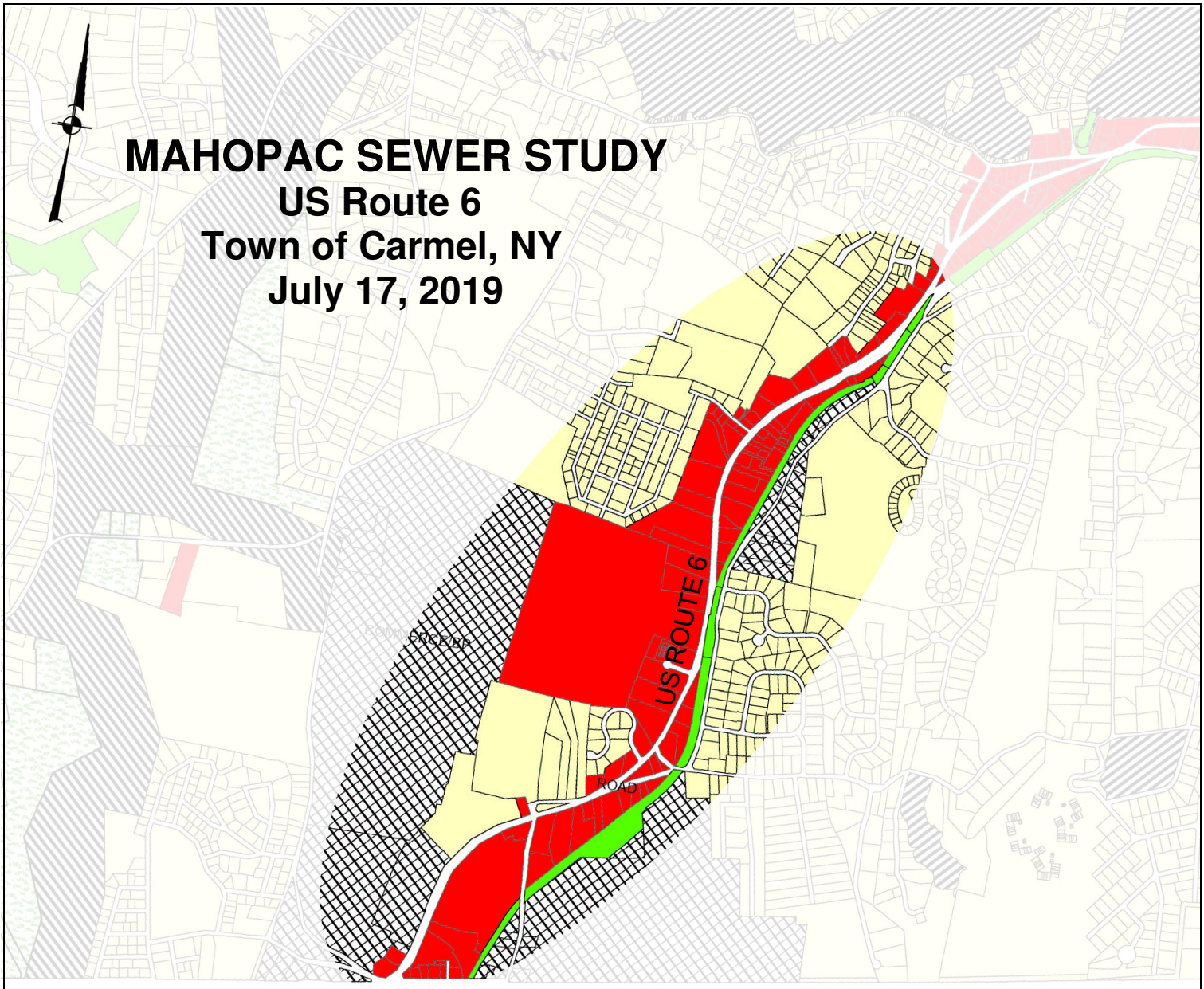
MAHOPAC SEWER STUDY
US Route 6
Town of Carmel, NY
July 17, 2019



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0.0 INTRODUCTION

The County of Putnam commissioned this study to initiate the planning of providing the Mahopac area with centralized sewer service to the southern portion of the U.S. Route 6 commercial development in the Town of Carmel. The sewer service area would start south of the intersection of U.S. Route 6 and Bucks Hollow Road, and extend south to the Town/County line. The commercial development along the corridor would be the subject users of the proposed sewer system.

Prior to this report, the County commissioned the report entitled *Putnam County Commercial Corridors*, which included an analysis of infrastructure and other key metrics throughout the County's commercial corridors. The report notes the importance of centralized sewer service as it relates to the sustainability of the commercial corridors. In the report, the Route 6 Mahopac corridor was studied and the report did acknowledge the lack of centralized sewer service as a factor limiting the subject area.

This initial study takes the first step in defining the sewer project as well as sewer collection, conveyance, and treatment alternatives identified by the County. In addition, this report includes discussions on costs, funding, permitting, and implementation. The treatment alternatives studied are based on options thought to be feasible at the time of this report.

1.0 ASSESSMENT AND DEFINITION OF THE SERVICE AREA

1.1 Extents of Commercially Zoned Properties to be Included in Service Area

This study focuses on the Commercial and Commerce Business Park zoned high density developed area on Route 6 in the Town of Carmel, Putnam County, New York. The location of the proposed service area is shown on the *Proposed Service Area Map*, (Figure 1-1) attached hereto. The area has both existing commercial and residential development (a residential zone is surrounded by the commercial and commerce zones). The area also contains several vacant parcels. All but two of the developed parcels (Mahopac Village Center and Society Hill Condos) are currently served by subsurface sewage treatment systems (SSTS's). Mahopac Village Center and Society Hill Condos are served by separate surface discharging Wastewater Treatment Plants (WWTP's).

The proposed boundary of the service area is bordered to the east by residentially zoned property, to the south by the county border, to the west by Baldwin Place Road, and to the northwest by residentially zoned properties. A highpoint in Route 6 approximately 800' south of the intersection of Route 6 and Bucks Hollow Road creates a practical limit for the service area. The commercially zoned properties that have frontage on Route 6 to the south of the highpoint were included in the service area. Commercially zoned properties to the north of this high point either currently connect to Carmel Sewer District #1 (CSD #1) and the Mahopac Sewage Treatment Plant, (Mahopac STP) or could connect to the Mahopac STP by gravity connection to the existing sewer infrastructure.

The boundary of the proposed service area is delineated on Figure 1-1 attached hereto. A total of 155 parcels are proposed to be included. These include 138 developed parcels and 17 undeveloped parcels.

The study area is located within the New York City East of Hudson (NYC EOH) Watershed. The proposed service area is located in both the Amawalk Reservoir Basin and the Muscoot Reservoir Basin. The NYC EOH watershed is an impaired watershed with a Total Maximum Daily Load (TMDL) established for phosphorus. As phosphorus is the pollutant of concern, the proposed treatment options will address this pollutant.

1.2 Existing Sewer Service Areas

As previously discussed, all but two of the developed properties within the proposed service area are served by onsite SSTS's. The existing flows on these parcels can vary greatly based on use and occupancy.

The Mahopac Village Center is a commercial shopping center and is served by a surface discharging WWTP. Based on the latest SPDES Permit (SPDES Permit #NY0090646, Appendix A) on file with the Putnam County Department of Health (PCDOH), the plant has a flow limit of

18,000 gallons per day (gpd) based on a 30-day average. The plant has a phosphorus limit of 1.0 mg/l per the SPDES Permit.

The Society Hill Condo property is a residential condo development with a Homeowners Association managing common areas and utilities. The development is served by a surface discharging WWTP. Based on the latest SPDES Permit (SPDES Permit #NY0207365, Appendix B) on file with the PCDOH, the plant has a flow limit of 22,500 gallons per day (gpd) based on a thirty-day average. The SPDES Permit also indicates a phosphorus limit of 1.0 mg/l.

CSD #1 is a Town sewer district that services the northern portion of Mahopac from Lake Plaza to the north, to Buckshollow Road to the south. This district sewerage is conveyed to the Mahopac STP which is owned and operated by the New York City Department of Environmental Protection (NYCDEP). Based on the latest SPDES Permit (SPDES Permit # NY0026590, Appendix C) on file with the Town, the plant has a flow limit of 300,000 gallons per day (gpd) based on a thirty day average. The SPDES Permit also indicates a phosphorus limit of 0.20 mg/L based on a 12 month rolling average.

1.3 Review of Past Septic System Problems

Densely developed areas will typically see increased rates of SSTS failures and develop water quality issues. Space is limited for areas meeting ideal conditions for SSTS's including regulated separation distances to wells and other geographic features. When a SSTS fails, suitable land for conventional SSTS may not be available resulting in unconventional repairs that would not meet the requirements of new development. Land for conventional SSTS's for new development is also impacted by these same conditions.

A review of the soils in the proposed service area using the Web Soil Survey indicates that over 85% of the soils in the area are "Very Limited" in their ability to support a SSTS. The Web Soil Survey notes slopes, depth to bedrock, and depth to saturated zone for the reasons the soils have a very limited rating. SSTS's installed in these areas are anticipated to have poor performance and high maintenance.

Several factors impacting SSTS's in the project area as discussed below limit the areas ability to support the existing development and limit the potential for expansion and new development.

Small Lot Size – Many of the lots in the study area are less than 1 acre. Siting new SSTS's or providing code conforming repairs meeting current regulations on such small lots with individual wells and SSTS's is often not possible or practical.

Groundwater and Surface Water – Adequate soil depth below an SSTS is critical to a SSTS's ability to effectively treat wastewater. Shallow groundwater limits the soil available to properly treat wastewater. For this reason, the PCDOH and NYCDEP require separation between the bottom of a SSTS trench and groundwater. Based on review of the web soil survey over 85% of the soil types in the proposed service area are subject to a shallow depth to saturation, meaning many existing systems likely do not meet the regulated separation.

New York State Department of Environmental Conservation (NYSDEC) Wetland F-26 is located in the southern portion of the proposed service area to the east of Miller Road. NYSDEC Wetland ML-11 is also located in the southern portion of the proposed service area between Route 6 and Baldwin Place Road. Small areas of surface water are associated with these wetlands. The New York State Department of Health and Department of Environmental Conservation does not allow SSTS absorption fields within 100' of surface water. The presence of wetlands also indicates the potential for a high-water table in the area. If high groundwater is present, the existing SSTSs treatment characteristics are likely compromised.

Steep Slopes – Portions of the study area contain slopes in excess of 15%. SSTSs are not allowed on slopes in excess of 15% for single family residential SSTS's, or 20% for

commercial SSTS's per PCDOH and New York City Department of Environmental Protection (NYCDEP) regulations. In addition, placement of SSTSs on steep slopes can lead to SSTS failures.

Ledgerock – The shallow depth of ledgerock in some areas makes conventional SSTSs less effective in properly treating sewage effluent. It is probable that many SSTSs were not designed with this shallow depth in mind and are today considered substandard in the critical separation distance from absorption trench to ledgerock. Exposed ledgerock is evident on several parcels in the northern part of the service area.

