12,000	$ 12,000
4	Maintenance of Traffic	1	LSUM	$ 5,000	$ 5,000
5	Final Cleanup & Restoration	1	LSUM	$ 6,000	$ 6,000
6	Gravity Sewer - 8" Diameter w/ granular backfill	7,800	LF	$90	$ 702,000
7	Sewer Manhole - 4' Diameter	16	EACH	$6,000	$ 94,000
8	6" Sewer Lateral	550	LF	$40	$ 22,000
9	HDPE L.P.S. Forcemain - 1½"	3,100	LF	$68	$ 211,000
10	Grinder Station w/ HDPE L.P.S. Forcemain - 1"	7	EACH	$12,000	$ 84,000
				Subtotal	$ 1,209,000
				25% Construction Contingency	$ 302,000
				Total Probable Construction Costs	**$ 1,511,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 151,000
2	Construction Inspection	$ 121,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ 60,000
4	Legal & Financial	$ 38,000
	Total Probable Non-Construction Costs	**$ 370,000**
	Total Probable Project Costs	**$ 1,881,000**

Notes:

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(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

(3) The cost for sanitary sewer laterals was assumed using the number of anticipated EDUs, multiplied by 25 LF per sewer lateral. This cost assumed to be paid for by the Town for existing development, and all future development would pay for their own sewer lateral.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Sanitary Sewer Extensions - Greenvalley Chrusch, Sam's Hill & Hill Top

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 180,000	$ 180,000
2	Construction Engineering	1	LSUM	$ 54,000	$ 54,000
3	Erosion & Sediment Control	1	LSUM	$ 18,000	$ 18,000
4	Maintenance of Traffic	1	LSUM	$ 35,000	$ 35,000
5	Final Cleanup & Restoration	1	LSUM	$ 18,000	$ 18,000
6	Gravity Sewer - 8" Diameter w/ granular backfill	16,200	LF	$95	$ 1,539,000
7	Sewer Manhole - 4' Diameter	32	EACH	$6,000	$ 194,000
8	HDPE L.P.S. Forcemain - 1½"	9,200	LF	$68	$ 626,000
9	6" Sewer Lateral	2,300	LF	$40	$ 92,000
10	Grinder Station w/ HDPE L.P.S. Forcemain - 1"	48	EACH	$12,000	$ 576,000
11	Sam's Hill Lift Station (150 gpm)	1	LSUM	$ 150,000	$ 150,000
12	PVC Forcemain - 4" Diameter	1	LSUM	$ 420,000	$ 420,000
				Subtotal	$ 3,902,000
				25% Construction Contingency	$ 976,000
				Total Probable Construction Costs	**$ 4,878,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 488,000
2	Construction Inspection	$ 390,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ 140,000
4	Legal & Financial	$ 122,000
	Total Probable Non-Construction Costs	**$ 1,140,000**
	Total Probable Project Costs	**$ 6,018,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

(3) The cost for sanitary sewer laterals was assumed using the number of anticipated EDUs, multiplied by 25 LF per sewer lateral. This cost assumed to be paid for by the Town for existing development, and all future development would pay for their own sewer lateral.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Sanitary Sewer Extensions - Greenbriar Lake

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 134,000	$ 134,000
2	Construction Engineering	1	LSUM	$ 40,000	$ 40,000
3	Erosion & Sediment Control	1	LSUM	$ 27,000	$ 27,000
4	Maintenance of Traffic	1	LSUM	$ 13,000	$ 13,000
5	Final Cleanup & Restoration	1	LSUM	$ 14,000	$ 14,000
5	Gravity Sewer - 8" Diameter w/ granular backfill	3,500	LF	$95	$ 333,000
6	Gravity Sewer - 10" Diameter w/ granular backfill	8,500	LF	$105	$ 893,000
7	Sewer Manhole - 4' Diameter	17	EACH	$6,000	$ 102,000
8	6" Sewer Lateral	5,250	LF	$40	$ 210,000
9	HDPE L.P.S. Forcemain - 1½"	13,000	LF	$68	$ 884,000
10	Grinder Station w/ HDPE L.P.S. Forcemain - 1"	48	EACH	$12,000	$ 576,000
				Subtotal	$ 3,226,000
				25% Construction Contingency	$ 807,000
				Total Probable Construction Costs	**$ 4,033,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 403,000
2	Construction Inspection	$ 323,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ 118,000
4	Legal & Financial	$ 101,000
	Total Probable Non-Construction Costs	**$ 945,000**
	Total Probable Project Costs	**$ 4,978,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

(3) The cost for sanitary sewer laterals was assumed using the number of anticipated EDUs, multiplied by 25 LF per sewer lateral. This cost assumed to be paid for by the Town for existing development, and all future development would pay for their own sewer lateral.

(4) Preliminary design does not include and additional xx,xxx linear feet of 10-inch gravity sewer through the Town of Nashville to tie-in to the Brown County Inn Lift Station. The cost for this line has been incorporated into the Greenbriar Lake Sewer Extension opinion of probable cost.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Sanitary Sewer Extensions - Beanblossom

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 190,000	$ 190,000
2	Construction Engineering	1	LSUM	$ 57,000	$ 57,000
3	Erosion & Sediment Control	1	LSUM	$ 19,000	$ 19,000
4	Maintenance of Traffic	1	LSUM	$ 37,000	$ 37,000
5	Final Cleanup & Restoration	1	LSUM	$ 19,000	$ 19,000
6	Gravity Sewer - 8" Diameter w/ granular backfill[3]	14,500	LF	$95	$ 1,378,000
7	Gravity Sewer - 10" Diameter w/ granular backfill[4]	13,000	LF	$105	$ 1,365,000
8	Sewer Manhole - 4' Diameter	29	EACH	$6,000	$ 174,000
9	6" Sewer Lateral	2,550	LF	$40	$ 102,000
10	Lift Station (300 gpm)	1	LSUM	$300,000	$ 300,000
11	PVC Forcemain - 6" Diameter	6,000	LF	$78	$ 468,000
				Subtotal	$ 4,109,000
				25% Construction Contingency	$ 1,027,000
				Total Probable Construction Costs	**$ 5,136,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 514,000
2	Construction Inspection	$ 411,000
3	Land/Easements (Assumes $20,000 per acre, 50% of work req. easements)	$ 94,000
4	Legal & Financial	$ 128,000
	Total Probable Non-Construction Costs	**$ 1,147,000**
	Total Probable Project Costs	**$ 6,283,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Sanitary Sewer Extensions - Belmont

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 181,000	$ 181,000
2	Construction Engineering	1	LSUM	$ 55,000	$ 55,000
3	Erosion & Sediment Control	1	LSUM	$ 19,000	$ 19,000
4	Maintenance of Traffic	1	LSUM	$ 36,000	$ 36,000
5	Final Cleanup & Restoration	1	LSUM	$ 19,000	$ 19,000
6	Gravity Sewer - 8" Diameter w/ granular backfill[3]	6,500	LF	$95	$ 618,000
7	Sewer Manhole - 4' Diameter	13	EACH	$6,000	$ 78,000
8	6" Sewer Lateral	1,250	LF	$40	$ 50,000
9	Lift Station (50 gpm, high head pumps)	1	LSUM	$250,000	$ 250,000
10	PVC Forcemain - 6" Diameter	33,500	LF	$78	$ 2,613,000
				Subtotal	$ 3,919,000
				25% Construction Contingency	$ 980,000
				Total Probable Construction Costs	**$ 4,899,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 490,000
2	Construction Inspection	$ 392,000
3	Land/Easements (Assumes $20,000 per acre, 50% of work req. easements)	$ 184,000
4	Legal & Financial	$ 122,000
	Total Probable Non-Construction Costs	**$ 1,188,000**
	Total Probable Project Costs	**$ 6,087,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

(3) The cost for sanitary sewer laterals was assumed using the number of anticipated EDUs, multiplied by 25 LF per sewer lateral. This cost assumed to be paid for by the Town for existing development, and all future development would pay for their own sewer lateral.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Phase I Sanitary Sewer Rehabilitation - Cast-in-Place-Pipe

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 37,000	$ 37,000
2	Construction Engineering	1	LSUM	$ 11,000	$ 11,000
3	Erosion & Sediment Control	1	LSUM	$ 4,000	$ 4,000
4	Maintenance of Traffic	1	LSUM	$ 7,000	$ 7,000
5	Final Cleanup & Restoration	1	LSUM	$ 4,000	$ 4,000
6	Cured-in-Place-Pipe for 8-inch pipe	10,500	LF	$53	$ 560,000
7	Cured-in-Place-Pipe for 10-inch pipe	25	LF	$67	$ 2,000
8	Point Repair, 8-inch Pipe (up to 15 LF)	5	LF	$20,000	$ 105,000
9	Lateral Remove & Replace (up to 15LF)	12	EACH	$2,500	$ 30,000
10	Replace manhole casting	4	EACH	$1,250	$ 5,000
11	Grout sealing of existing manhole	46	EACH	$500	$ 23,000
12	Raise MH Casting (3" Increments)	8	EACH	$500	$ 4,000
				Subtotal	$ 792,000
				25% Construction Contingency	$ 198,000
				Total Probable Construction Costs	**$ 990,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 82,000
2	Construction Inspection	$ 79,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 24,000
	Total Probable Non-Construction Costs	**$ 185,000**
	Total Probable Project Costs	**$ 1,175,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Phase II Sanitary Sewer Rehabilitation - Cast-in-Place-Pipe

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 21,000	$ 21,000
2	Construction Engineering	1	LSUM	$ 7,000	$ 7,000
3	Erosion & Sediment Control	1	LSUM	$ 3,000	$ 3,000
4	Maintenance of Traffic	1	LSUM	$ 4,000	$ 4,000
5	Final Cleanup & Restoration	1	LSUM	$ 3,000	$ 3,000
6	Cured-in-Place-Pipe for 8-inch pipe	6,000	LF	$56	$ 335,000
7	Point Repair, 8-inch Pipe (up to 15 LF)	2	LF	$20,000	$ 40,000
8	Lateral Remove & Replace (up to 15LF)	8	EACH	$2,500	$ 20,000
9	Replace manhole casting	2	EACH	$1,250	$ 3,000
10	Grout sealing of existing manhole	24	EACH	$500	$ 12,000
11	Raise MH Casting (3" Increments)	6	EACH	$500	$ 3,000
				Subtotal	$ 451,000
				25% Construction Contingency	$ 113,000
				Total Probable Construction Costs	**$ 564,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 51,000
2	Construction Inspection	$ 45,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 14,000
	Total Probable Non-Construction Costs	**$ 110,000**
	Total Probable Project Costs	**$ 674,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Phase III Sanitary Sewer Rehabilitation - Cast-in-Place-Pipe

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 19,000	$ 19,000
2	Construction Engineering	1	LSUM	$ 6,000	$ 6,000
3	Erosion & Sediment Control	1	LSUM	$ 2,000	$ 2,000
4	Maintenance of Traffic	1	LSUM	$ 3,000	$ 3,000
5	Final Cleanup & Restoration	1	LSUM	$ 2,000	$ 2,000
6	Cured-in-Place-Pipe for 8-inch pipe	5,000	LF	$56	$ 279,000
7	Point Repair, 8-inch Pipe (up to 15 LF)	3	LF	$20,000	$ 50,000
8	Lateral Remove & Replace (up to 15LF)	8	EACH	$2,500	$ 20,000
9	Replace manhole casting	2	EACH	$1,250	$ 3,000
10	Grout sealing of existing manhole	25	EACH	$500	$ 13,000
11	Raise MH Casting (3" Increments)	6	EACH	$500	$ 3,000
				Subtotal	$ 400,000
				25% Construction Contingency	$ 100,000
				Total Probable Construction Costs	**$ 500,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 45,000
2	Construction Inspection	$ 42,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 13,000
	Total Probable Non-Construction Costs	**$ 100,000**
	Total Probable Project Costs	**$ 600,000**

Notes:

(1) All probable project costs are based upon 2020 dollars and will likely increase with time. Construction materials and costs have been volatile in recent years. In providing these cost estimates, ms consultants, inc. has no control over the costs of labor, equipment, materials, or contractors' methods of pricing. The cost estimates were made without the benefit of design plans and specifications and are provided on the basis of the Engineer's qualifications and experience. ms consultants, inc. makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Phase IV Sanitary Sewer Rehabilitation - Cast-in-Place-Pipe

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 22,000	$ 22,000
2	Construction Engineering	1	LSUM	$ 7,000	$ 7,000
3	Erosion & Sediment Control	1	LSUM	$ 3,000	$ 3,000
4	Maintenance of Traffic	1	LSUM	$ 4,000	$ 4,000
5	Final Cleanup & Restoration	1	LSUM	$ 3,000	$ 3,000
6	Cured-in-Place-Pipe for 8-inch pipe	6,150	LF	$56	$ 343,000
7	Point Repair, 8-inch Pipe (up to 15 LF)	2	LF	$20,000	$ 40,000
8	Lateral Remove & Replace (up to 15LF)	8	EACH	$2,500	$ 20,000
9	Replace manhole casting	2	EACH	$1,250	$ 3,000
10	Grout sealing of existing manhole	24	EACH	$500	$ 12,000
11	Raise MH Casting (3" Increments)	6	EACH	$500	$ 3,000
				Subtotal	$ 460,000
				25% Construction Contingency	$ 115,000
				Total Probable Construction Costs	**$ 575,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 52,000
2	Construction Inspection	$ 48,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 14,000
	Total Probable Non-Construction Costs	**$ 114,000**
	Total Probable Project Costs	**$ 689,000**

Notes:

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(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Washington Street Lift Station - Upgrades

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 28,000	$ 28,000
2	Construction Engineering	1	LSUM	$ 14,000	$ 14,000
3	Erosion & Sediment Control	1	LSUM	$ 9,000	$ 9,000
4	Maintenance of Traffic	1	LSUM	$ -	$ -
5	Final Cleanup & Restoration	1	LSUM	$ 6,000	$ 6,000
6	Install 8-inch PVC Forcemain (Open Trench)	525	LF	$150	$ 79,000
7	Install 8-inch PVC Forcemain w/ 16" Steel Casing (Jack & Bore)	100	LF	$500	$ 50,000
8	New 20 Hp Submersible Pumps (Chopper Style)	2	EA	$25,000	$ 50,000
9	New 50 kW Emergency Generator w/ ATS	1	LSUM	$100,000	$ 100,000
10	New Wetwell & Valve Vault	1	LSUM	$70,000	$ 70,000
11	New Valve Vault w/ Metering	1	LSUM	$75,000	$ 75,000
12	8-inch D.I. Piping & Valves for New FM	20	LF	$150	$ 3,000
13	6-inch D.I. Pump & Discharge Piping	100	LF	$140	$ 14,000
14	6-inch D.I. Plug Valve(s)	2	EA	$4,000	$ 8,000
15	6-inch D.I. Check Valve(s)	2	EA	$5,500	$ 11,000
16	8x6-inch D.I. Reducer(s)	2	EA	$800	$ 1,600
14	6-inch Mag Meter	1	EA	$15,000	$ 15,000
15	Electrical Modifications	1	LSUM	$ 58,000	$ 58,000
16	Protective coating for wetwell	1	LSUM	$ 10,000	$ 10,000
				Subtotal	$ 602,000
				25% Construction Contingency	$ 151,000
				Total Probable Construction Costs	**$ 753,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 75,000
2	Construction Inspection	$ 60,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 34,000
	Total Probable Non-Construction Costs	**$ 169,000**
	Total Probable Project Costs	**$ 922,000**