SSTS and Well Separation Distances – The early development of the study area occurred when SSTS and water well placement where not strictly regulated. Current PCDOH regulations require SSTS/well separations ranging from 100' to 200'. Due to the small lot size it can be deduced that many SSTSs in the area are located with significantly reduced horizontal separation distances from wells. The reduced separation has likely contributed to a decline in groundwater and surface water quality.

Commercial SSTS's Under Pavement / **Parking** – Locating commercial SSTS's under pavement was once allowed by regulations, but is currently prohibited by the NYCDEP for the service area. Locating SSTS's under pavement is not an ideal situation for the system and may lead to earlier failures then similar systems not under pavement. With the age of the systems, it is likely that SSTS under pavement exist in the proposed service area which would be considered substandard by today's regulations.

Age of Existing Facilities - The age of the existing SSTSs coupled with the previously mentioned constraints have led to substandard facilities in the study area, including SSTS failures.

These factors are impacting the water quality and sustainability of the area. SSTS's substandard in one or more of the areas identified above will lead to reduced surface water quality and groundwater quality. Suitable areas for installation of SSTS's for new development, expansion of development, or repair of existing systems is severely limited. These factors impact the area's ability to sustain the current level of development and potential expansion, or new development. A centralized sewer system and WWTP provide a solution to these factors. By relieving the wastewater loads on the soils in the area water quality should improve. By making land available that is currently restricted by SSTS's, future development or expansion is more achievable.

The discussion above summarizes the need for a centralized wastewater treatment solution for the sewer service area and how the boundary of the sewer service area was shaped.

2.0 ESTIMATION OF WASTEWATER FLOW AND CHARACTERISTICS

2.1 Definition of Various Design Flows

The sizing of wastewater facilities from pipes, sewer pump stations and wastewater treatment plants are based on various flow rates as defined by *Recommended Standards for Wastewater Facilities* (RSWF) as follows:

a. Design Average Flow (DAF)

The design average flow is the average of the daily volumes to be received for a continuous 12-month period expressed as a volume per unit time.

b. Design Maximum Day Flow (DMDF)

The design maximum day flow is the largest volume of flow to be received during a continuous 24-hour period expressed as a volume per unit time.

c. Design Peak Hourly Flow (DPHF)

The design peak hourly flow is the largest volume of flow to be received during a one-hour period expressed as a volume per unit time.

WWTP's are sized based on a variation of Design Average Flow (DAF) as the New York State Department of Environmental Conservation (NYSDEC) issues SPDES Permits based on a 30-day average flow. This allows for variances in flow from the minimal day to the maximum day and peaks during a day by allowing an average over a 30-day period. Often a WWTP uses storage tanks known as equalization tanks to handle peak flows allowing for the WWTP to be sized based on a DAF. The collection and conveyance system components including mains, service lines and pumps are sized for a peak hourly flow.

Ratios between DAF, Design Maximum Day Flow (DMDF), and Design Peak Hourly Flow (DPHF) are based on historical data. The Connecticut Department of Environmental Protection publication *Guidance for Design of Large Scale On-site Wastewater Renovation Systems* provides data for the ratio of a maximum day flow to an average day flow for residential and commercial uses. The document states that a ratio of maximum day to average day is 1.5 to 1.0 for residential properties and 2.0 to 1.0 for commercial properties. The ratio of a maximum day to an average day takes into account the potential swings in number of patrons at a business from weekdays vs. weekend days or day's businesses may have reduced hours. For residential uses, the ratio takes into account factors like days when the residents are at work versus days the residents are at home. As the design flow of the WWTP is based on a 30-day average flow, these fluctuations in flow from the maximum day flow can be accounted for. It is proposed to use a conservative ratio of maximum day to average day of 1.5. Therefore, for the subject WWTP, the 30-day average flow will be calculated as 66% of the maximum day design flow. This is within the range for max day to average day predicted by the cited Connecticut EPA document.

As the proposed facilities will serve the area for a 30 to 50-year period of time, the sizing must take into account future development, population growth, change of use and their effects on wastewater flows. The majority of the existing wastewater disposal systems in the planned service area are individual subsurface sewage treatment system(s) (SSTSs). These types of systems do not provide a record of actual flow data. The WWTP's do report actual flows. Therefore, review of the subject area and potential uses outside the WWTP service areas are required to estimate the projected flows. The land-use will be broken into four primary categories including; areas currently served by WWTP's, single family residential properties, large undeveloped parcels, and small or currently developed parcels.

2.2 Areas Currently Served by WWTPs

There are two existing WWTPs in the proposed service area. These WWTPs are known as the Mahopac Village Center WWTP and Society Hill Condo's WWTP. The service area of these WWTP's are indicated in orange on the attached *Parcel Key Map* (Figure 2-1). The number identifying each parcel on the key map correspond to Table 2-1 where additional information can be found.

The Mahopac Village Center is a commercial shopping center and is served by a surface discharging WWTP. Based on the latest SPDES Permit (SPDES Permit #NY0090646, Appendix A) on file with the Putnam County Department of Health (PCDOH), the plant has a flow limit of 18,000 gallons per day (gpd) based on a 30-day average. The plant has a phosphorus limit of 1.0 mg/l per the SPDES Permit. Based on available Daily Monitoring Reports, the 30-day average flow, reported monthly ranged from 8,000 gpd to 14,000 gpd for 2017. The values are under the allowable 18,000 gpd.

The Society Hill Condo property is a residential condo development with a Homeowners Association managing common areas and utilities. The development is served by a surface discharging WWTP. Based on the latest SPDES Permit (SPDES Permit #NY0207365, Appendix B) on file with the PCDOH, the plant has a limit of 22,500 gallons per day (gpd) based on a 30-day average. Based on available Daily Monitoring Reports, the 30-day average flows reported for each month ranged from 10,000 gpd to 15,000 gpd. These values are below the allowable 22,500 gpd. The SPDES Permit also indicates a phosphorus limit of 1.0 mg/l.

Tax Map Identification and additional information regarding the subject parcels is provided on Table 2-1. The existing WWTP parcels are highlighted orange on the table. The SPDES

Permits for the plants are enclosed herewith in Appendix A and B. The total flow for properties currently served by WWTP's will be the sum of the SPDES permitted flow limits.

Areas Currently Served by WWTPs DAF Subtotal: 40,500 gpd

2.3 Single-Family Residential Parcels

The single family residential parcels are identified in green on Figure 2-1 and Table 2-1. There are 13 parcels in the proposed service area that are included in this category. The New York State Department of Environmental Conservation (NYSDEC) publication *Design Standards for Intermediate Sized Wastewater Treatment Systems 2014 (DEC 14)* was used to estimate current wastewater flows. As a subsurface sewage treatment system (SSTS) is sized to accommodate a maximum daily flow, values from *DEC 14* is considered a DMDF. *DEC 14* assigns wastewater flows for residential areas based on the number of bedrooms. The single-family residential properties in the area typically range in bedroom count from 3 to 5 bedrooms. For the purpose of this study, the subject properties will be considered as four-bedroom homes. *DEC 14* provides a design flow number of 110 gpd/bedroom resulting in a four-bedroom home equating to 440 gpd. The 440 gpd multiplied by the 13 parcels results in a total DMDF design flow for single-family residential parcels of 5,720 gpd. Calculating the Design Average Flow by applying the 66% factor discussed above results in a Design Average Flow of:

Single Family Residential Parcels DAF Subtotal: 3,800 gpd

2.4 Large Undeveloped Parcels

There are nine large undeveloped lots in the proposed service area. Those parcels included in this category not involved in the proposed Union Place Development are identified in yellow on Figure 2-1. To be considered for this category the property would need to have over 1 acre of developable area. To develop these parcels current zoning, land use, and stormwater regulations need to be met. Current zoning regulations limit the amount of building coverage allowed on lots, while other land use regulation can limit development, and stormwater regulations require stormwater management practices that use potential developable area to meet current stormwater management requirements in the New York City Department of Environmental Protection (NYCDEP) Watershed.

Three of these large undeveloped lots are included as part of the proposed Union Place Development. There are three additional lots that will be redeveloped as part of the proposed Union Place action for a total of six lots. The six Union Place parcels are identified in blue on Figure 2-1. This development will be used to estimate a unit wastewater flow per developable acre for these large undeveloped parcels.

While several different alternatives are proposed in the October 27, 2010 Union Place Draft Environmental Impact Study (DEIS) for the development of the Union Place parcels, the current zoning compliant retail and senior housing alternative with a WWTP was selected for this study. This alternative is identified as B-1/B-2 in the Union Place DEIS. The total developable area of the six parcels was based on the total area of disturbance for the alternative. The 164-acre total disturbance for this alternative included 80 acres of impervious surfaces. In this alternative the calculated wastewater flow based on *Design Standards for Wastewater Treatment Work, NYSDEC 1988,* was a DMDF of approximately 104,000 gpd. This value was converted to a unit flow in gallons per day per developable acre as follows:

104,000 gpd/ 164 developable acres = 634 gpd/developable acre

The developable area of these large parcels was determined using available topographic and wetland mapping. Areas of steep slopes and wetlands were considered not developable. Specific data including tax maps, lot area, and estimated developable area by parcel are provided on Table 2-1. The large undeveloped parcels are highlighted in yellow on the table. The Union Place parcels are highlighted in blue. The developable area of the large undeveloped lots (excluding Union Place parcels) was estimated at 42 acres. Multiplying the 634 gpd/developable

acre by the 42 acres results in an estimated DMDF flow for the large undeveloped parcels of 26,600 gpd.

Adding this subtotal to the DMDF of 104,000 gpd for the Union Place parcels results in an estimated total flow for the large undeveloped parcel category of 130,600 gpd. Applying the factor of 66% to convert from DMDF to Design Average Flow results in a Design Average Flow as follows:

Large Undeveloped Parcels DAF Total: 86,200 gpd

2.5 Small or Currently Developed Parcels

The final category used for flow estimation was the small or currently developed properties. These parcels include the currently developed parcels or undeveloped parcels with less than 1 acre of developable area. The parcels included in this category have not been highlighted in blue, orange, yellow or green in Table 2-1 or Figure 2-1. The developed parcels are included in this category as they are either developed prior to current zoning restrictions and stormwater regulations allowing for a development density greater than the future development discussed for the large undeveloped parcels. The small properties are included in this category as the development of these parcels would likely be under thresholds requiring developable area being required for stormwater management. For these reasons these lots are currently developed more densely or could be developed more densely than the large undeveloped parcels. For this reason, a higher unit loading in gpd/developable acre is anticipated for these parcels.

Based on experience in the local area and commercial development, there is a practical maximum building gross floor area that can be obtained while still providing other amenities required for site development.

Based on local experience it is typical that commercial development densities vary greatly. Generally, a building gross floor area range of 14,000 square feet for a single story building to 22,000 square feet for a two story building per developable acre can be expected.

For commercial development in the low water use categories like office or dry retail, a DMDF flow range for these square footages is 550 gpd to 870 gpd, or 710 gpd on average. For commercial development in the high water use categories including hotels, banquet halls, and restaurants DMDF is approximately 2,000 gpd per developable acre.

There is a practical limit to the maximum high water use development including hotels, banquet halls, and restaurants an area could economically sustain. While this percentage is anticipated to be significantly lower than one third of the uses, the report assumes 33% of the developed or small parcels will be developed with a high water use. The estimated unit flow per developable acre for this category is calculated by a weighted average between low and high water uses using this ratio as follows:

710 gpd x 67% + 2,000 gpd x 33% = 1,135 gpd/developable acre

Applying this unit loading to the 150 developable acres in this category results in a DMDF subtotal of 170,300 gpd. Converting to Design Average Flow using the 66% factor discussed above results in a:

Small or Currently Developed Parcels DAF Subtotal: 112,400 gpd

2.6 Daily Average Flow for Service Area

The service area is proposed to be designed for the total flow of the four categories discussed above. A contingency will be added to this sum for additional development not contemplated in the estimated flows.

The total Design Average Flow for all four categories is:

Design Average Flow Total: 242,900 gpd

Applying a 20% contingency for additional growth results in a design average flow of 291,480 gpd. Rounding up to the nearest 10,000 gpd, the service area Design Average Flow proposed is:

Service Area Design Average Flow: 300,000 gpd

2.7 Characteristics of Flows

As commercial uses are the primary wastewater generator, the wastewater would be anticipated to have medium strength characteristics. Uses such as car washes and laundromats would have higher strength characteristics but should be mitigated by on site primary treatment before reaching the primary collection system. Restaurant or banquet halls generating high fats, oils, and grease loads should also be treated with individual onsite grease traps. The small amount of residential uses would not impact the anticipated wastewater strength as they generate lower strength wastewater. Industrial use that would result in higher strength wastewater is not anticipated based on current zoning.

The following typical published values for medium strength wastewater cited in RSWF and published in *Metcalf and Eddy*, *4th Edition* will be utilized in the sizing of the WWTP unit processes:

- BOD_5 – 190 mg/l
- Total Suspended Solids (TSS) – 210 mg/l
- Ammonia (NH_3-N) – 25 mg/l
- Total Kjeldahl Nitrogen (TKN) – 40 mg/l

The values are typical in the region and are capable of being treated using similar processes used throughout the NYCDEP Watershed.

3.0 SCHEMATIC LAYOUT OF THE REQUIRED COLLECTION AND CONVEYANCE SYSTEM

Available topographic mapping and aerial photography, as well as site visits, were used to develop the schematic layout shown on the attached Figure 3-1, Figure 3-2, and Figure 3-3. Additional detailed field surveys of the area will be required for the detailed planning and design, and are outside the scope of this initial study.

The collection and conveyance system are comprised of four major sub-systems including gravity sewer mains, low pressure sewer mains, sewer pump stations, and sewer forcemains. As gravity sewer mains require the least amount of operation and maintenance cost, the areas that can be feasibility served by gravity sewer mains will be served by gravity sewer mains. When a small number of parcels in low lying areas can't be served by gravity sewers, a low-pressure sewer system is proposed with small on lot pump pits used to lift the sewage to a nearby gravity sewer main. Where a gravity sewer reaches a low point in the service area and gravity flow to the final treatment location cannot be achieved, a pump station is proposed. The pump station lifts the wastewater and conveys it through a forcemain to a gravity sewer or the final treatment location.

For this study three possible final treatment options are discussed. A new wastewater treatment plant (WWTP) in the district, connection to the existing Heritage Hills WWTP, or connection to the existing Mahopac Sewage Treatment Plan (STP). Siting of a new WWTP requires a detailed study beyond the scope of this initial study. Factors included in siting a new plant include:

1. Available land and land acquisition with preference to lower elevations in the service area.
2. Proximity of existing development sensitive to odor and noise concerns generated by a WWTP.
3. Proximity to stream or waterbody for WWTP discharge.

As the detailed study addressing these items is outside the scope of this initial study, an assumed location for a new WWTP will be made. The most practical, and the preferred, location of a new WWTP is at or near the low point of the service area. A WWTP at the low point allows for the most cost-effective

collection and conveyance system as it maximizes the amount of gravity sewer that can be used and reduces the number of sewer pump stations needed. For this reason, this study assumes that the WWTP will be in the southern end of the service area as the low points in the service area are near the intersection of Route 118 and Miller Road, and the intersection of Route 6 and Route 118.

3.1 Gravity Sewer System

As much as practical, the sewer system is laid out in existing public right of ways. In some cases, easements may be required across private lands to provide an efficient sewer connection point. The system was laid out to use conventional gravity sewer to the greatest extent practical as it is typically the least costly to construct and maintain. The topography in the service area ranges from flat to steep and there are several distinct low points throughout the district. Two separate gravity collection systems will convey the sewage to these low points where a pump station is proposed.

The gravity collection and conveyance system will consist of 8” to 12” diameter PVC SDR 35 pipe and concrete manholes. The gravity pipe will be set in straight alignments and manholes will be used for horizontal and vertical changes in alignments, and at maximum spacing of 300’ to 400’. In total 19,000 feet of gravity sewer and 85 sewer manholes are estimated as being required. The gravity sewer main has a minimum size of 8” diameter per regulations. Portions of the gravity line will start as 8” diameter and it is anticipated that as flows increase towards the southern end of the service area, the pipe will increase to 10” and 12” diameter sewer main. The schematic layout of the system can be found on the attached Figure 3-1.

3.2 Low Pressure Sewer System

Small areas of the service area lie in low areas, and contain a minimal number of properties so that a conventional sewer pump station would not be practical. A low-pressure sewer is proposed in these areas. The low-pressure sewer system would consist of on-lot pump pits each serving a single property. These pump pits are designed with grinder pumps which reduce the size of the solids handled by the system. This allows for small diameter pipes more appropriate for the lower flows in these areas. The pumps are also designed to operate in a shared low-pressure sewer main reducing redundant piping. The on-lot pump pits are small enough in size that they can typically be constructed in a factory, saving costly field construction. For these reasons a low-pressure sewer is proposed in two areas.

The first area is in the northern section of the service area between the Putnam County Rail Trail and Bucks Hollow Road. It is estimated that 3 or 4 properties would connect to the low-pressure system in this area. The second area where a low-pressure system is proposed is along Mi-Anna Drive. It is estimated that 3 to 4 properties would need to connect to the low-pressure sewer system in this area. For the number of properties connected, a 1.5” low pressure sewer main is anticipated in these two locations. The low-pressure sewer mains would discharge to a nearby gravity sewer main.

3.3 Sewer Pump Stations

Sewer pump stations are used where gravity flow cannot be maintained to the final treatment location. The sewer pump station typically consists of a large diameter concrete manhole that temporarily stores the sewage until enough has accumulated to require a pump down. The pumps are the heart of the pump station and convert electrical energy into mechanical energy used to lift the wastewater along a forcemain to its destination. Additional components include check valves used to prevent flow in the forcemain from reversing back to the pump station. Gate valves are also included for maintenance and repair of the pumps. The valves are typically housed in a valve pit which is separate concrete structure from the wet well to be more accessible. A minimum of two pumps would be provided and would be sized so that the peak hourly flow could be met with one pump out of service. A backup generator would be provided to run the pump station in the event of loss of utility power.

Two pump stations are proposed for the service area. One will be located along Bucks Hollow Road where the road reaches a distinct low point. This pump station would serve the

northern section of the service area including properties along Route 6 and Bucks Hollow Road. This pump station would connect to the southern gravity collection system which would reach the second pump station.

The second pump station would be located near the low point of the service area which is near the intersection of Route 6 and Route 118 by the Town and County border. This pump station would lift the wastewater from the service area to the WWTP for treatment. Two options for the location of the southern pump station are shown on the attached Figure 3-1. Option 1 would be located near Parcel 132, and Option 2 would be located near Parcel 12U. Depending on the final WWTP location, a sewer pump station might be required near Parcels 132 and 12U meaning a total of 3 pump stations.

3.4 Sewer Forcemains

The sewer forcemains connect the sewer pump station to other sewer infrastructure including the gravity system or WWTP. As the wastewater in the forcemain is pumped, the forcemain does not need to maintain continuous downward pitch as is required by a gravity sewer. This allows the forcemain to follow the grade and maintain a minimum cover below frost depth so deeper excavations can be avoided. For the new plant option, a forcemain will connect the northern pump station to the southern gravity conveyance system. The southern pump station would connect to the WWTP. The final length of forcemain required would be determined once the WWTP location is determined. A length of 3,500 to 5,000 linear feet of 6” to 8” diameter forcemain is anticipated as being required.

3.5 Sewer Conveyance System

The sewer conveyance system will transport sewer from a centralized point in the service area to the ultimate sewer treatment location. Two of the alternatives included in this study will require a sewer conveyance system. They are the connection to the Heritage Hills WWTP, and connecting to the Mahopac STP as discussed below.

3.5.1 Heritage Hills Connection

For the Heritage Hills connection, the service area gravity and low-pressure sewer systems would remain primarily unchanged. It is anticipated that no additional pump stations would be required for the Heritage Hills connection. However, the pump capacities and power rating in one or both of the pump stations would need to be increased as the distance the sewage would need to travel is significantly longer. A forcemain would be needed to connect from the two pump stations to the Heritage Hills sewer infrastructure.

To limit the impacts to private property and requirements for land acquisition, using existing public right of ways is the preferred option if a connection to the Heritage Hills WWTP is selected. It is envisioned that the forcemain to Heritage Hills would leave the service area heading east in the Union Valley Road right of way. The forcemain would then turn south where Union Valley Road intersects with West Lovell Street. The forcemain would travel along West Lovell Street and would then turn southeast towards the Heritage Hills Property. Easements or land acquisition in this area may be required as private property exists between West Lovell Street and Heritage Hills Property.

It is anticipated that two 8” forcemains would be required. Providing two parallel forcemains instead of one larger forcemain has several advantages, including being able to take one forcemain offline for maintenance while maintaining some function in the system. It is also anticipated that at currently existing flows, the system may operate better in a single forcemain. The second forcemain would be isolated by valves and brought online when the capacity is required. The proposed path for the forcemain connection to Heritage Hills is shown on Figure 3-2. The proposed route to Heritage Hills property from the intersection of Union Valley Road and Route 6 is approximately 11,000 feet. The length of two parallel forcemains along this route would result in approximately 22,000 linear feet of forcemain. Air release valves in manholes along the forcemain route would typically be

installed at high points in the forcemain system to keep the forcemain functioning properly. It is estimated that 6 air release valve manholes may be required.

The forcemain would connect to existing Heritage Hills sewer infrastructure. Evaluation of the capacities of the Heritage Hills collection and conveyance system would need to be completed, and is outside the scope of the current report.