Notes:

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(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Brown County Inn Lift Station - Upgrades

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 38,000	$ 38,000
2	Construction Engineering	1	LSUM	$ 19,000	$ 19,000
3	Erosion & Sediment Control	1	LSUM	$ 12,000	$ 12,000
4	Maintenance of Traffic	1	LSUM	$ -	$ -
5	Final Cleanup & Restoration	1	LSUM	$ 8,000	$ 8,000
6	Install 8-inch PVC Forcemain (Open Trench)	1,925	LF	$150	$ 289,000
7	Install 8-inch PVC Forcemain w/ 16" Steel Casing (Jack & Bore)	75	LF	$500	$ 38,000
8	New 25 Hp Submersible Pumps (Chopper Style)	2	EA	$30,000	$ 60,000
9	New 75 kW Emergency Generator w/ ATS	1	LSUM	$130,000	$ 130,000
10	New Valve Vault w/ Metering	1	LSUM	$75,000	$ 75,000
11	8-inch D.I. Piping & Valves for New FM	20	LF	$150	$ 3,000
12	6-inch D.I. Pump & Discharge Piping	100	LF	$140	$ 14,000
13	6-inch D.I. Plug Valve(s)	2	EA	$4,000	$ 8,000
14	6-inch D.I. Check Valve(s)	2	EA	$5,500	$ 11,000
15	8x6-inch D.I. Reducer(s)	1	EA	$800	$ 800
13	6-inch Mag Meter	1	EA	$15,000	$ 15,000
14	Electrical Modifications	1	LSUM	$ 97,000	$ 97,000
				Subtotal	$ 818,000
				25% Construction Contingency	$ 205,000
				Total Probable Construction Costs	**$ 1,023,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 102,000
2	Construction Inspection	$ 82,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 46,000
	Total Probable Non-Construction Costs	**$ 230,000**
	Total Probable Project Costs	**$ 1,253,000**

Notes:

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(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

Proposed Sam's Hill Lift Station

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 29,000	$ 29,000
2	Construction Engineering	1	LSUM	$ 15,000	$ 15,000
3	Erosion & Sediment Control	1	LSUM	$ 9,000	$ 9,000
4	Maintenance of Traffic	1	LSUM	$ 5,000	$ 5,000
5	Final Cleanup & Restoration	1	LSUM	$ 6,000	$ 6,000
6	Install 4-inch PVC Forcemain (Open Trench)	4,000	LF	$105	$ 420,000
7	New 6-foot Diameter Precast Wetwell & Valve Vault (10'-25' Depth)	2	EA	$15,000	$ 30,000
8	New 5 Hp Submersible Pumps (Chopper Style)	2	EA	$12,500	$ 25,000
9	4-inch D.I. Pump & Discharge Piping	100	LF	$105	$ 11,000
10	4-inch D.I. Plug Valve(s)	2	EA	$2,000	$ 4,000
11	4-inch D.I. Check Valve(s)	2	EA	$2,250	$ 5,000
12	Electrical Modifications	1	LSUM	$ 75,000	$ 75,000
				Subtotal	$ 634,000
				25% Construction Contingency	$ 159,000
				Total Probable Construction Costs	**$ 793,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 79,000
2	Construction Inspection	$ 63,000
3	Land/Easements	$ 10,000
4	Legal & Financial	$ 36,000
	Total Probable Non-Construction Costs	**$ 188,000**
	Total Probable Project Costs	**$ 981,000**

Notes:

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(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

WWTP Sludge Processing Improvements

Estimated Construction Costs[1]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 108,000	$ 108,000
2	Construction Engineering	1	LSUM	$ 43,000	$ 43,000
3	Erosion & Sediment Control	1	LSUM	$ 17,000	$ 17,000
4	Maintenance of Traffic	1	LSUM	$ 10,000	$ 10,000
5	Final Cleanup & Restoration	1	LSUM	$ 22,000	$ 22,000
6	New Aerobic Digester Tankage	225	CY	$1,350	$ 304,000
7	New Aerobic Digester Blowers (2 @ 65 Hp each)	3	EACH	$60,000	$ 180,000
8	Relocate existing digester blowers & modify existing aeration blowers	2	EACH	$35,000	$ 70,000
9	New Sludge Dewatering Building	1	LSUM	$260,000	$ 260,000
10	Mechanical Dewatering Unit	1	LSUM	$260,000	$ 260,000
11	Mechanical Thickener (50 gpm Feed Rate)	1	LSUM	$125,000	$ 125,000
12	Sludge Pumps	1	LSUM	$50,000	$ 50,000
13	Polymer Injection System	1	LSUM	$20,000	$ 20,000
14	New Digester Diffusers, Air Piping, Valves & Appurtenances	1	LSUM	$100,000	$ 100,000
15	New Decant Pump Station	1	LSUM	$250,000	$ 250,000
16	New Chemical Building	1	LSUM	$195,000	$ 195,000
17	Electrical & SCADA Modifications	1	LSUM	$327,000	$ 327,000
				Subtotal	$ 2,014,000
				25% Construction Contingency	$ 504,000
				Total Probable Construction Costs	**$ 2,518,000**

Non-Construction Costs[1]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 201,000
2	Construction Inspection	$ 201,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 63,000
	Total Probable Non-Construction Costs	**$ 465,000**
	Total Probable Project Costs	**$ 2,983,000**

Notes:

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(2) Preliminary design is based upon collection system infrastructure being installed within the public rights-of-way and easements, half under pavement and half outside pavement. Force mains and service laterals are assumed to be installed entirely outside pavement.

Engineer's Opinion of Probable Project Costs

Town of Nashville, IN - Sanitary Sewer Master Plan

0.8 MGD WWTP Expansion

Estimated Construction Costs[(1)]

Item	Description	Quantity	Unit	Unit Price	Total Price
Construction Contract Costs					
1	Mobilization, Demobilization, Bonds, & Insurance	1	LSUM	$ 125,000	$ 125,000
2	Construction Engineering	1	LSUM	$ 55,000	$ 55,000
3	Erosion & Sediment Control	1	LSUM	$ 24,000	$ 24,000
4	Maintenance of Traffic	1	LSUM	$ 7,000	$ 7,000
5	Final Cleanup & Restoration	1	LSUM	$ 39,000	$ 39,000
6	New Secondary Process Blower (125 Hp)	1	LSUM	$103,000	$ 103,000
7	Course Bubble Aeration	1	LSUM	$228,000	$ 228,000
8	Influent/Effluent Flow Splitting Modifications	1	LSUM	$75,000	$ 75,000
9	New Final Clarifier (40' Dia.)	1	LSUM	$533,000	$ 533,000
10	RAS/WAS Lift Station Modifications	1	LSUM	$85,000	$ 85,000
11	New UV Disinfection System	1	LSUM	$254,000	$ 254,000
12	New Final Effluent Pumps	1	LSUM	$72,000	$ 72,000
13	Electrical & SCADA Modifications	1	LSUM	$203,000	$ 203,000
				Subtotal	$ 1,803,000
				25% Construction Contingency	$ 451,000
				Total Probable Construction Costs	**$ 2,254,000**

Non-Construction Costs[(1)]

Item	Description	Total Price
1	Engineering Design, Bid, & Construction Administration	$ 225,000
2	Construction Inspection	$ 180,000
3	Land/Easements (Assumes $20,000 per acre, 60% of work req. easements)	$ -
4	Legal & Financial	$ 56,000
	Total Probable Non-Construction Costs	**$ 461,000**
	Total Probable Project Costs	**$ 2,715,000**

Notes:

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APPENDIX C

Appendix C: Service Area Historical Information

APPENDIX D

Appendix D: Wastewater Treatment Plant MROs

APPENDIX E

Appendix E: Population Data

Historical Population

Year	Brown County		Hamblen Township		Jackson Township		Washington Township		Town of Nashville		Average
1900	9,727	-	1,923		1,943		2,713		393	-	
1905 (Est.)	7,590	-22.0%	1,420	-26.2%	1,587	-18.3%	2,060	-24.1%	350	-11.0%	
1910	7,975	-22.0%	1,524	-26.2%	1,642	-18.3%	2,187	-24.1%	354	-11.0%	
1915 (Est.)	6,556	-17.8%	1,214	-20.3%	1,525	-7.1%	1,711	-21.8%	318	-10.3%	
1920	7,019	-13.6%	1,331	-14.5%	1,712	4.1%	1,830	-19.5%	323	-9.6%	
1925 (Est.)	5,284	-24.7%	950	-28.7%	1,498	-12.5%	1,507	-17.6%	328	1.4%	
1930	5,168	-35.8%	932	-42.8%	1,326	-29.1%	1,581	-15.7%	369	12.5%	
1935 (Est.)	4,669	-9.7%	832	-10.8%	1,186	-10.6%	1,630	3.1%	438	18.8%	
1940	6,189	16.5%	1,184	21.3%	1,441	8.0%	2,026	22.0%	493	25.2%	
1945 (Est.)	6,709	8.4%	1,331	12.4%	1,535	6.6%	2,340	15.5%	570	15.7%	
1950	6,209	0.3%	1,228	3.6%	1,519	5.1%	2,227	9.0%	526	6.3%	
1955 (Est.)	6,579	6.0%	1,325	7.9%	1,725	13.5%	2,488	11.7%	523	-0.6%	
1960	7,024	11.6%	1,398	12.2%	1,946	21.9%	2,603	14.4%	489	-7.6%	
1965 (Est.)	8,220	17.0%	1,695	21.3%	2,420	24.4%	3,108	19.4%	488	-0.2%	
1970	9,057	22.4%	2,007	30.3%	2,658	26.8%	3,442	24.4%	527	7.2%	
1975 (Est.)	11,288	24.6%	2,716	35.4%	3,407	28.2%	4,113	19.5%	613	16.2%	
1980	12,377	26.8%	3,365	40.4%	3,774	29.6%	4,031	14.6%	705	25.2%	
1985 (Est.)	14,786	19.5%	4,322	28.4%	4,503	19.3%	4,527	12.3%	862	22.2%	
1990	14,080	12.1%	4,032	16.5%	4,151	9.1%	4,478	10.0%	873	19.2%	
1995 (Est.)	15,344	9.0%	4,611	14.4%	4,340	4.5%	4,679	4.5%	932	6.7%	
2000	14,957	5.9%	4,591	12.2%	4,151	0.0%	4,433	-1.0%	825	-5.8%	
2005 (Est.)	15,535	3.9%	4,736	3.1%	4,074	-1.9%	4,620	4.2%	790	-4.3%	
2010	15,242	1.9%	4,336	-5.9%	4,002	-3.7%	4,896	9.5%	803	-2.7%	
10-Year Avg. Growth		2.37%		4.28%		4.86%		3.96%		5.35%	4.16%
5-Year Avg. Growth		2.97%		5.25%		5.61%		4.49%		5.93%	4.85%

Population Projection (Nashville)

Year	Projected Population	5-Year Growth (%)	Accumulated Growth
2010	803	-	-
2015	1,094	0.00%	
2020	1,100	0.55%	0.55%
2025	1,153	**4.85%**	5.39%
2030	1,209	4.85%	10.51%
2035	1,268	4.85%	15.90%
2040	1,330	4.85%	21.57%

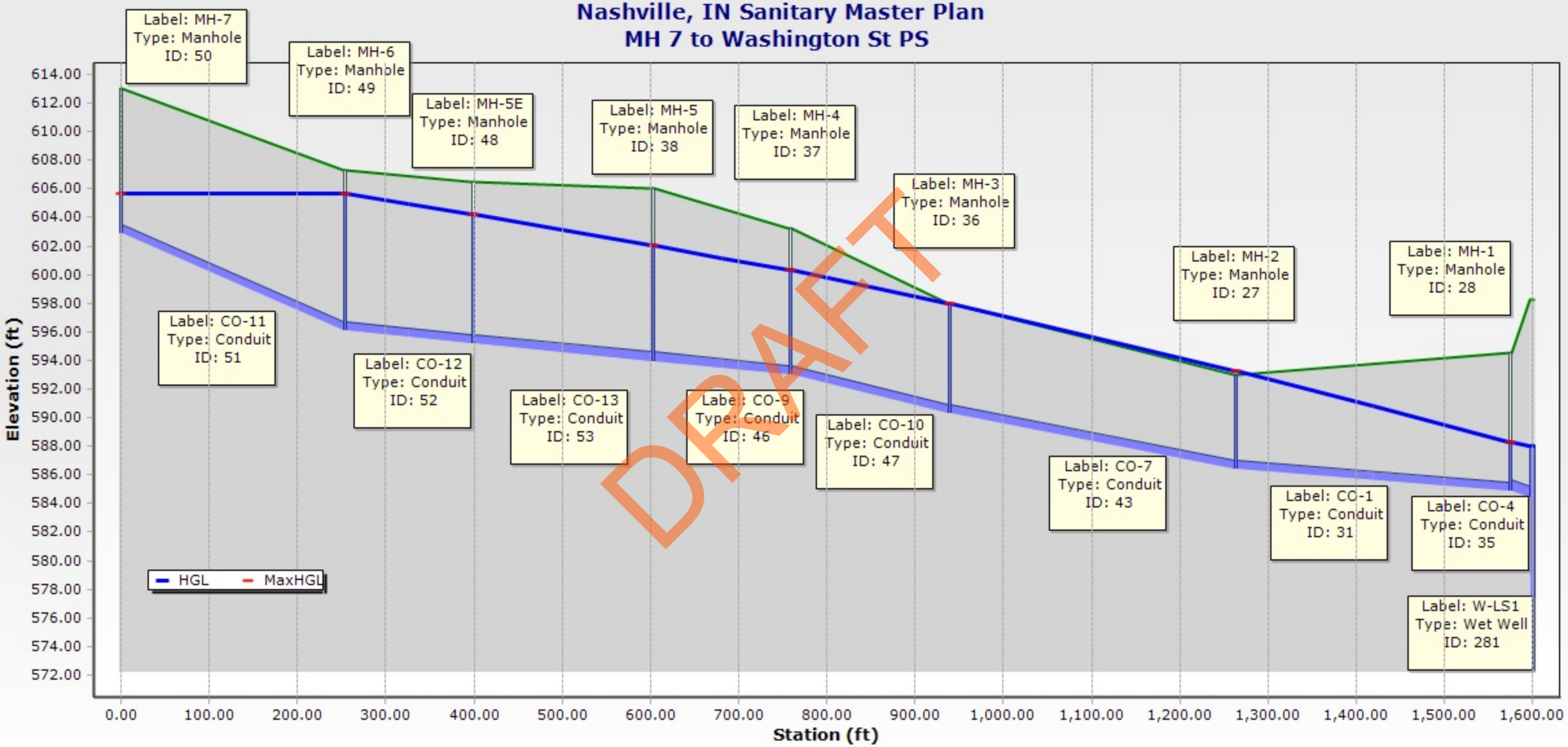
Population Projection

Year	Brown County		Accumulated Growth
2015	14995	-	-
2020	14707	-1.96%	-1.92%
2025	14566	-0.97%	-2.86%
2030	14247	-2.24%	-4.99%
2035	13818	-3.10%	-7.85%
2040	13293	-3.95%	-11.35%
2045	12440	-6.86%	-17.04%
2050	11900	-4.54%	-20.64%

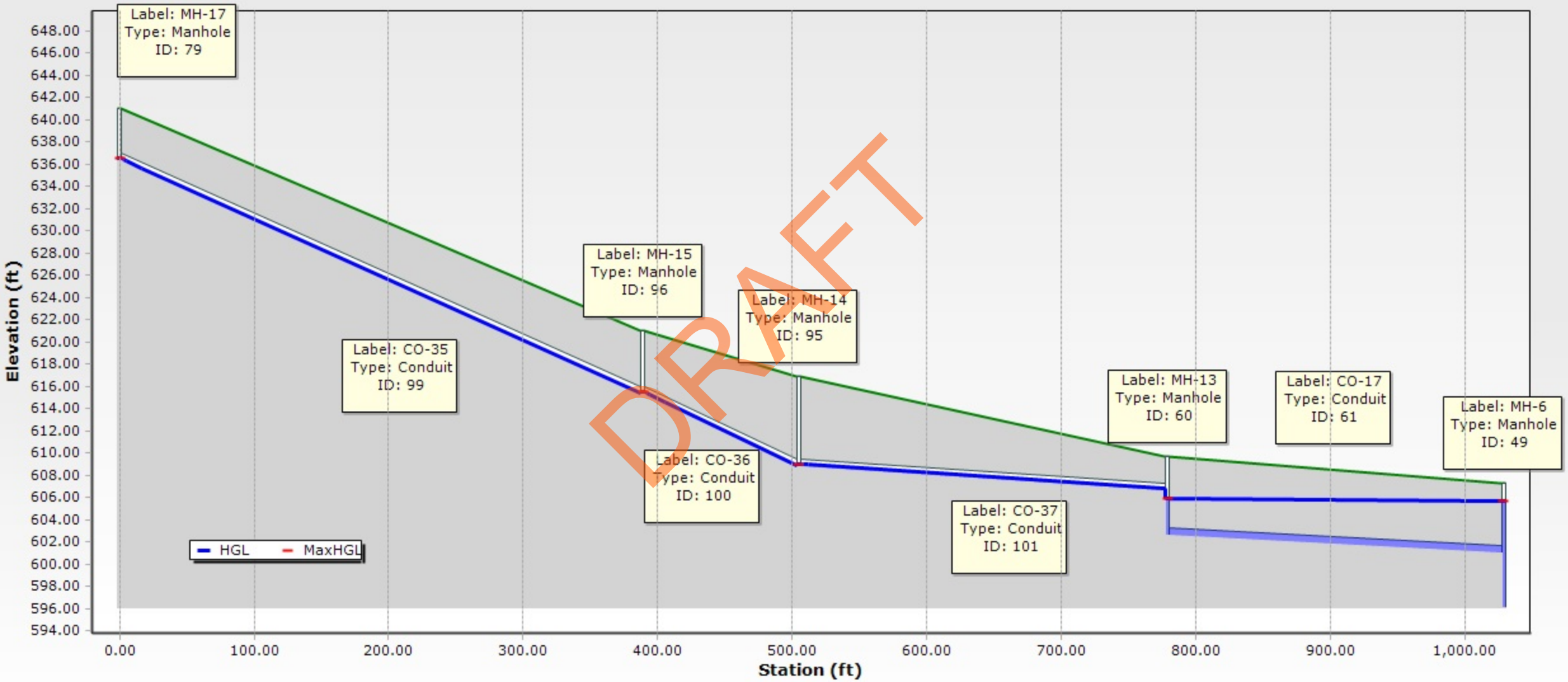
APPENDIX F

Appendix F: Sewer Model Data

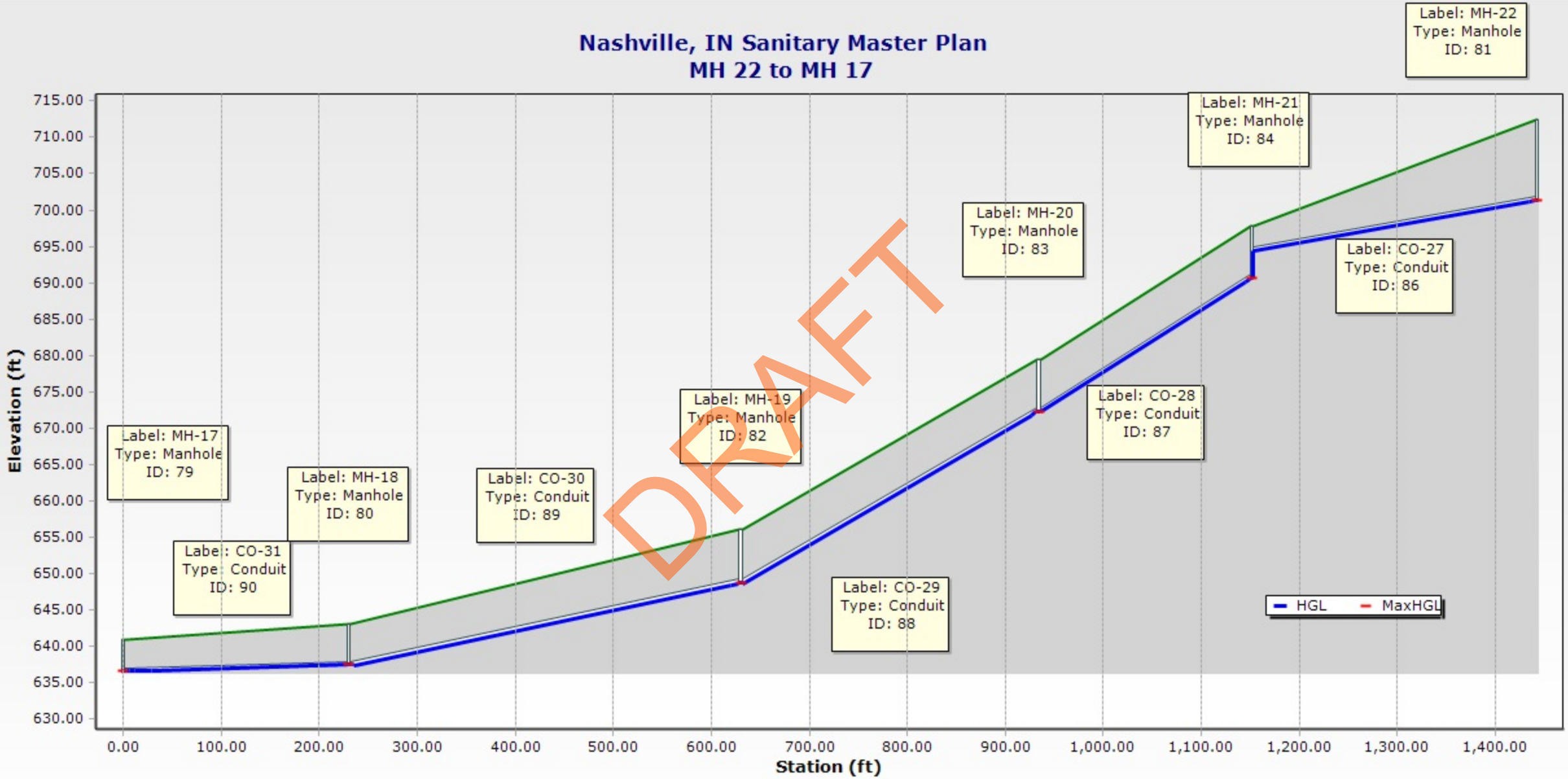
Nashville, IN Sanitary Master Plan
MH 7 to Washington St PS



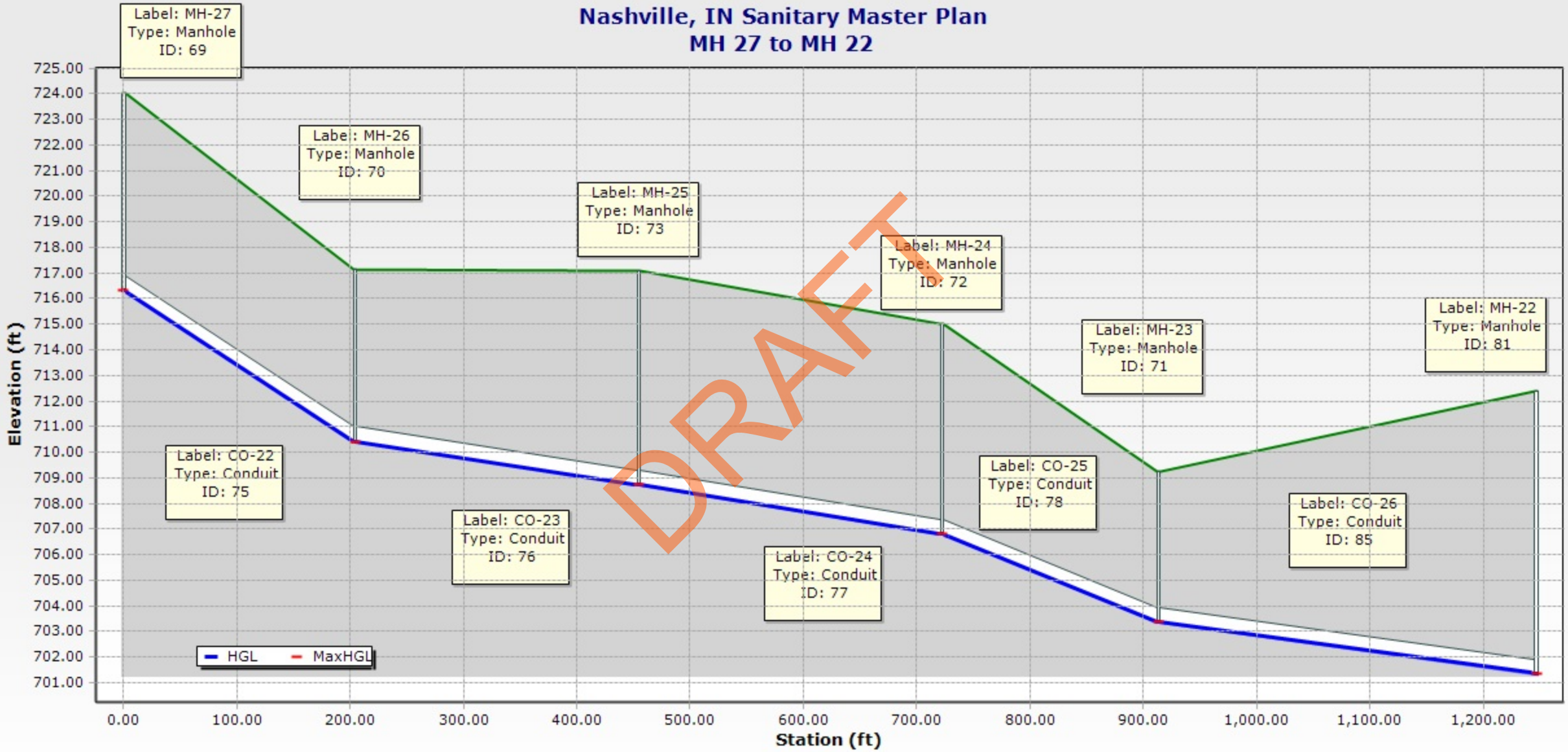
Nashville, IN Sanitary Master Plan
MH 19 to MH 6



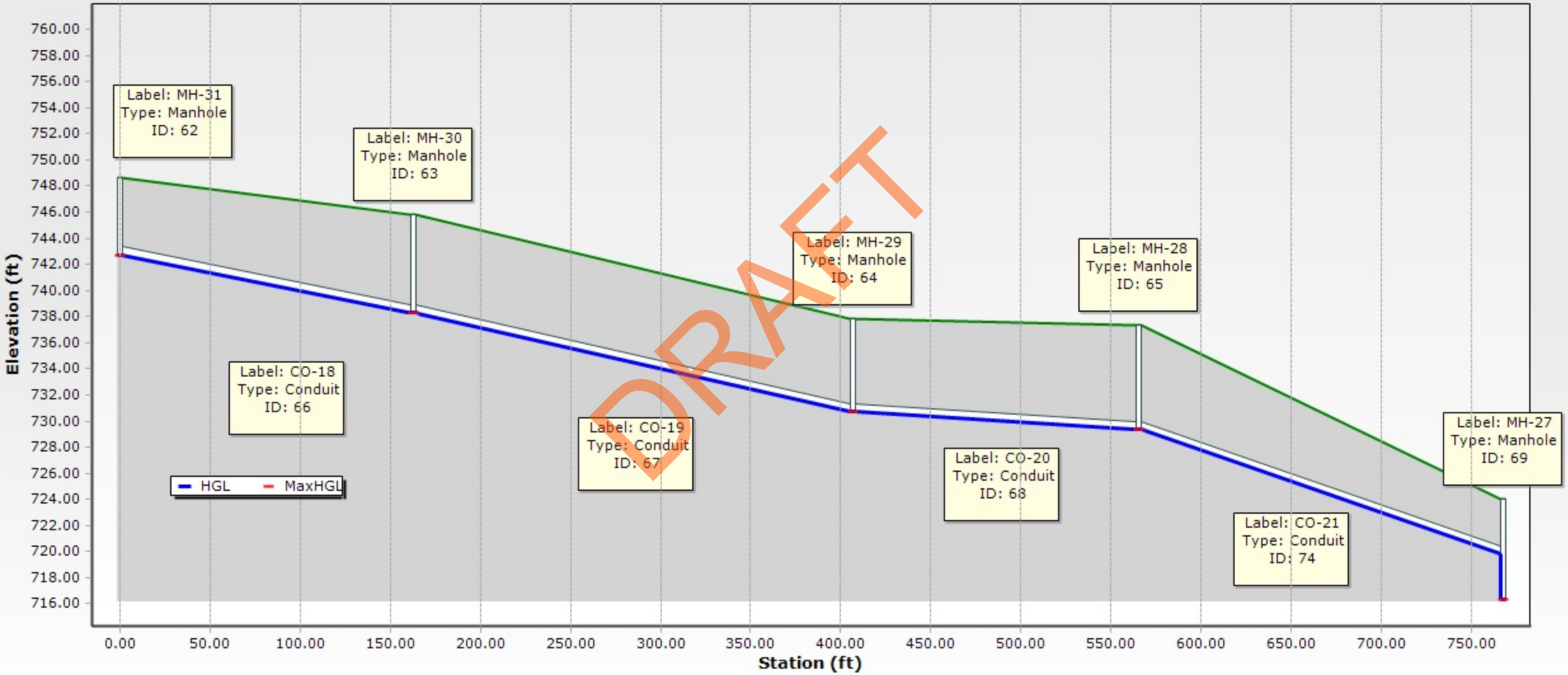
Nashville, IN Sanitary Master Plan
MH 22 to MH 17