3.5.2 Mahopac STP Connection

For the Mahopac STP connection, the service area gravity and low-pressure sewer systems would remain primarily unchanged. It is anticipated that no additional pump stations would be required for the Mahopac STP connection. However, the pump capacities and power rating in one or both of the pump stations would need to be increased as the distance the sewage would need to travel is significantly longer. A forcemain would be needed to connect from the two pump stations to the Mahopac STP infrastructure.

To limit the impacts to private property and requirements for land acquisition, using existing public right of ways is the preferred option if a connection to the Mahopac STP is selected. The Putnam County Bikeway provides the most direct route to the Mahopac WWTP without crossing private property. It is envisioned that the forcemain to Mahopac STP would leave the service area heading north along the bikeway. The forcemain would then cross Croton Falls Road and enter the Mahopac STP property.

It is anticipated that two 8” forcemains would be required. Providing two parallel forcemains instead of one larger forcemain has several advantages, including being able to take one forcemain offline for maintenance while maintaining some function in the system. It is also anticipated that at currently existing flows, the system may operate better in a single forcemain. The second forcemain would be isolated by valves and brought online when the capacity is required.

The proposed path for the forcemain connection to the Mahopac STP is shown on Figure 3-3. The proposed route to the Mahopac STP property from the northern end of the service is approximately 6,000 feet. An additional 3,300 feet of parallel forcemain and 7,500 linear feet of single forcemain would be required to reach the anticipated forcemain locations. The total length of forcemains along this route would be approximately 26,000 linear feet of forcemain. Air release valves in manholes along the forcemain route would typically be installed at high points in the forcemain system to keep the forcemain functioning properly.

An alternative for connecting to the Mahopac STP would be to connect to the existing CSD #1 collection system in Route 6. Starting near the intersection of Route 6 and Clark Place. The collection system travels along Clark Place, Route 6N and Route 6 to a pump station adjacent to Route 6, near Marina Drive. The collection system then travels along Marina Drive, East Lake Shore Boulevard, Croton Falls Road to the Mahopac STP property. Evaluation of the existing capacity and flows in the existing system would need to be performed to determine if a connection is feasible. This detailed study is outside the scope of the current report.

An upgrade to the Mahopac STP to increase the capacity to handle the flows from the proposed district would be required. Details of this upgrade are beyond the scope of this initial study.

4.0 EVALUATION OF WASTEWATER TREATMENT ALTERNATIVES

Three alternative wastewater treatment plant (WWTP) options were considered in this initial study. The first is a connection to the Heritage Hills WWTP. The second is a connection to the Mahopac Sewage Treatment Plant (STP). The third is the construction of a new Mahopac Area WWTP.

4.1 Connection to Heritage Hills WWTP

The Heritage Hills WWTP is an existing WWTP operated by the Heritage Hills Sewage-Works Corporation. A sewage works corporation is a private entity governed by New York State Corporation Law.

In order for a connection to be feasible, there would need to be excess capacity at the plant, a reasonable agreement for connection to the WWTP, and affordable fees for connection and future use. Based on conversations with Heritage Hills, the Heritage Hills WWTP has excess capacity and they are willing to sell the excess capacity to a local user.

Based on information provided by Heritage Hills, the WWTP has a permitted capacity of 0.702 million gallons per day or 702,000 gallons per day (gpd). The highest usage based on a monthly average reported for 2016 and 2017 was 307,000 gpd. Based on this information an excess capacity of nearly 400,000 gpd exists. (See Appendix D for SPDES information).

Other developments that are proposing to connect the Heritage Hills WWTP include Somers Crossing, DeCicco's Market, and Town Centre at Somers. These projects will reduce the excess capacity, and will need to be quantified if further study of this option is advanced.

While the terminal end of the Heritage Hills sewer collection and conveyance system near the WWTP would have been designed for the full 702,000 gpd flow, the start of different branches would have been sized for less flow (sewer pump stations/gravity sewer main, etc.). The discharge point of the Mahopac Sewer could add localized higher flows to the start of a branch of the existing collection and conveyance system. It is anticipated that a sewer pump station may need to be upgraded with larger pumps or flow equalization tanks may be needed to buffer peak flows from the Mahopac Connection. Specific upgrades that may be needed are beyond the scope of this initial study. An allowance will be provided in the capital cost estimate for this purpose.

This alternative would require several regulatory approvals and/or permits including the following:

- Expansion of Sewer Service Area

  New York State Law establishes the powers and duties of a sewer cooperation to provide sewer service.

- Putnam and Westchester County Department of Health, Sewer Collection and Sewer Conveyance.

  Each County Health Department will review and approve the Sewer Collection and Conveyance System design within their County.

- NYCDEP Approval for Sewer Collection and Sewer Conveyance.

- SEQRA

  The project would be subject to the review procedures of the State Environmental Quality Review Act (SEQRA). The project would be reviewed to determine if significant environmental impacts could result and if mitigation for potential significant impacts may be required.

Additional permits may include:

- NYSDOT, County and Town Highway Work Permits
- NYSDEC Stormwater, Freshwater Wetlands, and Water Quality Permits
- NYCDEP Stormwater Permits
- US Army Corps of Engineers, Wetlands Permit

4.2 Connection to Mahopac STP

The Carmel Sewer District #1 is operated by the Town of Carmel and conveys sewage to the Mahopac STP which is operated by the NYCDEP. The current SPDES Permit for the Mahopac STP indicates a 300,000 gpd capacity for the existing STP. The flows from the proposed service area would cause the plant to exceed the SPDES Permit. The plant would need to be upgraded to handle the additional flows.

It is understood that the Mahopac STP is approaching its design life and may need to be upgraded in the short term. Expanding the STP as part of an upgrade would be more economical than replacement and expansion as separate construction projects. This initial study assumes the project to coincide with upgrade of the existing Mahopac STP.

An expanded Mahopac STP would be subject to design and permitting requirements. The expansion of the Sewer District and approvals of the STP and sewer collection conveyance systems will require several regulatory approvals and/or permits, including the following:

- Expansion of Municipal Sewer District

  New York State Law establishes the powers and duties of a local government regarding creation and management of a municipal sewer district.

- NYSDEC SPDES Permit Revision

  NYSDEC administers the State Pollution Discharge Elimination System (SPDES) program to eliminate the pollution of water and maintain the highest quality of water possible.

- Putnam County Department of Health (PCDOH) STP, Sewer Collection and Sewer Conveyance

  PCDOH is typically delegated the review and approval of the STP sizing and treatment process by the NYSDEC. PCDOH will review and approve the Sewer Collection and Conveyance System design.

- NYCDEP Approval for STP, Sewer Collection, Sewer Conveyance, and a WWTP Variance to Permit a New Discharge

  NYCDEP administers the *Rules and Regulations* for the *Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources* (R&R). New WWTP's and Sewer Collection and Conveyance Systems require review and approval by the NYCDEP.

  The R & R prohibit new surface discharging WWTP's in the subject area of the NYC Watershed. Section 18-61, Variances, of the R&R generally states that the NYCDEP may grant a variance from the prohibition of locating a new WWTP or expanding an existing WWTP where the NYCDEP determines that the conditions in the area to be served are resulting in the release or discharge of inadequately treated sewage into the water supply, and that there is no other feasible method of correcting such a release or discharge except to provide a variance from such prohibition. Based on the poor soil conditions, high groundwater, presence of ledgerock, and history of failing or likely to fail SSTS's in the project area, it is anticipated that the NYCDEP would entertain a variance for the proposed project.

- SEQRA

  The project would be subject to the review procedures of the State Environmental Quality Review Act (SEQRA). The project would be reviewed to determine if significant environmental impacts could result and if mitigation for potential significant impacts may be required.

Additional permits may include:

- NYSDOT, County and Town Highway Work Permits
- NYSDEC Stormwater, Freshwater Wetlands, and Water Quality Permits
- NYCDEP Stormwater Permits
- US Army Corps of Engineers, Wetlands Permit

4.2.1 STP Effluent Limits

Effluent limits are set by NYSDEC and depend on the discharge location. The size and quality of the receiving waterbody impacts the limits. As the expanded STP would be located in the New York City Watershed, the R&R require a phosphorus limit. As the expanded STP would likely also require a phosphorus offset, the phosphorus limit would be based on the phosphorus offset requirement.

4.2.2 Treatment Process Requirements

To meet the anticipated effluent limits, the new treatment facilities would likely consist of the expansion of primary, secondary and tertiary treatment with phosphorus removal and disinfection.

The existing Mahopac STP includes a fully functioning plant with many components making up the treatment process. A detailed review of these components would need to be undertaken to determine the best approach to achieve the expanded capacity. This assessment is beyond the scope of this initial study.

4.3 New Mahopac Area WWTP

A new Mahopac Area WWTP would be subject to siting and permitting requirements. The formation of the Municipal Sewer District and approvals of the WWTP and sewer collection conveyance systems will require several regulatory approvals and/or permits, including the following:

- Establishment of Municipal Sewer District

  New York State Law establishes the powers and duties of a local government regarding creation and management of a municipal sewer district. Any of the three wastewater treatment alternatives would require formation of a sewer district.

- NYSDEC SPDES Permit

  NYSDEC administers the State Pollution Discharge Elimination System (SPDES) program to eliminate the pollution of water and maintain the highest quality of water possible.

- Putnam County Department of Health (PCDOH) WWTP, Sewer Collection and Sewer Conveyance

  PCDOH is typically delegated the review and approval of the WWTP sizing and treatment process by the NYSDEC. PCDOH will review and approve the Sewer Collection and Conveyance System design.

- NYCDEP Approval for WWTP, Sewer Collection, Sewer Conveyance, and a WWTP Variance to Permit a New Discharge

  NYCDEP administers the *Rules and Regulations* for the *Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources* (R&R). New WWTP's and Sewer Collection and Conveyance Systems require review and approval by the NYCDEP.

  The R & R prohibit new surface discharging WWTP's in the subject area of the NYC Watershed. Section 18-61(d)(1), Variances, of the R&R generally states that the

NYCDEP may grant a variance from the prohibition of locating a new WWTP or expanding an existing WWTP where the NYCDEP determines that the conditions in the area to be served are resulting in the release or discharge of inadequately treated sewage into the water supply, and that there is no other feasible method of correcting such a release or discharge except to provide a variance from such prohibition. Based on the poor soil conditions, high groundwater, presence of ledgerock, and history of failing or likely to fail SSTS's in the project area, it is anticipated that the NYCDEP would entertain a variance for the proposed project. The variance may also require a 2 to 1 phosphorus offset on new flows.

The 2:1 phosphorus offset would be provided by taking the Mahopac Village Center and Society Hill WWTP's offline and connecting them to the new WWTP. These WWTP's have a phosphorus limit of 1.0 mg/l which equates to 123.3 pounds per year. The new WWTP at 300,000 gpd and a phosphorus limit of 0.06 mg/l would equate to 54.8 pounds per year meeting the 2:1 offset requirement. For calculations see Appendix E.

- SEQRA

  The project would be subject to the review procedures of the State Environmental Quality Review Act (SEQRA). The project would be reviewed to determine if significant environmental impacts could result and if mitigation for potential significant impacts may be required.

Additional permits may include:

- NYSDOT, County and Town Highway Work Permits
- NYSDEC Stormwater, Freshwater Wetlands, and Water Quality Permits
- NYCDEP Stormwater Permits
- US Army Corps of Engineers, Wetlands Permit

Additional permits may be required depending on the final location of the WWTP.

4.3.1 WWTP Effluent Limits

Effluent limits are set by NYSDEC and depend on the discharge location. The size and quality of the receiving waterbody impacts the limits. As the WWTP would be located in the New York City Watershed, the R&R require a phosphorus limit. As the WWTP would also require a phosphorus offset, the phosphorus limit would be based on the phosphorus offset requirement.

4.3.2 Treatment Process Requirements

To meet the anticipated effluent limits, the new treatment facilities would likely consist of primary, secondary and tertiary treatment with phosphorus removal and disinfection.

- Primary Treatment

  Primary treatment would be used to separate out materials that may damage downstream equipment.

- Flow Equalization

  Flow equalization is often used to buffer peak flows and allow for a smaller size for downstream equipment.

- Secondary and Tertiary Treatment

  Secondary and tertiary treatment is typically a combination of filters, chemical addition, biological process or proprietary process used to refine wastewater to meet

effluent limits. The specific process would be determined once final effluent limits were determined as part of the permit process. At a minimum, the R&R require sand filtration or a NYCDEP approved equivalent.

- Phosphorus Removal

  The R&R require a phosphorus limit of 0.5 mg/l for WWTP's between 50,000 gpd and 500,000 gpd. As calculated in Appendix E, a 30-day average total phosphorus effluent limit of 0.06 mg/l would be required to provide a 2:1 phosphorus offset. Therefore, chemical precipitation of dissolved phosphorus would be required.

- Disinfection

  Chlorine or UV disinfection are two options for final disinfection prior to discharge. The R&R require automatic startup of backup disinfection equipment which at times makes UV the preferred option but does not preclude either method.

- Post Aeration

  Post aeration will be provided to return dissolved oxygen to the WWTP effluent.

4.3.3 Residuals

The proposed Mahopac Area WWTP would generate residual waste that would need to be hauled to a suitable facility.

4.3.4 Emergency Power

An emergency generator as required by the R&R would be provided for the proposed WWTP building. The emergency power generator would have an automatic transfer switch, which would automatically start the generator upon loss of normal electric power and would be sized to provide 100 percent of the electrical demand for the entire WWTP.

4.3.5 Miscellaneous Instrumentation

As required by the R&R, a flow meter with recording device would be provided to measure effluent flow.

4.3.6 Building and Site Work

Certain WWTP processes could be housed outside while other processes are better located interior to a building. The final processes selected for treatment would determine the area required for WWTP layout and the WWTP building. Process selection is outside the scope of this initial study.

The treatment processes would be adjacent to the WWTP building or housed within the WWTP. The site would need access from a public right of way that could accommodate large delivery and sludge hauling vehicles. A water supply anticipated to be a drilled well would be required for the facility. Parking and other site appurtenances for WWTP operators would also be required.

The most practical, and the preferred, location of a new WWTP is at or near the low point of the service area. A WWTP at the low point allows for the most cost-effective collection and conveyance system as it maximizes the amount of gravity sewer that can be used and reduces the number of sewer pump stations needed. Open areas that could house the WWTP exist in the southern part of the proposed service area.

Locating the WWTP would require either a business arrangement or easement to be agreed to, or land must be purchased for the WWTP location. An allowance for this purpose will be included in the estimated capital cost for the project.

5.0 ESTIMATION OF FACILITIES COSTS

A key issue associated with the planning of a significant infrastructure project is costs. This early study will present approximate costs for planning purposes and comparison of alternatives.

The basis of the following cost estimates is a combination of costs presented in recent studies and Insite's past projects in the region. Available data has been utilized to develop conceptual screening level costs for various infrastructure improvements. An opinion of probable construction costs and potential O&M costs were developed for each alternative and is presented below.

5.1 Description of Costs

The Costs for the service area are divided into two main categories which are capital cost and operation and maintenance (O&M) costs. Capital construction costs include the cost to design, permit, construct and put into use the system. The O&M costs include the ongoing cost of staff, electric, consumables (chemicals, supplies etc.) and maintenance and repair of the system. The capital cost is a one-time upfront cost while the O&M costs are ongoing and looked at on an annual basis.

Both the capital costs and O&M costs will be summarized for each alternative broken down into three primary categories. Further detail on the costs will be included in an appendix to the final report.

- Collection system: This includes the infrastructure required to collect wastewater from the homes and business and transport it to a pump station.
- Conveyance System: This includes the infrastructure to convey the wastewater from the pump station to the treatment location and includes the pump station, forcemain and appurtenances.
- Treatment System: This includes the equipment and processes included in the Wastewater Treatment Plant (WWTP) to remove undesirable components in the wastewater in accordance with its discharge permit.

The cost of the three systems for each of the three alternatives is discussed below. The following estimated capital costs are further detailed in Tables 5-1 to 5-4.

5.2 Heritage Hills WWTP Connection Alternative

This alternative involves the service area collection system, the conveyance system to Heritage Hills, and the connection fee that would be charged by Heritage Hills to connect Heritage Hills WWTP. The capital costs associated with the Heritage Hills connection fee is a place holder based on previous agreements reviewed. The actual connection fee will be based on the final business arrangement with Heritage Hills Sewer Corp. The O&M Heritage Hills User Fee is based on the *Technical Memorandum* to the Somers Supervisor from Woodard & Curran dated October 4, 2012.

5.2.1 Capital Cost Heritage Hills WWTP Connection

The following are the estimated capital costs for the facilities for the Heritage Hills WWTP Connection:

Collection System		$11,600,000
Conveyance System		$9,700,000
Treatment (Connection Fee)		$3,000,000
	Total Capital Cost	**$24,300,000**

5.2.2 O&M Costs for Heritage Hills Connection

The following are the first year estimated O&M costs for the facilities for the Heritage Hills WWTP Connection:

Collection System		$25,000
Conveyance System		$22,000
Treatment (Heritage Hills User Fee)		$1,700,000
	Annual O&M Cost	**$1,747,000**

5.3 Mahopac STP Connection Alternative

This alternative involves the service area collection system, the conveyance system to the existing Mahopac STP, and the expansion of the Mahopac STP. The estimated capital costs associated with the expansion of the Mahopac STP is a place holder, since the scope of improvements are not yet fully defined. Future studies will refine this cost should this alternative be advanced.

5.3.1 Capital Cost Mahopac STP Connection

Collection System		$11,600,000
Conveyance System		$8,300,000
Treatment (Plant Upgrade)		$10,000,000
	Total Capital Cost	**$29,900,000**

5.3.2 O&M Costs for Mahopac STP Connection

The following are the first year estimated O&M costs for the facilities for the Mahopac STP Connection:

Collection System		$25,000
Conveyance System		$22,000
Treatment		$500,000
	Annual O&M Cost	**$547,000**

5.4 New Mahopac Area Wastewater Treatment Plant Alternative

This alternative involves the service area collection system and construction of a new WWTP.

5.4.1 Capital Cost New Mahopac Area WWTP

The following are the estimated capital costs for the facilities for the New Mahopac Area WWTP Connection:

Collection System		$11,600,000
Conveyance System		$2,500,000
Treatment (New Plant)		$15,000,000
	Total Capital Cost	**$29,100,000**

5.4.2 O&M Costs for New Mahopac Area WWTP

The following are the first year estimated O&M costs for the facilities for the New Mahopac Area WWTP Connection:

Collection System		$25,000
Conveyance System		$15,000
Treatment		$600,000
	Annual O&M Cost	**$640,000**

5.5 Cost Summary

Capital costs for the project are expected to be funded through several methods. These include water quality grants, NYCDEP cost sharing (approximated at 40% for capital cost of treatment and 33% for O&M of treatment), connection fees, and municipal bonds. The bonds will be paid back over time through yearly charges to the district properties. It is anticipated that only the bonded part of capital costs will be passed on to the users. A summary of the total capital cost and operation and maintenance costs are provided below:

Probable Capital Costs for New Service Area Alternatives

	Capital Cost	NYCDEP Tertiary Treatment Cost Sharing	Net Capital Cost
Heritage Hills WWTP Connection	$24,300,000	$0	**$24,300,000**
Mahopac STP Connection	$29,900,000	$4,000,000	**$25,900,000**
New Mahopac Area WWTP	$29,100,000	$6,000,000	**$23,100,000**

Probable Annual Operation and Maintenance Cost for New Service Area Alternatives

	Total O&M Cost Per Year	NYCDEP Tertiary Cost Sharing	Adjusted Total Cost Per Year
Heritage Hills WWTP Connection	$1,747,000	$0[1]	**$1,747,000**
Mahopac STP Connection	$547,000	$180,000	**$367,000**
New Mahopac Area WWTP	$640,000	$211,000	**$429,000**

1 It is assumed NYCDEP Cost Sharing is already reflected in Heritage Hills User Charges.

5.6 User Fees

User fees will be used to pay for the bonded capital cost and the operational costs for implemented facilities. User fee computations can be complex and require information on land use, occupancies, land areas, frontage, assessments, bond service, etc. For this initial study, user fees were generally estimated and are explained below.

The target user fee is based on the *Special District Average Estimated Cost Threshold* established by the Office of the State Comptroller. For 2019 this cost is $845/year for sewer for a typical user. Based on this user fee threshold it is envisioned that the vast majority, or all, of the capital costs will need to be funded by grants.

As discussed above, the capital cost of the project is expected to be funded through available funding and grants. It is also expected that the NYCDEP will cover at least 40% of the WWTP capital cost and 33% of the WWTP operation and maintenance costs based on the NYCDEP's obligation to pay for the capital costs and O&M costs related to phosphorus removal, membrane filtration, and backup disinfection per the *NYCDEP Memorandum of Agreement* (MOA). The following user fee estimate takes this into account.

The annual O&M cost for the Heritage Hills connection is substantially higher than the other alternatives. Even if grants could be obtained for all of the capital costs the $1,747,000 in O&M costs result in very high user fees.

The anticipated range of flows for existing properties is 200 gpd to 2,300 gpd based on a thirty day average. The cost threshold stated above is for typical user, such as a single family home. It is assumed the cost threshold of $845/year would apply to the lower flow user at 200 gpd. Based on this, the existing properties would be charged user fees in the range of: $845/year (200 gpd) to $9,718/year (2,300 gpd), based on daily flow.

The cost estimates and user fee estimates are provided to give a range of anticipated costs. Many factors will impact these costs and will require further study beyond the scope of this initial study. Further study to determine the most cost-efficient alternative will also be required.

6.0 INSTITUTIONAL ARRANGEMENTS AND FUNDING

6.1 Institutional Arrangements

The proposed project will require the establishment of a Municipal Sewer District. The Municipal Sewer District will be the entity that will control the administrative, funding, and operational aspects of the district. The Municipal Sewer District is envisioned to be overseen by the Town of Carmel Town Board. The district would procure the services of a certified operating company to perform the day-to-day operations and maintenance of the WWTP and collection system depending on the selected alternative.