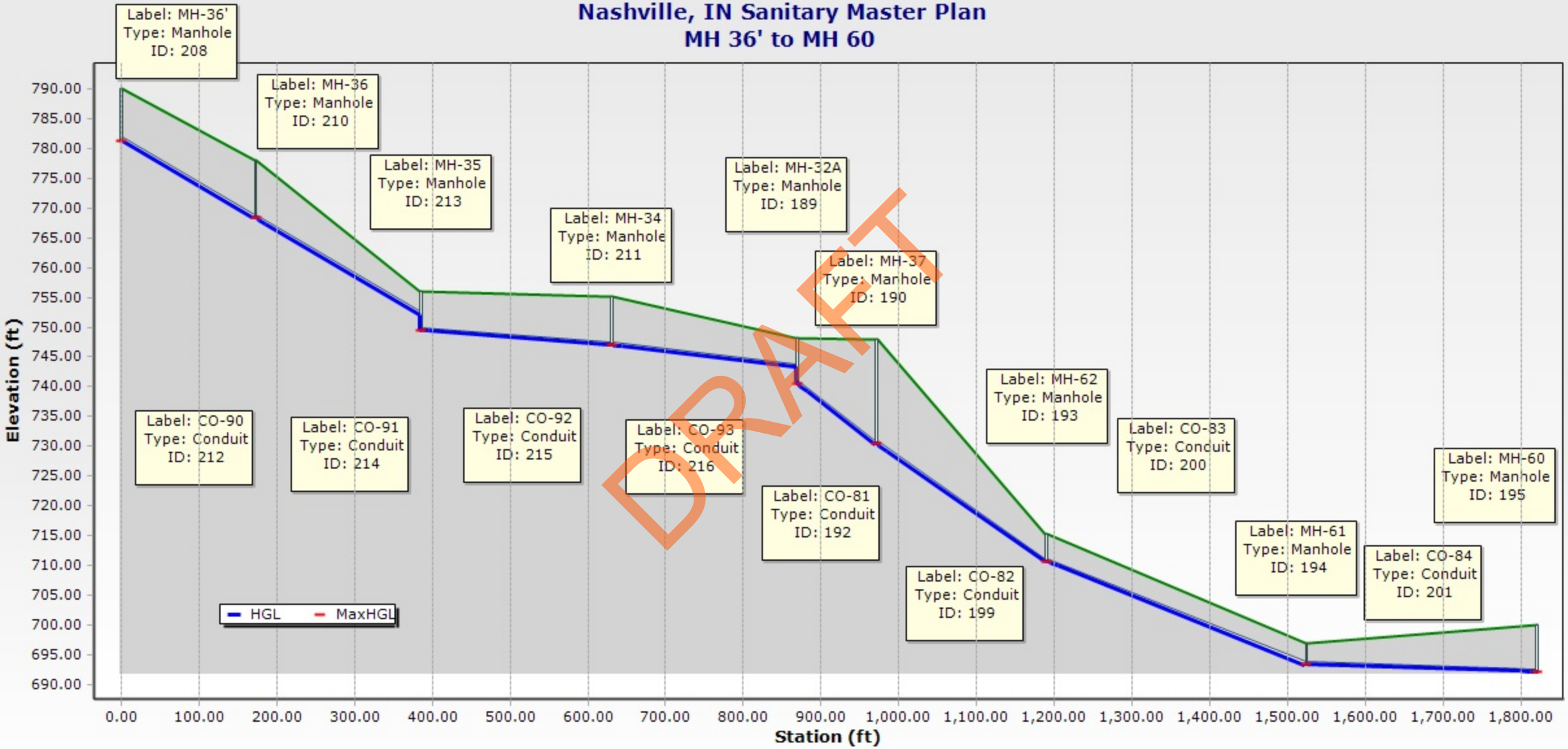
Nashville, IN Sanitary Master Plan
MH 27 to MH 22



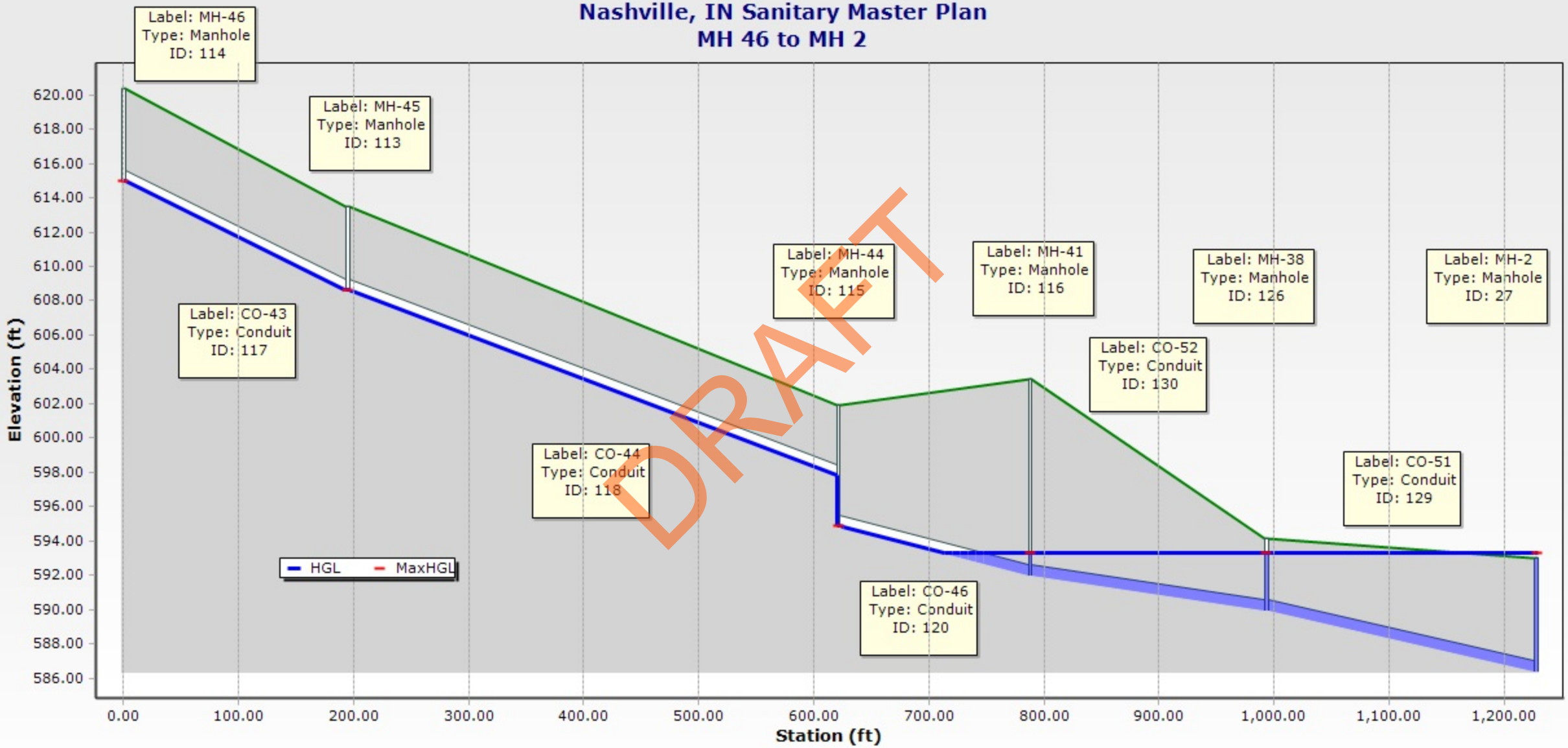
Nashville, IN Sanitary Master Plan
MH 31 to MH 27



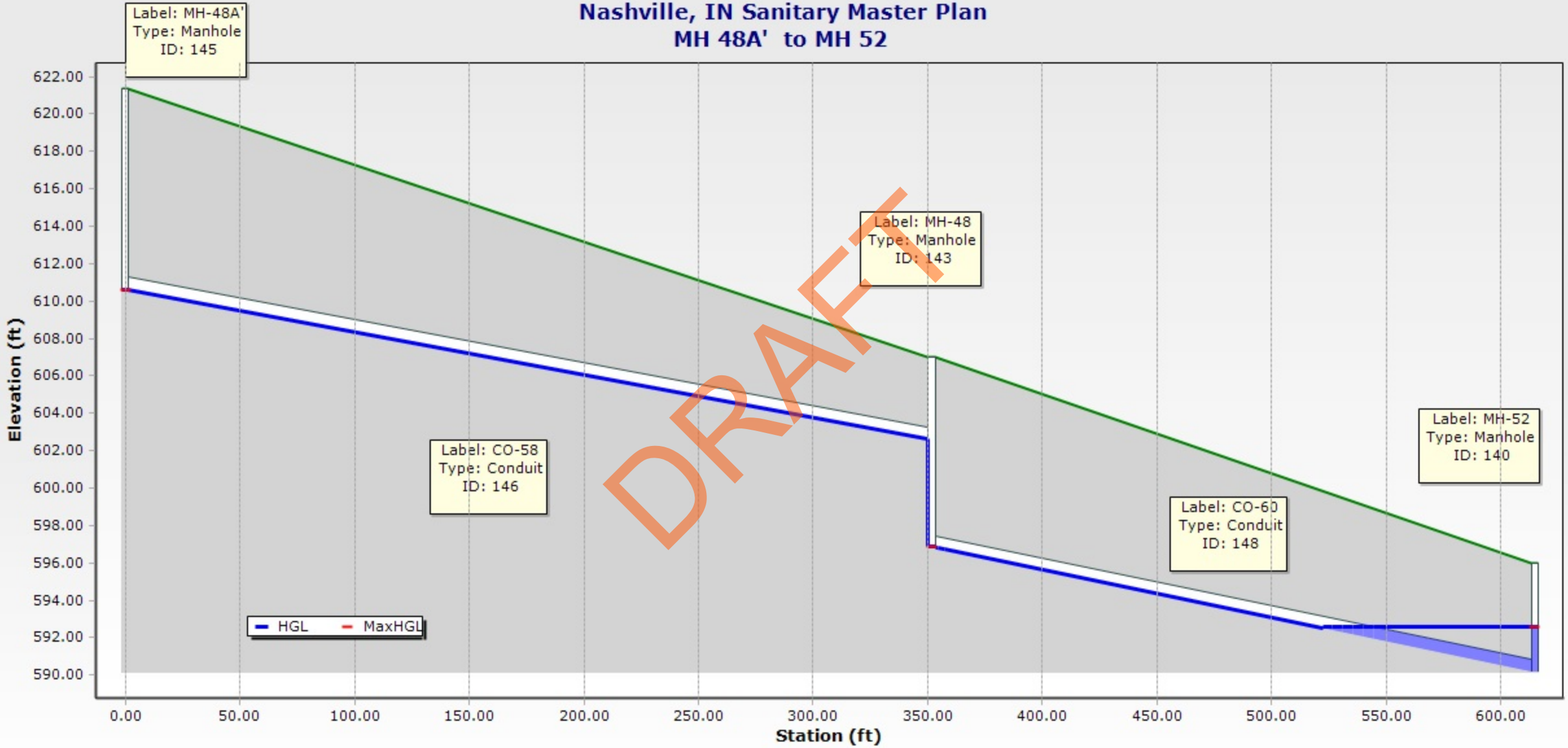
Nashville, IN Sanitary Master Plan
MH 36' to MH 60

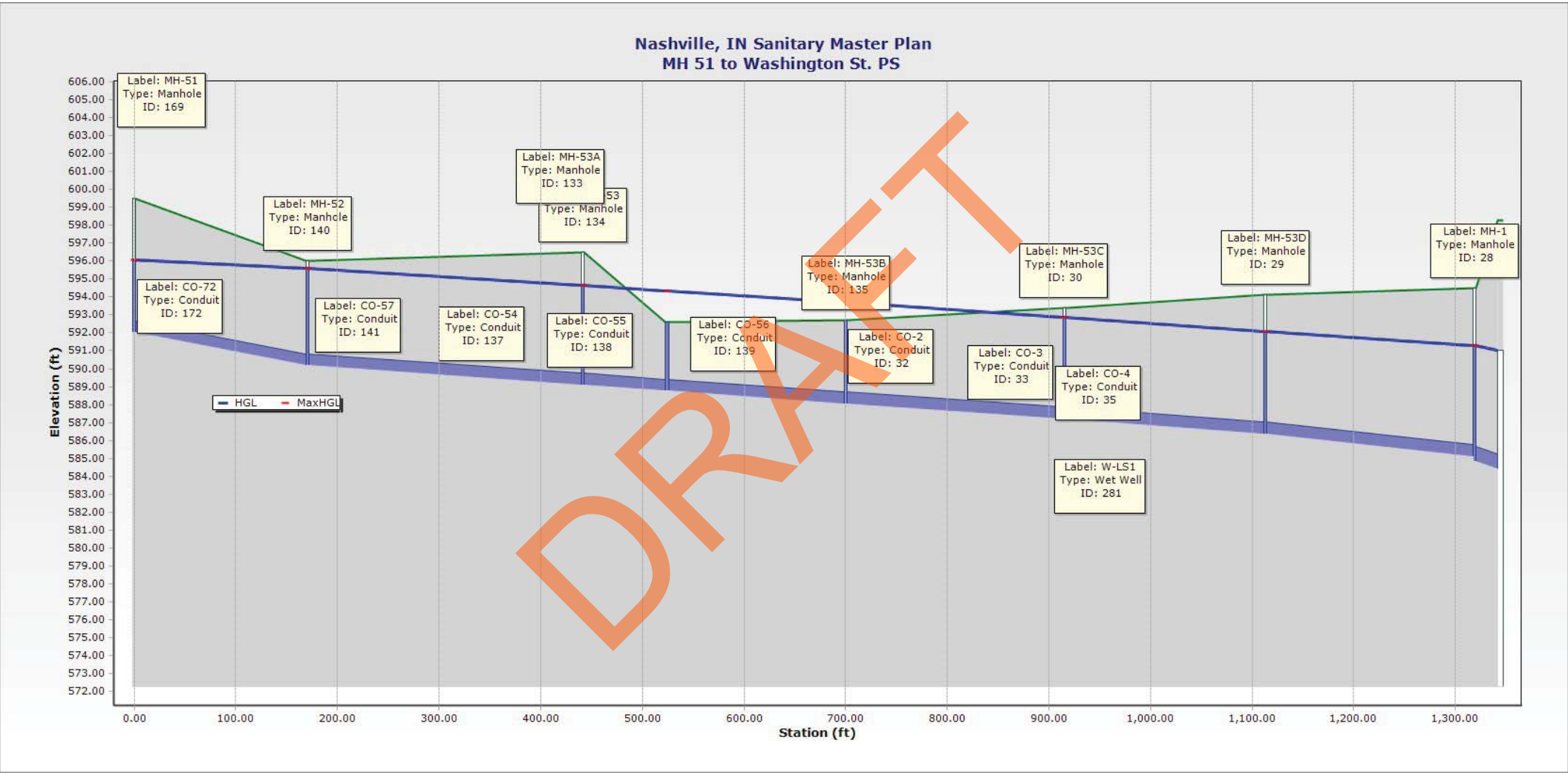


Nashville, IN Sanitary Master Plan
MH 46 to MH 2



Nashville, IN Sanitary Master Plan
MH 48A' to MH 52




Nashville, IN Sanitary Master Plan
MH 51 to Washington St. PS
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Type: Conduit
ID: 172
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ID: 137
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Type: Conduit
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Type: Conduit
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Label: CO-3
Type: Conduit
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Type: Conduit
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100.00
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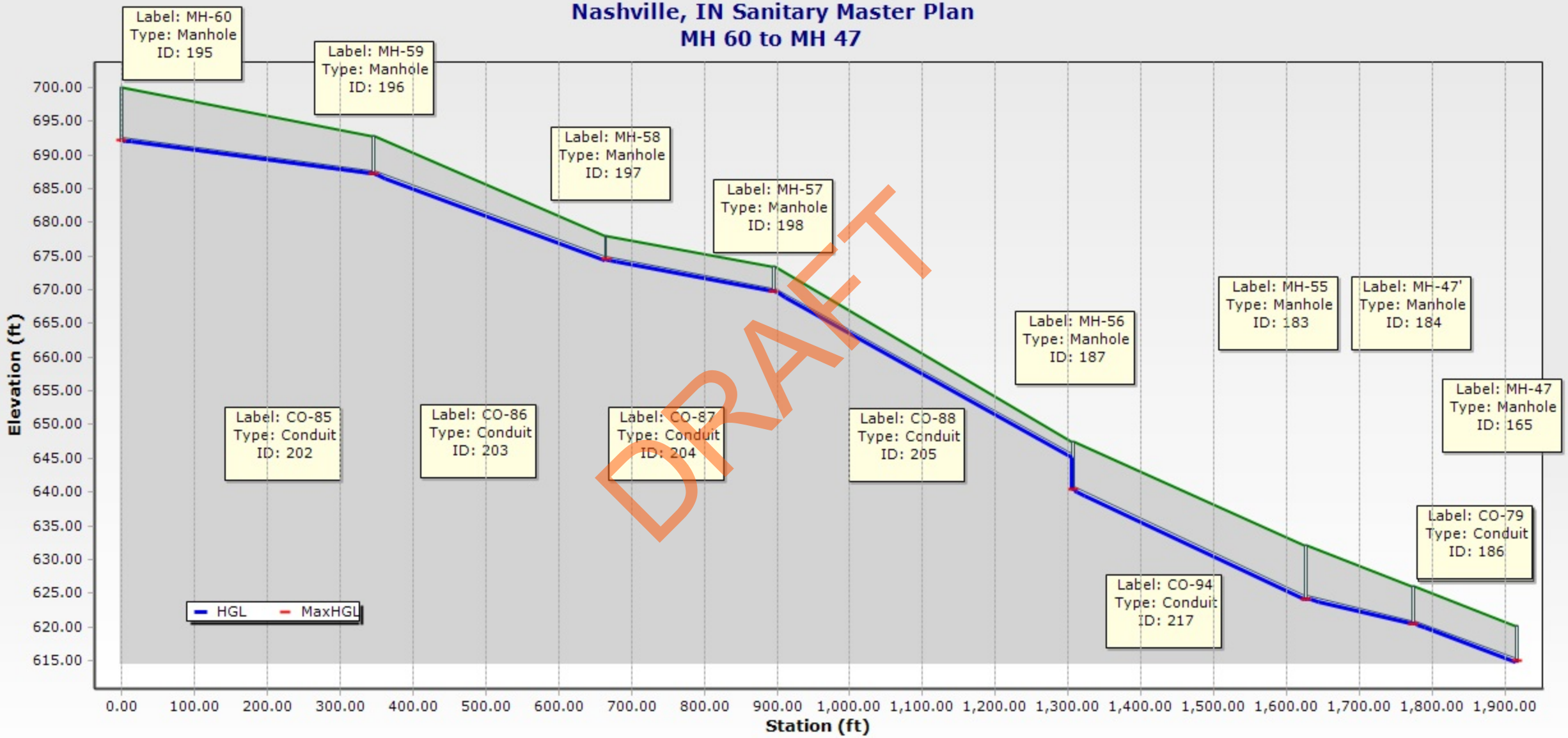
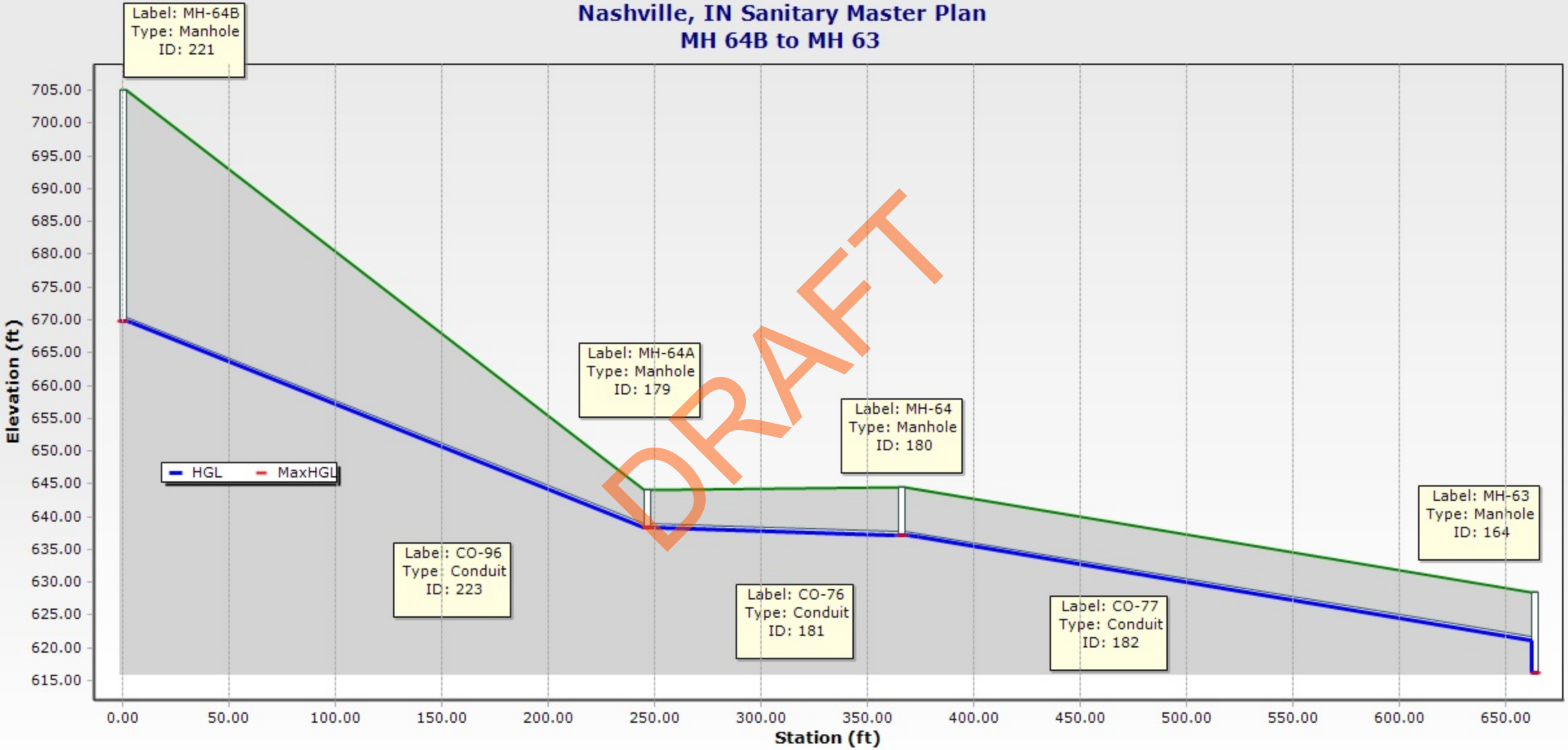
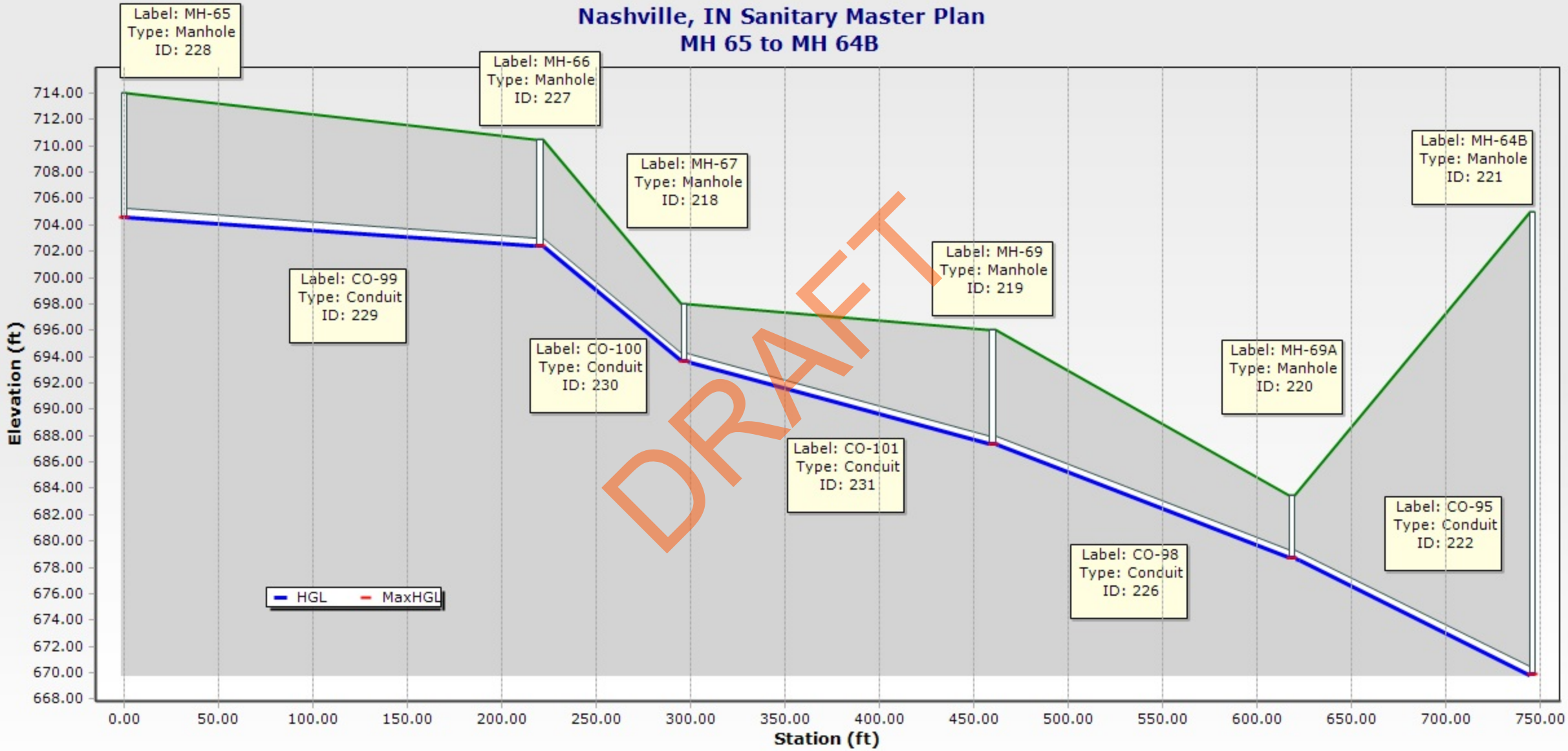
300.00
400.00
500.00
600.00
700.00
800.00
900.00
1,000.00
1,100.00
1,200.00
1,300.00
Station (ft)

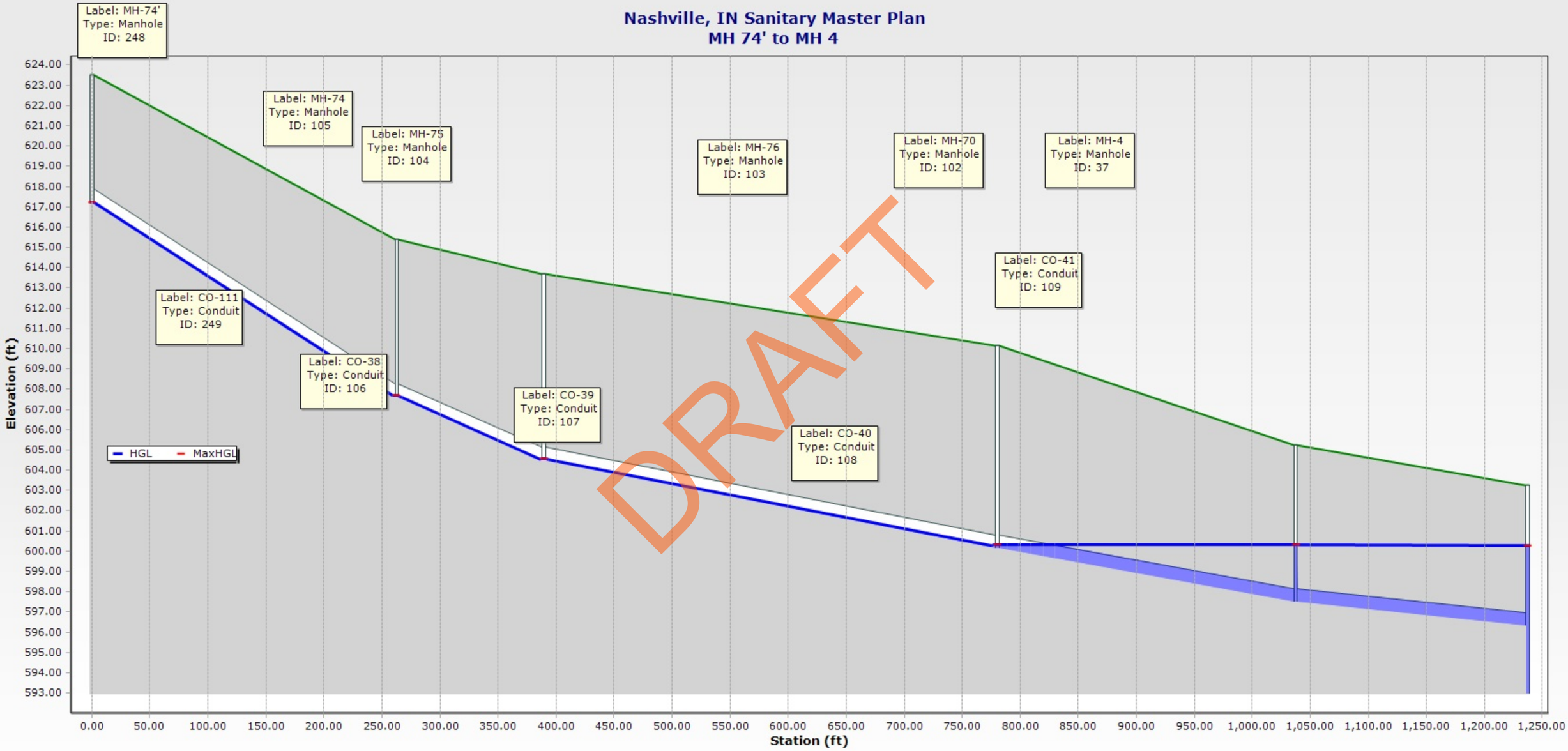
Nashville, IN Sanitary Master Plan
MH 60 to MH 47