Once the Town has selected an alternative, studied it through a facility plan, and determine how the project will be funded, the Town should begin the process of establishing or extending a sewer district. The normal process is for the Town Board to commence the formation of a Sewer District under New York State Town Law Article 12-A. The basic steps involved with the establishment of the district includes:

- Preparation of Map, Plan and Report.
- Holding Public Hearing.
- Establishment of District.
- Application for Permission of State Comptroller to Establish District.

6.2 Funding

At this time, it is envisioned that the project would seek to totally fund the capital works portion of the project through several funding options. It is not anticipated to pay for any design, land acquisition, construction / contract administration through user fees.

The user fees for Operations and Maintenance (O&M) could be funded through two sources: The NYCDEP will fund a portion of the wastewater treatment O&M in accordance with Section 143 of the NYC Watershed Memorandum of Agreement (MOA), and the balance will be paid for by user fees.

The capital works funding is intended to be secured through a combination of the following:

- Vacant Parcel Special Benefit Assessment

  Vacant parcel connections could be handled differently than the connection of existing SSTSs based on the water quality objectives of the project. To offset project costs the district may charge owners of vacant parcels within the district a special benefit assessment.

- Other Funding Options

  There are several funding sources / programs available for supporting the wastewater improvements including:

  - Putnam County East of Hudson Watershed Corporation Water Quality Fund.

- New York City Department of Environmental Protection (NYCDEP) MOA funding for tertiary treatment and related systems;
- New York State Clean Water State Revolving Fund (CWSRF) administered by New York State Environmental Facilities Corporation (NYSEFC);
- New York State Department of Environmental Conservation (NYSDEC) / NYSEFC Wastewater Infrastructure Engineering Planning Grant Program (EPG);
- Local Government Efficiency (LGE);
- New York State Water Infrastructure Improvement Act (WIIA) grant program administered by New York State Environmental Facilities Corporation (NYSEFC);
- New York State Water Quality Improvement Project (WQIP) program grant opportunities administered by New York State Department of Environmental Conservation (NYSDEC); and
- New York State Energy Research and Development Authority (NYSERDA).

7.0 REGULATORY CONSIDERATIONS AND IMPLEMENTATION STEPS

7.1 Required Permits

The formation of a Municipal Sewer District and approvals of the WWTP and sewer collection and conveyance systems, will require several regulatory approvals and/or permits, including the following:

- Putnam County Department of Health (PCDOH) WWTP, Sewer Collection and Sewer Conveyance

  Approvals from the PCDOH will be required for all aspects of the construction related wastewater improvements for the proposed project.

- Putnam County Department of Highways & Facilities (PCDH&F), Highway Work Permit

  Work within the county road right of way will require a Highway Work Permit from the PCDH&F.

- NYCDEP Approval for Stormwater Pollution Prevention Plan, WWTP, Sewer Collection, Sewer Conveyance, and a WWTP Variance

  The NYCDEP will require the same review and approvals as the PCDOH for the project's construction related wastewater improvements regarding sewer collection and treatment. The NYCDEP will also likely require a variance from their *Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources* (NYCDEP R & R).

- NYSDEC SPDES Permit

  The proposed WWTP will require either a new SPDES Permit or an amendment to the existing SPDES Permit, specifically including increased flow rate, increased effluent limitations and increased monitoring requirements. NYSDEC will also require General Permit Coverage for Construction Activities, and possible permits for wetland or stream disturbance.

- NYSDOT

  Work within the NYSDOT right of way will require a Highway Work Permit from the NYSDOT.

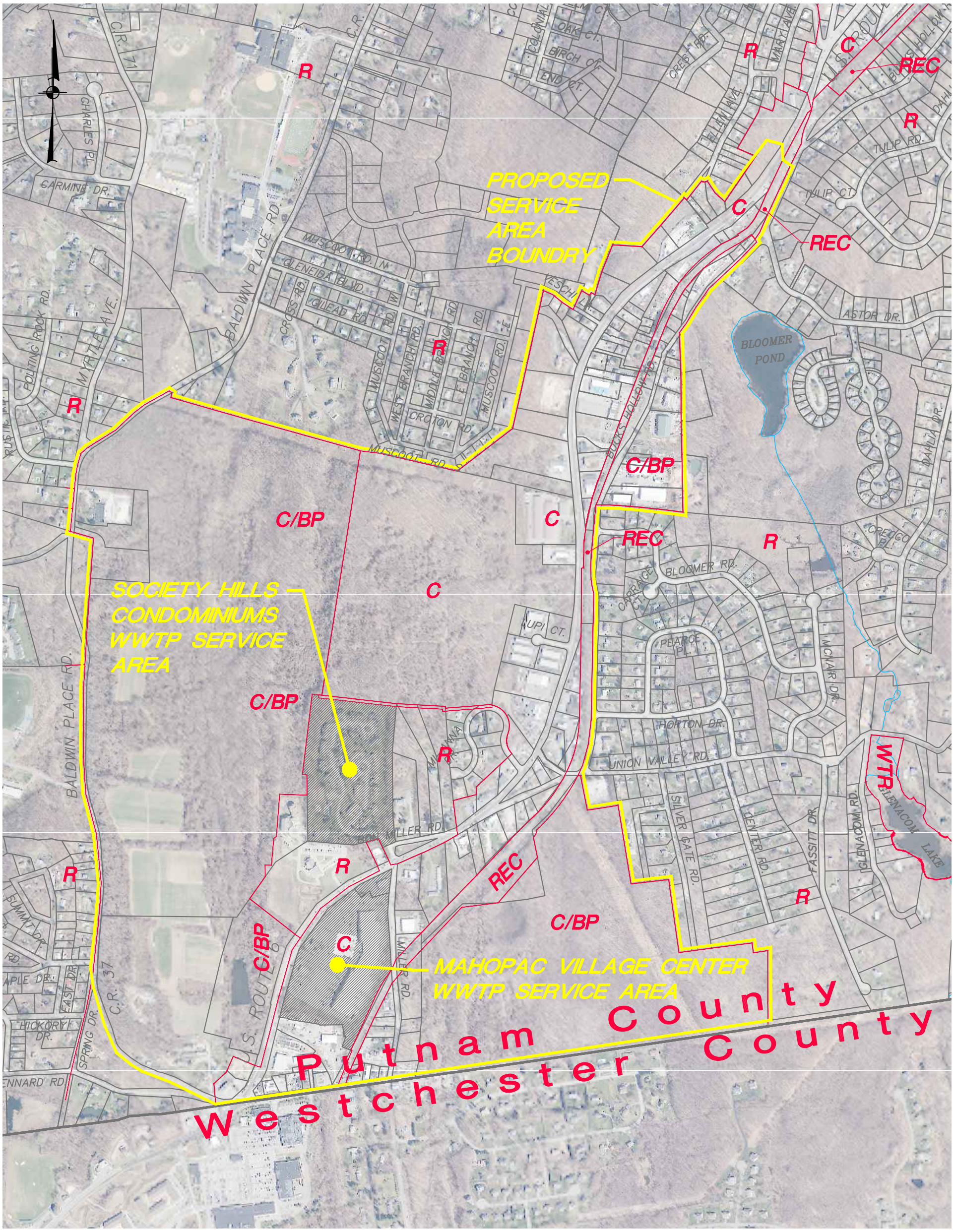
7.2 Implementation Steps

The selected alternative will affect the implementation steps, but generally the following key steps will be required:

- Facility planning of selected alternative.
- Establishment of district.
- Application and petitioning for project funding.
- SEQRA review and determination.
- Preliminary design and permitting.
- Procurement of land and easements.
- Final design.
- Bidding.
- Construction.
- Commissioning.
- Operation.

Once an alternative is selected and facility planning is underway, the implementation steps can be further refined and scheduled.

FIGURES



GRAPHIC SCALE

1600 0 800 1600 3200

(IN FEET)
1 inch = 800 ft.

ZONING LEGEND

R	RESIDENTIAL
C	COMMERCIAL
C/BP	COMMERCE/BUSINESS PARK
REC	RECREATION

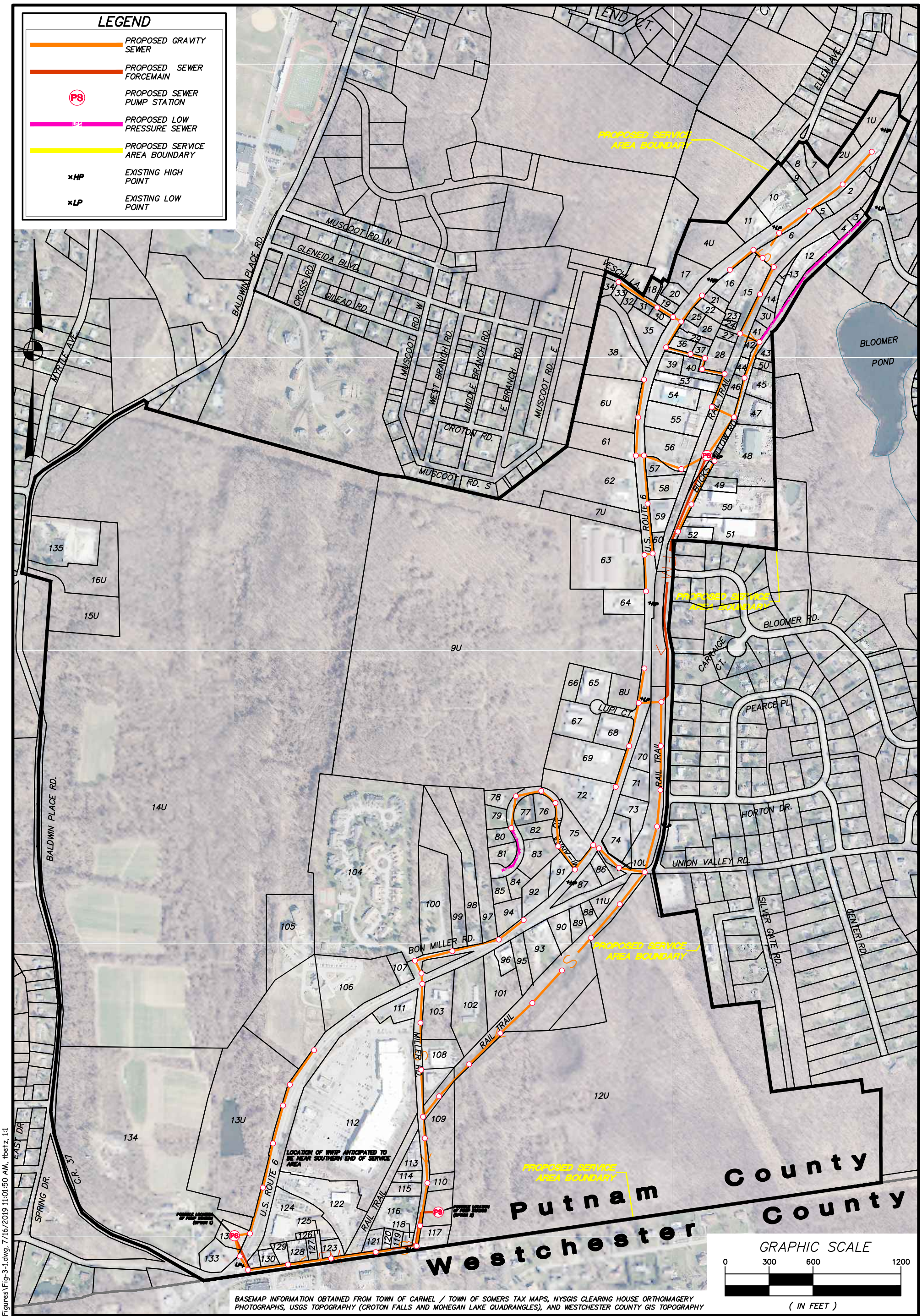
PROJECT: MAHOPAC SEWER STUDY
TOWN OF CARMEL, PUTNAM COUNTY, NEW YORK

DRAWING: PROPOSED SERVICE AREA MAP

PREPARED BY:
INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place • Carmel, New York 10512
Phone (845) 225-9690 • Fax (845) 225-9717
www.insite-eng.com