Nashville, IN Sanitary Master Plan
MH 64B to MH 63




Nashville, IN Sanitary Master Plan
MH 65 to MH 64B
Label: MH-65
Type: Manhole
ID: 228
Label: MH-66
Type: Manhole
ID: 227
Label: MH-67
Type: Manhole
ID: 218
Label: MH-69
Type: Manhole
ID: 219
Label: MH-69A
Type: Manhole
ID: 220
Label: MH-64B
Type: Manhole
ID: 221
Label: CO-99
Type: Conduit
ID: 229
Label: CO-100
Type: Conduit
ID: 230
Label: CO-101
Type: Conduit
ID: 231
Label: CO-98
Type: Conduit
ID: 226
Label: CO-95
Type: Conduit
ID: 222
DRAFT
HGL
MaxHGL
Elevation (ft)
714.00
712.00
710.00
708.00
706.00
704.00
702.00
700.00
698.00
696.00
694.00
692.00
690.00
688.00
686.00
684.00
682.00
680.00
678.00
676.00
674.00
672.00
670.00
668.00
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
450.00
500.00
550.00
600.00
650.00
700.00
750.00
Station (ft)


Nashville, IN Sanitary Master Plan
MH 74' to MH 4
Label: MH-74'
Type: Manhole
ID: 248
Label: MH-74
Type: Manhole
ID: 105
Label: MH-75
Type: Manhole
ID: 104
Label: MH-76
Type: Manhole
ID: 103
Label: MH-70
Type: Manhole
ID: 102
Label: MH-4
Type: Manhole
ID: 37
Label: CO-111
Type: Conduit
ID: 249
Label: CO-38
Type: Conduit
ID: 106
Label: CO-39
Type: Conduit
ID: 107
Label: CO-40
Type: Conduit
ID: 108
Label: CO-41
Type: Conduit
ID: 109
HGL
MaxHGL
DRAFT
Elevation (ft)
624.00
623.00
622.00
621.00
620.00
619.00
618.00
617.00
616.00
615.00
614.00
613.00
612.00
611.00
610.00
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608.00
607.00
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604.00
603.00
602.00
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599.00
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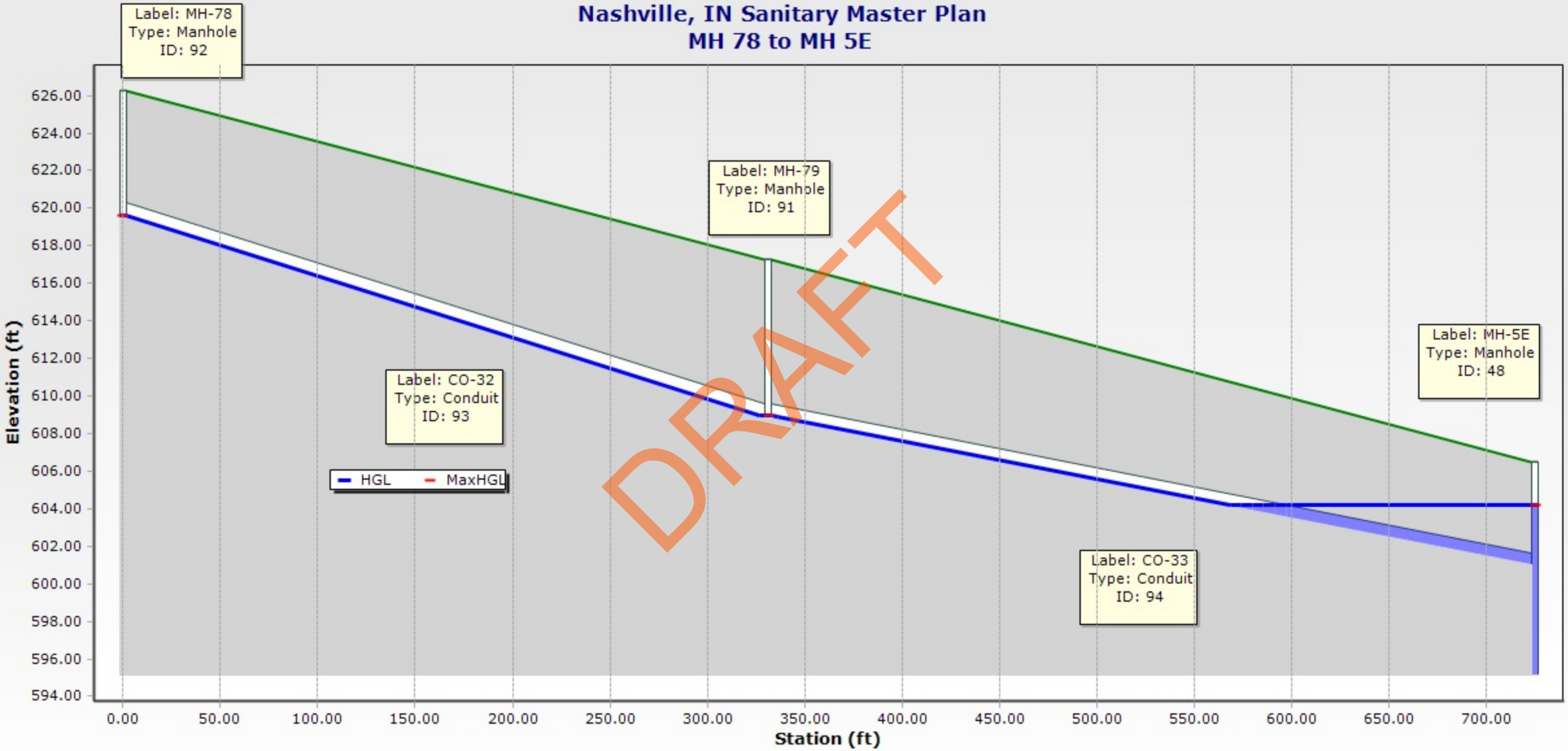
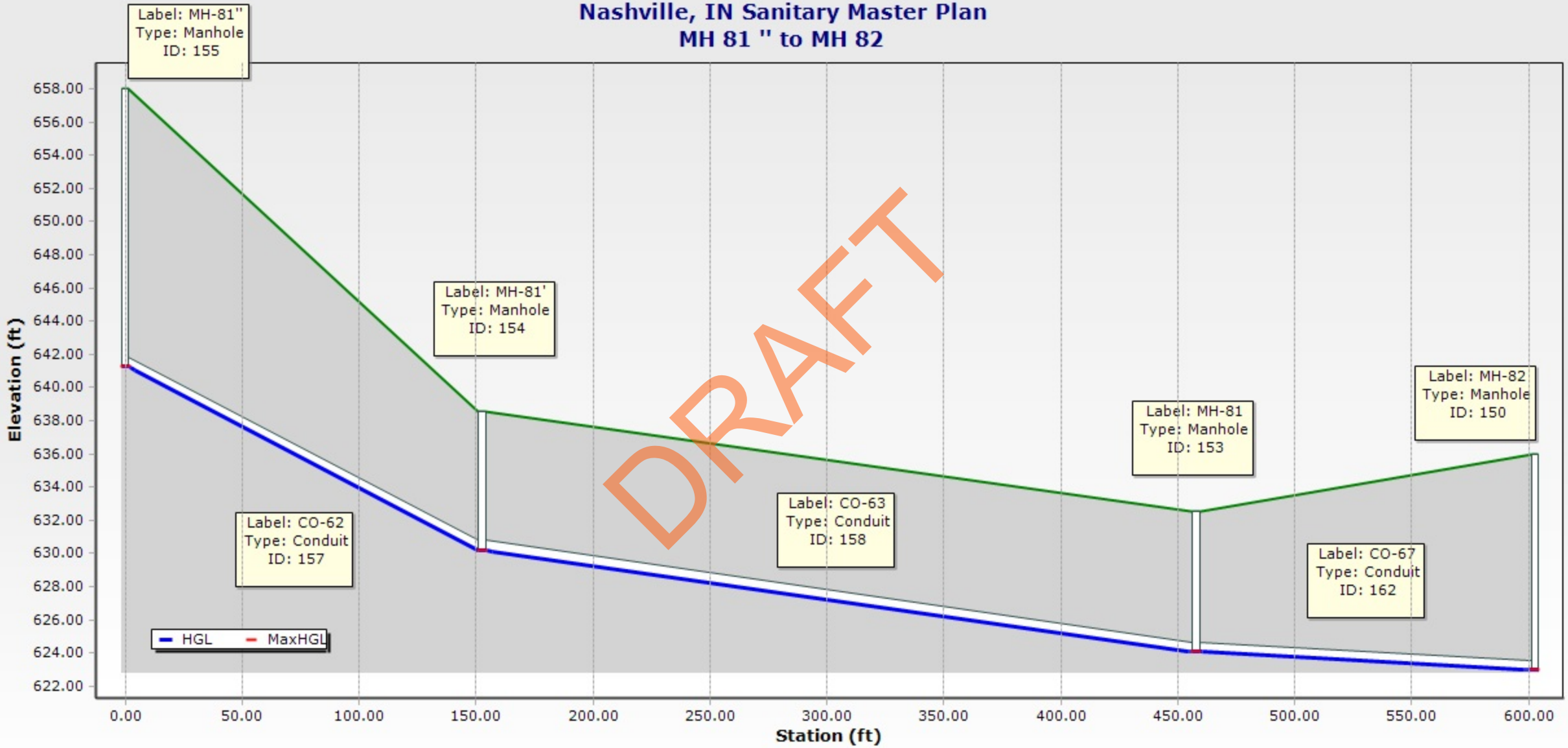
597.00
596.00
595.00
594.00
593.00
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
450.00
500.00
550.00
600.00
650.00
700.00
750.00
800.00
850.00
900.00
950.00
1,000.00
1,050.00
1,100.00
1,150.00
1,200.00
1,250.00
Station (ft)

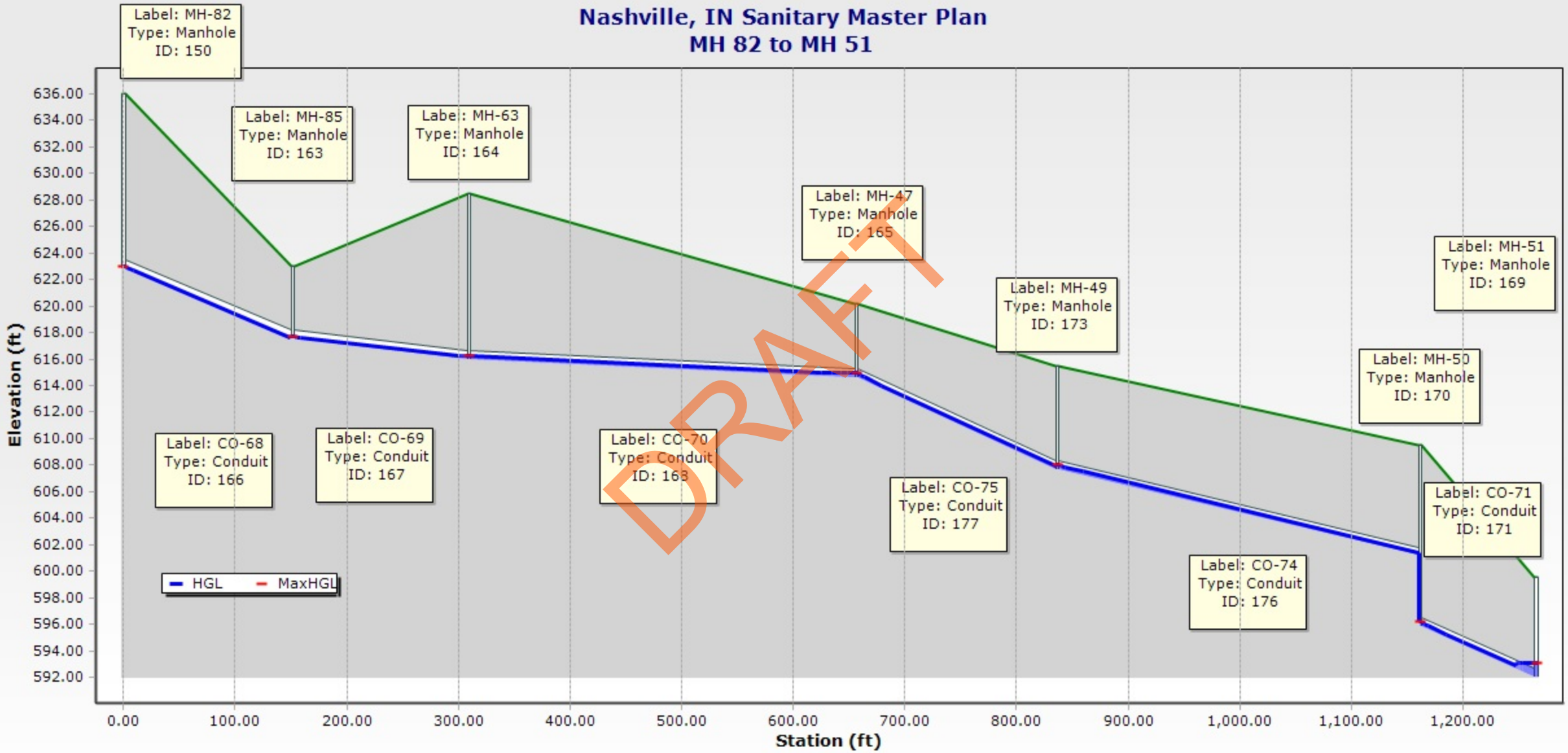
Nashville, IN Sanitary Master Plan
MH 78 to MH 5E



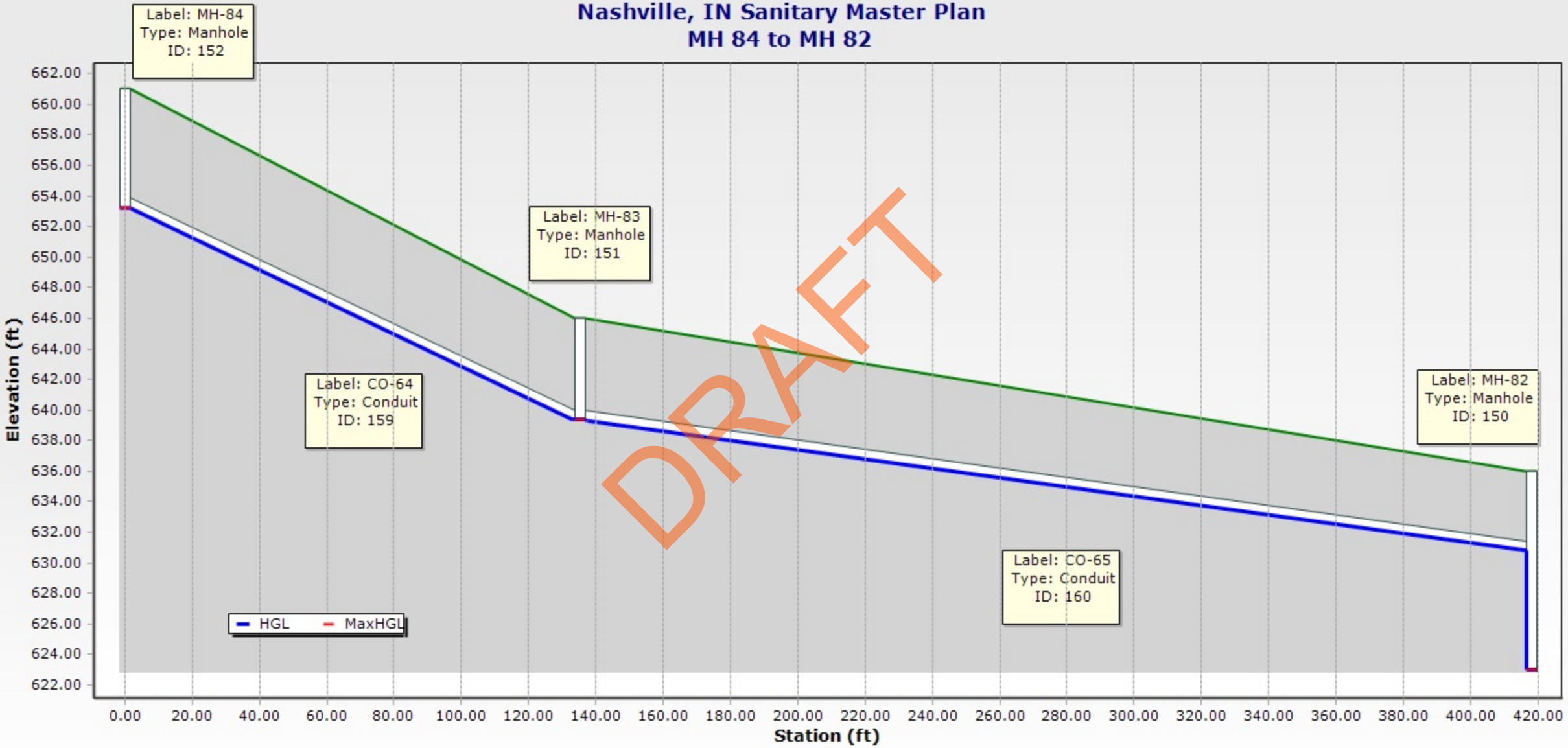
Nashville, IN Sanitary Master Plan
MH 81 " to MH 82



Nashville, IN Sanitary Master Plan
MH 82 to MH 51

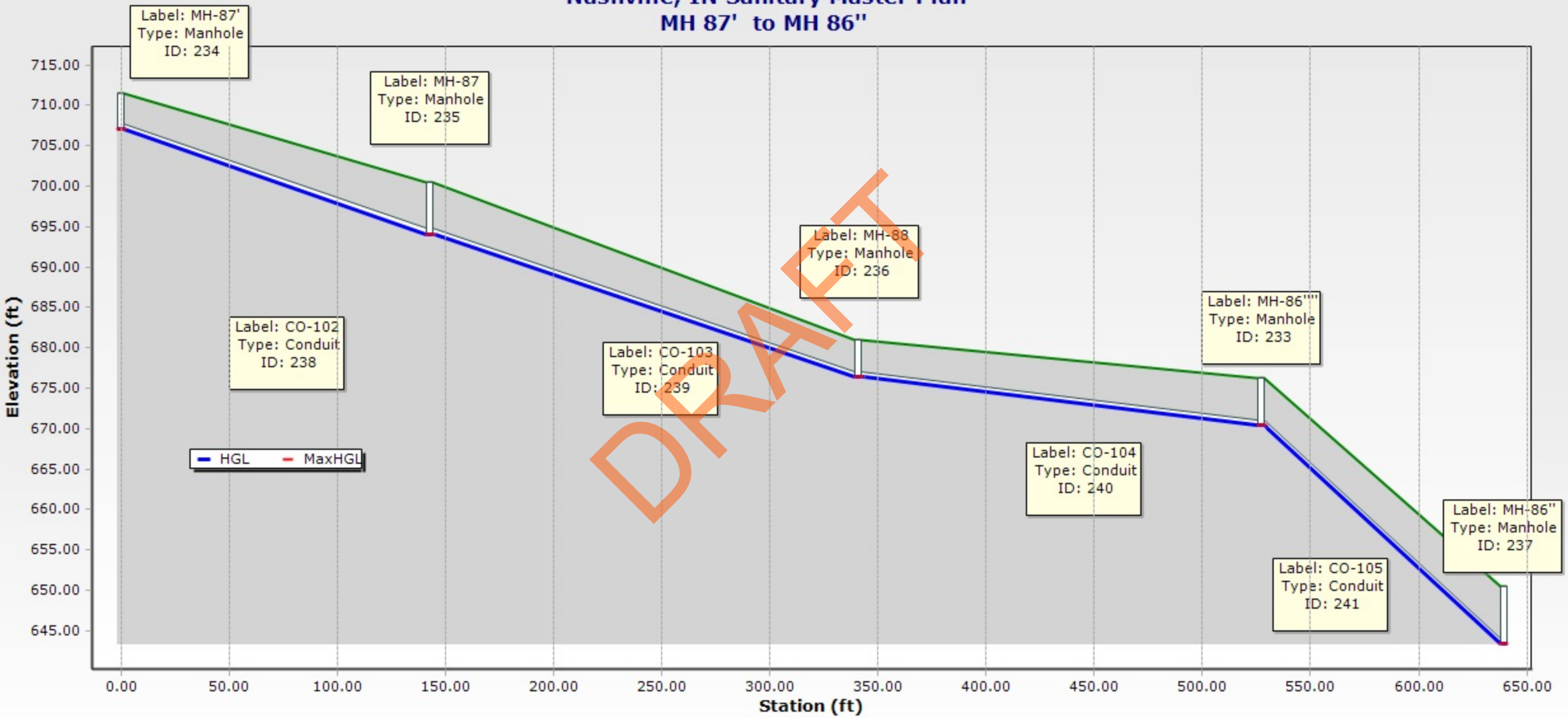


Nashville, IN Sanitary Master Plan
MH 84 to MH 82

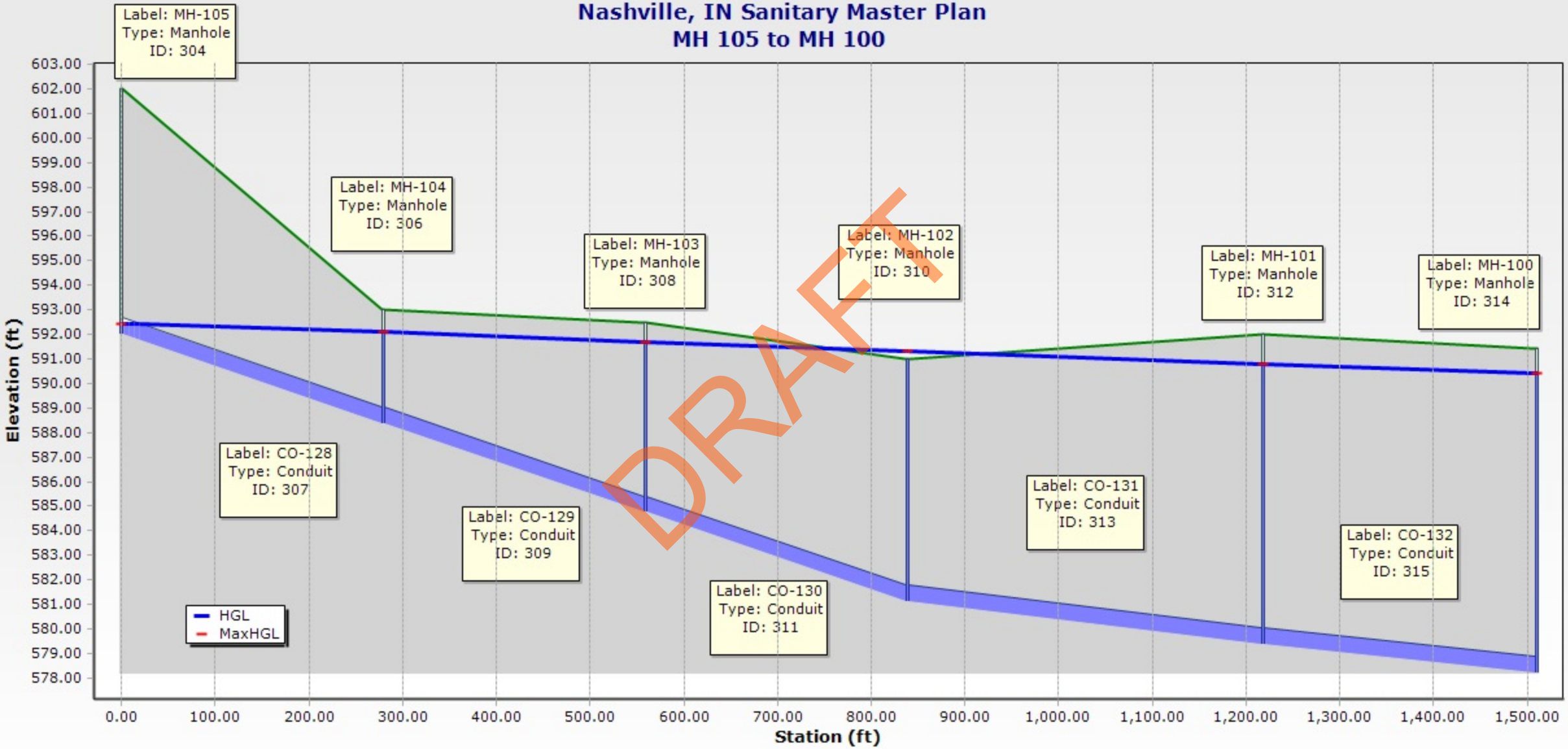


Nashville, IN Sanitary Master Plan
MH 86'' to MH 85

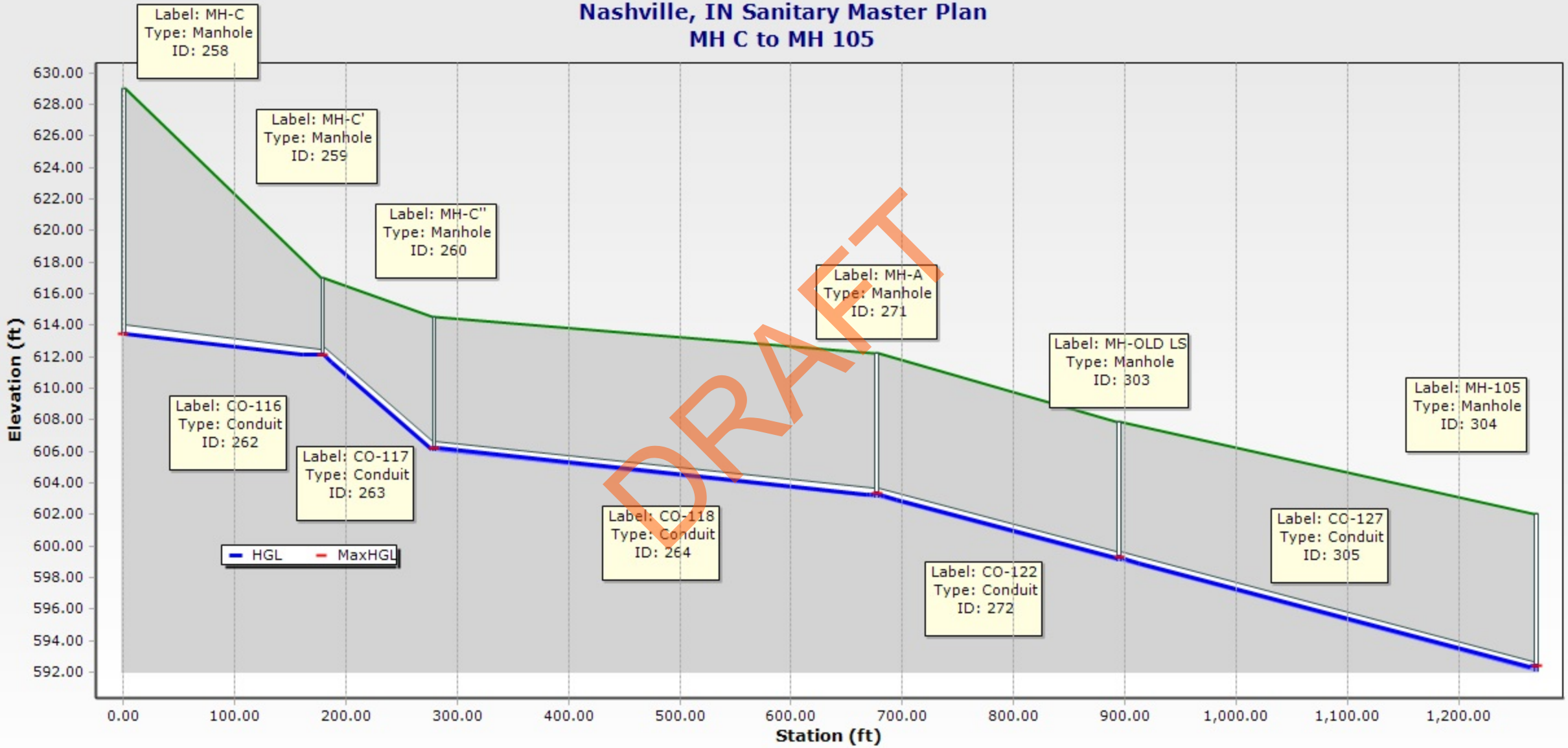
Nashville, IN Sanitary Master Plan
MH 87' to MH 86''



Nashville, IN Sanitary Master Plan
MH 105 to MH 100



Nashville, IN Sanitary Master Plan
MH C to MH 105



APPENDIX G

Appendix G: Sanitary Sewer Ordinance

APPENDIX H

Appendix H: IDEM Agreed Order

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

Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

December 11, 2019

Via Certified Mail No.: **7017 0190 0000 9502 3787**

Jane Gore, Town Council President
Town of Nashville
200 Commercial Drive
Nashville, IN 47448

Dear Ms. Gore:

Re: Adoption of Agreed Order
Commissioner, Indiana Department
of Environmental Management
v.
Town of Nashville
NPDES No. IN0023876
Case No. 2019-26278-W
Nashville, Brown County

This is to inform you that the Agreed Order in the above-referenced case has been approved and adopted by the Indiana Department of Environmental Management. A copy of the Agreed Order is enclosed.