DATE:	2-6-18
SCALE:	1" = 800'
PROJECT NO.:	17228.100
FIGURE:	FIGURE 1-1

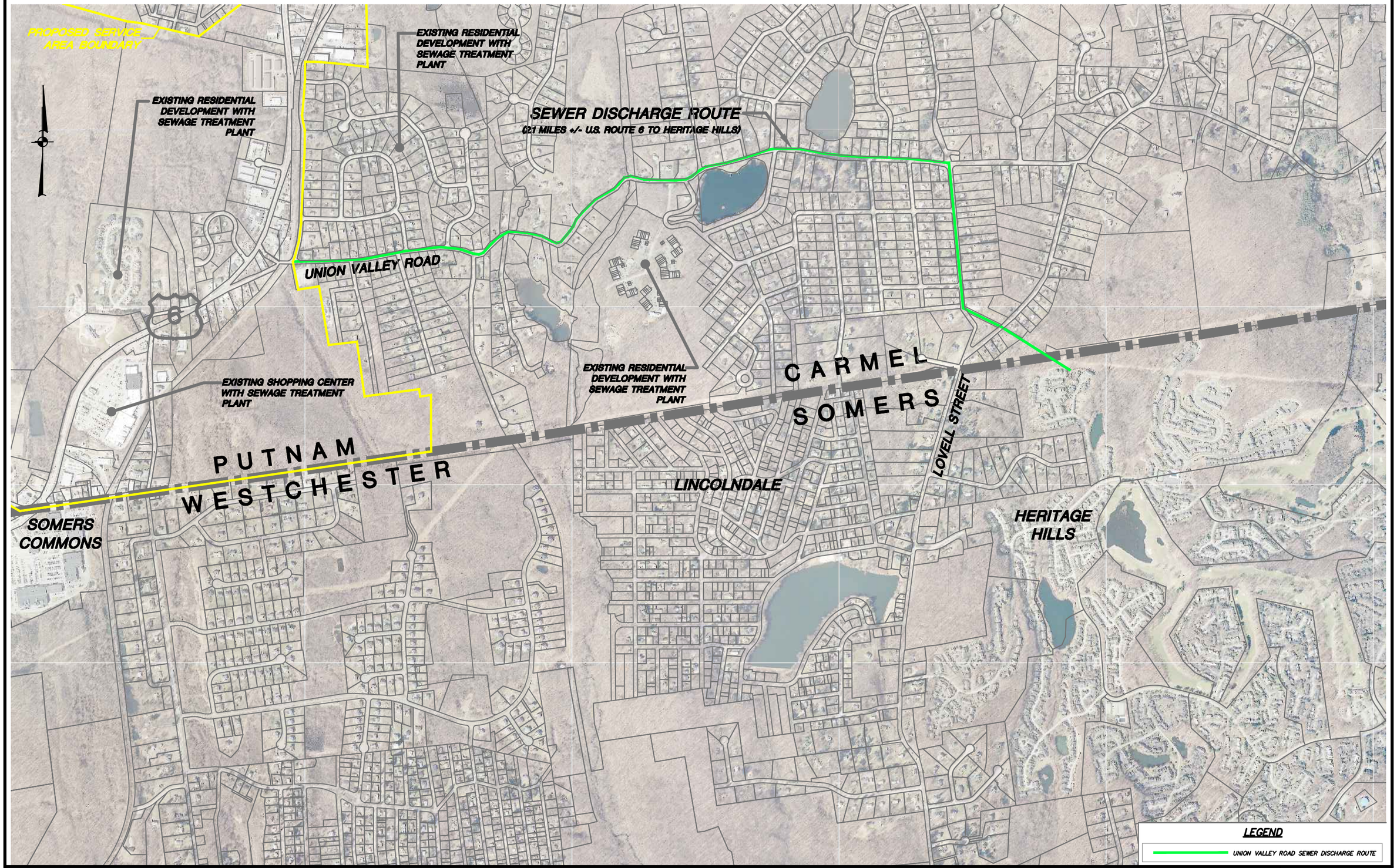
Z:\E\17228100\Wastewater\Figures\Fig-1-1.dwg, 7/16/2019 11:01:32 AM, tbetz, 1:1



BASEMAP INFORMATION OBTAINED FROM TOWN OF CARMEL / TOWN OF SOMERS TAX MAPS, NYSGIS CLEARING HOUSE ORTHOIMAGERY PHOTOGRAPHS, USGS TOPOGRAPHY (CROTON FALLS AND MOHEGAN LAKE QUADRANGLES), AND WESTCHESTER COUNTY GIS TOPOGRAPHY

PROJECT: MAHOPAC SEWER STUDY TOWN OF CARMEL, PUTNAM COUNTY, NEW YORK	PREPARED BY: INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C. 3 Garrett Place • Carmel, New York 10512 Phone (845) 225-9690 • Fax (845) 225-9717 www.insite-eng.com	DATE: 04-27-18 SCALE: 1" = 600' PROJECT NO.: 17228.100
DRAWING: SERVICE AREA SEWER COLLECTION AND CONVEYANCE SYSTEM SCHEMATIC		FIGURE: 3-1

Z:\E\17228100\Wastewater\Figures\Fig-3-1.dwg, 7/16/2019 11:01:50 AM, tbetz, 1:1



GRAPHIC SCALE

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(IN FEET)

BASEMAP INFORMATION OBTAINED FROM TOWN OF CARMEL / TOWN OF SOMERS TAX MAPS, NYSGIS CLEARING HOUSE ORTHOIMAGERY PHOTOGRAPHS, USGS TOPOGRAPHY (CROTON FALLS AND MOHEGAN LAKE QUADRANGLES), AND WESTCHESTER COUNTY GIS TOPOGRAPHY

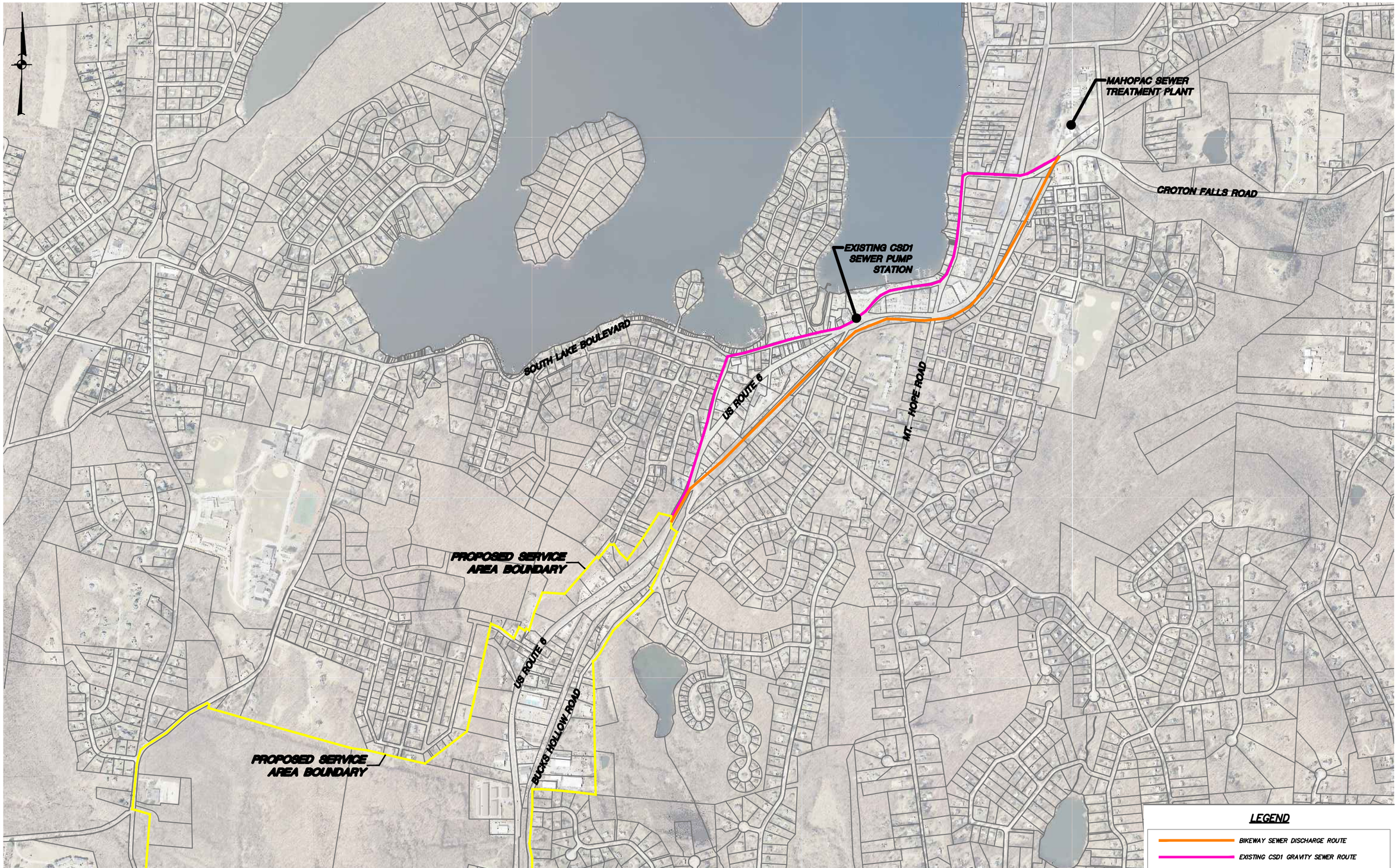
MAHOPAC SEWER STUDY
HERITAGE HILLS SEWER CONNECTION ROUTE

PREPARED BY

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

DATE:	04-27-18
SCALE:	1" = 1000'
PROJECT NO.:	17228.100
FIGURE:	3-2

Z:\E\17228100\Wastewater\Figures\Fig-3-2.dwg, 7/16/2019 8:24:00 AM, tbetz, 1:1



GRAPHIC SCALE

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(IN FEET)