Please note the terms of compliance contained in the Agreed Order. The time frames for compliance are effective upon your receipt of this correspondence (Effective Date). Please note that the civil penalty is due within 30 days after the effective date of the Agreed Order. Payment should be made payable to the "Environmental Management Special Fund" and sent to:

Indiana Department of Environmental Management
Accounts Receivable
IGCN, Room 1340
100 North Senate Avenue
Indianapolis, IN 46204

Please include the Case Number on the front of the check.

If you have any questions, please contact David Koehler, Environmental Manager, Water Enforcement Section, at (317) 232-8433 or dkoehler@idem.in.gov.

Sincerely,

Samantha K. Groce, Chief
Water Enforcement Section
Surface Water, Operations &
Enforcement Branch
Office of Water Quality

Enclosures

cc: Brown County Health Department
Robin Willey, Certified Operator
http://www.in.gov/idem

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(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

STATE OF INDIANA)
) SS:
COUNTY OF MARION)

BEFORE THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT,

Complainant,

v.

TOWN OF NASHVILLE,

Respondent.

Case No. 2019-26278-W

AGREED ORDER

Complainant and Respondent 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. Respondent's entry into this Agreed Order shall not constitute a waiver of any defense, legal or equitable, which Respondent may have in any future administrative or judicial proceeding, except a proceeding to enforce this order.

I. FINDINGS OF FACT

1. Complainant is the Commissioner (Complainant) of the Indiana Department of Environmental Management (IDEM), a department of the State of Indiana created by IC 13-13-1-1.

2. Town of Nashville (Respondent), which owns/operates the Nashville Wastewater Treatment Plant, located at 10 State Road 46 West, Nashville, Brown County, Indiana (the Site).

3. Respondent is authorized by its National Pollutant Discharge Elimination System (NPDES) Permit No. IN0023876 (the Permit), to discharge wastewater treated in accordance with the terms and conditions of the NPDES Permit from its Wastewater Treatment Plant (WWTP) into North Fork Salt Creek from Outfall 001.

4. IDEM has jurisdiction over the parties and the subject matter of this action pursuant to IC 13-30-3.

5. Pursuant to IC 13-30-3-3, IDEM issued a Notice of Violation (NOV) via Certified Mail/personal service to:

   Jane Gore, Town Council President
   Town of Nashville
   200 Commercial Drive
   Nashville, Indiana 47448

6. During an investigation including inspections on February 28, 2019, and March 8, 2019, conducted by a representative of IDEM, violations were found, as described below.

7. 327 Indiana Administrative Code (IAC) 5-2-8(1), states the permittee shall comply with all terms and conditions of the Permit. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action by IDEM.

8. Pursuant to Part II. B. 6 of the Permit, 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 the permit is expressly prohibited.

   Respondent had an overflow on February 24, 2019, and unreported overflows to waters of the State, not specifically authorized by the Permit, in violation of Part II. B. 6 of the Permit..

9. Pursuant to 327 IAC 5-2-8(11)(C) and Part II. C. 3 of the Permit, permittee shall orally report information on any of the following types of noncompliance within twenty-four (24) hours from the time permittee becomes aware of such noncompliance:
   i. Any unanticipated bypass that exceeds any effluent limitation in the permit.
   ii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the commissioner in the permit to be reported within twenty-four (24) hours.
   iii. Any noncompliance that 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 noncomplying circumstances to (888) 233-7745.
   iv. Any upset that exceeds any effluent limitation in the permit.

   A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances.

   Respondent failed to orally report noncompliance within 24 hours from the time Respondent became aware of such noncompliance and failed to provide a written

submission within five (5) days of the time Respondent became aware of the circumstance, in violation of 327 IAC 5-2-8(11)(C) and Part II. C. 3 of the Permit.

10. Pursuant to Part II. B. 1. F of the Permit, there shall be an ongoing preventative maintenance program (PMP) for the sanitary sewer system.

Based on an inspection on February 28, 2019, Respondent failed to develop and implement a PMP for the sanitary sewer system, in violation of Part II. B. 1. f of the Permit.

11. Pursuant to 327 IAC 5-2-10 and Part II. B. 4 of the Permit; solids, sludge, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewater 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 statues and regulations relative to liquid and/or solid waste disposal.

Respondent failed to dispose of sludge and solids in a manner that prevents materials from entering waters of the State, in violation of 327 IAC 5-2-10 and Part II. B. 4 of the Permit.

12. Pursuant to 327 IAC 5-22-10(1) and Part II. B. 1. e of the Permit, permittee is responsible for providing adequate funding for and oversight of the wastewater treatment plant and collection system to ensure proper operation, maintenance, management, and supervision.

Respondent has inadequate operating staff to ensure compliance with the conditions of the Permit, in violation of 327 IAC 5-22-10(1) and Part II. B. 1. e of the Permit.

13. Pursuant to IC 13-30-2-1(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 that causes or would cause pollution that violates or would violate rules, standards, or discharge or emission requirements adopted by the appropriate board under the environmental management laws.

During the inspection on February 28, 2019, IDEM staff observed and documented flooding had occurred on and around Respondent's salt stockpile causing salt laden water to discharge to Salt Creek, in violation of IC 13-30-2-1(1).

14. On March 18, 2019 and March 21, 2019, IDEM sent Inspection Summary Letters to Respondent outlining violations at the WWTP. The letters required a response detailing actions taken to correct the violations. To date, IDEM has not received a response to the above noted violation and noncompliance letters, and the violations continue at the WWTP.

15. In recognition of the settlement reached, Respondent 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 adopted by Complainant or Complainant's delegate (as evidenced by signature), and the adopted Agreed Order has been received by Respondent. This Agreed Order shall have no force or effect until the Effective Date. In addition to addressing the violations cited in Paragraphs 8 through 13 of the Findings of Fact above, this Agreed Order also addresses any additional violations of these same rules that may have occurred subsequent to the issuance of the NOV and prior to the Effective Date.

2. Respondent shall comply with rules and statutes listed in the findings above at issue.

3. Immediately upon the Effective Date, Respondent shall orally report noncompliance with 327 IAC 5-2-8(11)(C) and Part II. C. 3 of the Permit within 24 hours from the time of discovery and provide a written submission within five (5) days to Order Paragraph 15.

4. Within 30 days of the Effective Date, Respondent shall develop and submit to IDEM for approval a Preventative Maintenance Plan (PMP) for the sanitary sewer collection system, which includes methods and milestone dates for location and eliminating sources of inflow and infiltration (I/I) in the sewer system.

   The PMP is subject to IDEM approval. In the event IDEM determines the PMP is deficient or otherwise unacceptable, Respondent shall revise and resubmit the PMP to IDEM in accordance with IDEM's Notices. After three (3) submissions of the PMP by Respondent, IDEM may seek civil enforcement of this Order.

   Respondent, upon receipt of written notification from IDEM, shall immediately implement the approved PMP.

5. Within 45 days of the Effective Date, Respondent shall develop and submit to IDEM for approval a Compliance Plan (CP) which identifies actions that Respondent will take to achieve and maintain compliance with its Permit, specifically including the actions Respondent will take to:
   A. Assure proper removal, storage and disposal of sludge solids;
   B. Develop and implement a preventative maintenance program for WWTP equipment, and document all maintenance (preventative and repair) in a permanent record;
   C. Evaluate and implement means to eliminate SSOs and bypasses;
   D. eliminating sources of inflow and infiltration (I/I) in the sewer system;
   E. Comply with reporting requirements of the permit;
   F. Provide adequate influent flow measurement; and

G. Eliminate the potential discharge of salt laden water from the salt pile.

The CP shall include an implementation and completion schedule, including specific milestone dates.

Respondent shall notify IDEM in writing of variations to the approved CP.

6. Within 30 days of the Effective Date, Respondent shall complete and provide to IDEM an evaluation of organization and staffing, which shall include clear and appropriate line of authority, identification of staff responsibilities, qualification of staff, staffing levels related to required work effort, coordination with other departments, and contract management (if required).

7. Respondent shall, after completion of the work required pursuant to the approved plans above, demonstrate 12 consecutive months of compliance (Compliance Demonstration) with the terms and conditions of the Permit.

8. In the event that violation(s) occur during the Compliance Demonstration, within 30 days of the violation, Respondent shall develop and submit to IDEM, for approval, an Additional Action Plan (AAP) which identifies the additional actions that Respondent will take to achieve and maintain compliance with the terms and conditions of the Permit. The AAP, if required, shall include an implementation and completion schedule, including specific milestone dates.

9. The plans required by Order Paragraphs 5, 6, and 9 are subject to IDEM approval. In the event IDEM determines that any plan submitted by Respondent is deficient or otherwise unacceptable, Respondent shall revise and resubmit the plan to IDEM in accordance with IDEM's notice. After three submissions of such plan by Respondent, IDEM may seek civil enforcement of this Order.

10. Respondent, upon receipt of written notification from IDEM, shall immediately implement the approved plan(s) and adhere to the milestone dates therein. The approved CP and AAP shall be incorporated into the Agreed Order and shall be deemed an enforceable part thereof.

11. Following completion of the actions included in the AAP, the 12 month Compliance Demonstration, as specified in Paragraph 8 above, will re-start. Failure to achieve compliance at the conclusion of work under an AAP may subject Respondent to additional enforcement action.

12. Within 10 days of the completion of each required milestone included in the CP or AAP, Respondent shall submit to IDEM a written progress report or notification of completion for each milestone.

13. Beginning on the Effective Date and continuing until the successful completion of the approved CP, Respondent shall, at all times, operate its existing WWTP as efficiently and effectively as possible.

14. All submittals required by this Agreed Order, unless Respondent is notified otherwise in writing by IDEM, shall be sent to:

David Koehler, Enforcement Case Manager
Office of Water Quality – IGCN 1255
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, IN 46204-2251

15. Respondent is assessed and agrees to pay a civil penalty of Four Thousand, Seven Hundred Dollars ($4,700). Said penalty amount shall be due and payable to the "Environmental Management Special Fund" within 30 days of the Effective Date, the 30th day being a "Due Date."

16. In the event the terms and conditions of the following paragraphs are violated, IDEM may assess and Respondent shall pay the corresponding stipulated penalty:

Paragraph	Violation	Stipulated Penalty
3	Failure to orally report noncompliance and/or submit a written report within 5 days.	$150 per week late, or part thereof.
4	Failure to develop and submit a PMP.	$150 per week late, or part thereof.
4	Failure to implement the approved PMP.	$250 per week late, or part thereof.
5	Failure to submit the CP within the required time period.	$250 per week late, or part thereof.
6	Failure to provide an evaluation of organization and staffing.	$150 per week late, or part thereof.
7, 11	For violations of terms and conditions of the Permit during the Compliance Demonstration.	$400 per violation
8	Failure to submit the AAP, if required, within the given time period.	$500 per week late, or part thereof.
9	Failure to modify the CP and/or AAP, if required, within the given time period.	$500 per week late, or part thereof.
10	Failure to meet and/or implement any milestone date set forth in the approved CP or AAP.	$500 per week late, or part thereof.
12	Failure to submit to IDEM a written report of progress within 10 days of each milestone.	$150 per week late, or part thereof.
13	Failure to operate the WWTP as efficiently and effectively as possible prior to Compliance Demonstration.	$200 per violation.

17. Stipulated penalties shall be due and payable no later than the 30th day after Respondent receives written notice that IDEM has determined a stipulated penalty is due, the 30th day being a "Due Date." IDEM may notify Respondent at any time that a stipulated penalty is due. Failure to notify Respondent in writing in a timely manner of a stipulated penalty assessment shall not waive IDEM's right to collect such stipulated penalty or preclude IDEM from seeking additional relief against Respondent for violation of this Agreed Order. Neither assessment nor payment of stipulated penalties shall preclude IDEM from seeking additional relief against Respondent for a violation of this Agreed Order. Such additional relief includes any remedies or sanctions available pursuant to Indiana law, including, but not limited to, civil penalties pursuant to IC 13-30-4.

18. Civil and stipulated penalties are payable by check to the "Environmental Management Special Fund." Checks shall include the Case Number 2019-26278-W of this action and shall be mailed to:

    Indiana Department of Environmental Management
    Accounts Receivable
    IGCN, Room 1340
    100 North Senate Avenue
    Indianapolis, IN 46204

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

20. In the event that the monies due to IDEM pursuant to this Agreed Order are not paid on or before their Due Date, Respondent shall pay interest on the unpaid balance and any accrued interest at the rate established by IC 24-4.6-1. The interest shall be computed as having accrued from the Due Date until the date that Respondent pays any unpaid balance. The interest shall continue to accrue on the first of each month until the civil penalty and any interest accrued are paid in full. Such interest shall be payable to the "Environmental Management Special Fund," and shall be payable to IDEM in the manner specified above.

21. In the event that any terms of this 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 this Agreed Order did not contain the invalid terms.

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

23. 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 Respondent pursuant to this Agreed Order, shall not in any way relieve Respondent of its obligation to comply with the requirements of its applicable permits or any applicable Federal or State law or regulation.

24. Complainant does not, by his approval of this Agreed Order, warrant or aver in any manner that Respondent's compliance with any aspect of this Agreed Order will result in compliance with the provisions of any permit, 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 Respondent may incur as a result of Respondent's efforts to comply with this Agreed Order.

25. 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, except that IDEM may not, and hereby waives its right to, seek additional civil penalties for the same violations specified in the Notice of Violation.

26. Nothing in this Agreed Order shall prevent IDEM (or anyone acting on its behalf) from communicating with the United States Environmental Protection Agency (US 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 Respondent may incur as a result of such communications with the US EPA or any other agency or entity.

27. This Agreed Order shall remain in effect until Respondent has complied with the terms and conditions of this Agreed Order and IDEM issues a Resolution of Case (close out) letter to Respondent.

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TECHNICAL RECOMMENDATION:
Department of Environmental Management

By: _____

Samantha K. Groce, Chief
Water Enforcement Section
Surface Water, Operations &
Enforcement Branch
Office of Water Quality

Date: November 18, 2019

RESPONDENT:
Town of Nashville

By: _____

Printed: Alisha Grady

Title: Vice President

Date: 11/21/19

COUNSEL FOR RESPONDENT:

By: James T. Roberts

Date: 11/21/19

APPROVED AND ADOPTED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT THIS 10TH DAY OF DECEMBER, 2019.

For the Commissioner:

_____

Martha Clark Mettler
Assistant Commissioner
Office of Water Quality

RECEIVED
DEC 02 2019
By_____