BASEMAP INFORMATION OBTAINED FROM TOWN OF CARMEL / TOWN OF SOMERS TAX MAPS, NYSGIS CLEARING HOUSE ORTHOIMAGERY PHOTOGRAPHS, USGS TOPOGRAPHY (CROTON FALLS AND MOHEGAN LAKE QUADRANGLES), AND WESTCHESTER COUNTY GIS TOPOGRAPHY

MAHOPAC SEWER STUDY
HERITAGE HILLS SEWER CONNECTION ROUTE

PREPARED BY

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

DATE:	3-7-19
SCALE:	1" = 1,000'
PROJECT NO.:	17228.100
FIGURE:	3-3

Z:\E\17228100\Wastewater\Figures\Fig-3-3.dwg, 7/16/2019 8:21:55 AM, tbetz, 1:1

TABLES

Mahopac Sewer Study

Job: 17228.100
Date: 3/8/2018

Table 2-1: Wastewater Flow Estimate

DEVELOPED PARCELS

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
1	75.16-1-14	493 Rt. 6, Carmel, NY	Beachak Bros., Inc	5,887.00	0.1	100	0.1	Developed
2	75.16-1-15	485 Rt. 6, Carmel, NY	Beachak Bros., Inc	27,332.00	0.6	100	0.6	Developed
3	75.16-1-10	197 Buckshollow Rd, Carmel, NY	McCabe, James	7,530.00	0.2	100	0.2	Developed
4	75.16-1-9	193 Buckshollow Rd, Carmel, NY	Kamvosoulis, Soterios & Irene		0.3	100	0.3	Developed
5	75.16-1-16	475 Rt. 6, Carmel, NY	Cliffside Property Management	8,855.00	0.2	100	0.2	Developed
6	75.16-1-17	461 Rt. 6, Carmel, NY	Hilltop Manor Realty Corp		1.0	100	1.0	Developed
7	75.59-1-17	88 Ellen Ave, Carmel, NY	Brady, Elizabeth & James		0.6	66	0.4	Developed
8	75.59-1-18	92 Ellen Ave, Carmel, NY	Dzieniszewski, Irena & Krzysztof		0.7	66	0.5	Developed
9	75.59-1-19	96 Ellen Ave, Carmel, NY	Babiarz, Stanislaw & Ewa		0.4	66	0.2	Developed
10	75.16-1-35	466 Rt. 6, Carmel, NY	Hilltop Manor Realty Corp		1.0	100	1.0	Developed
11	75.16-1-35	466 Rt. 6, Carmel, NY	Hilltop Manor Realty Corp		2.2	100	2.2	Developed
12	75.16-1-8	177 Buckshollow Rd, Carmel, NY	Charlie's Marina Inc		1.6	100	1.6	Developed
13	75.16-1-6	171 Buckshollow Rd, Carmel, NY	Matailo, Zoila V & Chillogalli, Manuel L	6,250.00	0.1	100	0.1	Developed
14	75.16-1-4	163 Buckshollow Rd, Carmel, NY	Kaliner, Guy & Florence	19,305.00	0.4	100	0.4	Developed
15	75.16-1-19	11-15 Battista Dr, Carmel, NY	Battista, Frank & Yolanda		1.5	100	1.5	Developed
16	75.16-1-18	441 Rt. 6, Carmel, NY	Doupis, Achilles	37,705.00	0.9	100	0.9	Developed
17	75.16-1-32	436 Rt. 6, Carmel, NY	Gruber, Eric	46,029.00	1.1	100	1.1	Developed
18	75.15-1-14	10 Veschi Lane N, Carmel, NY	Moll,Travis & Austin, Margaret	11,730.00	0.3	100	0.3	Developed
19	75.15-1-16	4 Veschi Lane N, Carmel, NY	Simone, Joseph & Susan	12,632.00	0.3	100	0.3	Developed
20	75.16-1-31	428 Rt. 6, Carmel, NY	Kiely Realty Inc	15,200.00	0.3	100	0.3	Developed
21	75.16-1-20	433 Rt. 6, Carmel, NY	Simone, Thomas & Gene	6,000.00	0.1	100	0.1	Developed
22	75.16-1-21	431 Rt. 6, Carmel, NY	Simone, Thomas & Gene	16,640.00	0.4	100	0.4	Developed
23	75.16-1-30	9 Battista Dr, Camrel, NY	Simone, Thomas	7,326.00	0.2	100	0.2	Developed
24	75.16-1-29	7 Battista Dr, Carmel, NY	Portino, Santa & Castro, Robert	6,050.00	0.1	100	0.1	Developed
25	75-16-1-22	427 Rt. 6, Carmel, NY	Nygard, Scott	10,000.00	0.2	100	0.2	Developed
26	75.16-1-23	423 Rt. 6, Carmel, NY	Nygard, Scott	21,584.00	0.5	100	0.5	Developed

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
27	75.16-1-28	5 Battista Dr. Carmel, NY	Filip, Bohumil & Rozalie		0.2	100	0.2	Developed
28	75.16-1-27	10 Veschi Lane N, Carmel, NY	Mehra Real Estate LLC		0.8	100	0.8	Developed
29	75.16-1-24	421 Rt. 6, Carmel, NY	Realty Corp., Jacrye	13,741.00	0.3	100	0.3	Developed
30	75.15-1-7	422 Rt. 6, Carmel, NY	Holdings, LLC, JDCCG		26.7	100	26.7	Developed
31	75.15-1-18	7 Veschi Lane N, Carmel, NY	Simone, Joseph	10,000.00	0.2	100	0.2	Developed
32	75.15-1-9	13 Veschi Lane N, Carmel, NY	Flink, Ilse & Adolf	11,223.00	0.3	100	0.3	Developed
33	75.15-1-10	17 Veschi Lane N, Carmel, NY	Selca, Frank & Drita	10,620.00	0.2	100	0.2	Developed
34	75.15-1-11	19 Veschi Lane N, Carmel, NY	Placek, Robert & Karen	12,390.00	0.3	100	0.3	Developed
35	75.15-1-6	418 Rt. 6, Carmel, NY	Fisher Thomas Inc	46,609.00	1.1	100	1.1	Developed
36	75-16-1-25	419 Rt. 6 & 2 Vescji Rd S, Carmel, NY	Barlie, Lillian & Nicole	13,868.00	0.3	100	0.3	Developed
37	75.16-1-26	6-8 Veschi Lane S, Carmel, NY	DeCesare, Ralph	8,466.00	0.2	100	0.2	Developed
38	75.15-1-4	410 Rt. 6, Carmel, NY	Delamere, Patrick & Kathleen		3.1	50	1.5	Developed
39	75.19-1-7	1-3 Veschi Lane S, Carmel, NY	Sigurjonsson, Richard		0.7	100	0.7	Developed
40	75.20-2-2	5 Veschi Ln. S, Carmel, NY	Binns, Wm P	32,670.00	0.8	100	0.8	Developed
41	75.16-1-2	157 Buckshollow Rd, Carmel, NY	Lombardi, Yolanda	12,120.00	0.3	100	0.3	Developed
42	75.16-1-1	149 Buckshollow Rd, Carmel, NY	Sialiano, George	11,097.00	0.3	100	0.3	Developed
43	75.16-1-61	154 Buckshollow Rd, Carmel, NY	Karabaic, Lawrence	13,668.00	0.3	100	0.3	Developed
44	75.20-2-8	145 Buckshollow Rd, Carmel, NY	Cerqueria, Adriana	10,140.00	0.2	100	0.2	Developed
45	75.20-2-70	144 Buckshollow Rd, Carmel, NY	JLR Holding Corp	33,670.00	0.8	100	0.8	Developed
46	75.20-2-7	141 Buckshollow Rd, Carmel, NY	Italian American Club, Inc		0.4	100	0.4	Developed
47	75.20-2-72	136 Buckshollow Rd, Carmel, NY	Verizon New York Inc	43,560.00	1.0	100	1.0	Developed
48	75.20-2-73	122 Buckshollow Rd, Carmel, NY	Buckshollow LLC, 122		2.7	100	2.7	Developed
49	75.20-2-74	112 Buckshollow Rd, Carmel, NY	Degasperi, William & Louise	21,500.00	0.5	100	0.5	Developed

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
50	75.20-2-75	100 Buckshollow Rd, Carmel, NY	Revocable Trust, John Lemmens	111,514.00	2.6	100	2.6	Developed
51	75.20-2-77	100 Buckshollow Rd, Carmel, NY	Revocable Trust, John Lemmens	135,471.00	3.1	100	3.1	Developed
52	75.20-2-78	96 Buckshollow Rd, Carmel, NY	Revocable Trust, John Lemmens		0.5	100	0.5	Developed
53	75.20-2-3	407 Rt. 6, Carmel, NY	Stern, Nicole & Barile, Michael	31,464.00	0.7	100	0.7	Developed
54	75.20-2-4	403 Rt. 6, Carmel, NY	Conwell Properties Inc	56,628.00	1.3	100	1.3	Developed
55	75.20-2-5	395 Rt. 6, Carmel, NY	386 Rt. 6 & 395 Rt. 6, Inc		3.1	100	3.1	Developed
56	75.19-1-8	389 Rt. 6, Carmel, NY	386 Rt. 6 & 395 Rt. 6, Inc		1.7	100	1.7	Developed
57	75.19-1-9	381 Rt. 6, Carmel, NY	Horvath, Frank		0.5	100	0.5	Developed
58	75.19-1-10	373 Rt. 6, Carmel, NY	Z-MAX Development Corp	38,478.00	0.9	100	0.9	Developed
59	75.19-1-11	369 Rt. 6, Carmel, NY	Maza Holding Corp	37,626.00	0.9	100	0.9	Developed
60	75.19-1-12	361 Rt. 6, Carmel, NY	Barile Property Mgmt, LLC	15,255.00	0.4	100	0.4	Developed
61	75.19-1-5	388 Rt. 6, Carmel, NY	Agor, Albert		1.9	50	1.0	Developed
62	75.19-1-4	376 Rt. 6, Carmel, NY	LJC Realty Corp		5.7	60	3.4	Developed
63	75.19-1-1.21	354 Rt. 6, Carmel, NY	Shurgard Storage Centers, Inc		2.4	100	2.4	Developed
	75.19-1-1.22	354 Rt. 6, Carmel, NY	Shurgard Storage Centers, Inc		3.0	100	3.0	Developed
64	75.19-1-2	346 Rt. 6, Carmel, NY	USP Enterprises, LLC		1.1	100	1.1	Developed
65	86.7-1-25	10 Lupi Ct. Carmel, NY	Multiple	n/a	1.1	100	1.1	Developed
66	86.7-1-24	14 Lupi Ct., Carmel, NY	Jan Ell Prop. Inc & Sewer Works Corp		0.6	100	0.6	Developed
67	86.7-1-23	9 Lupi Ct., Carmel, NY	Value Store It Mahopac, LLc	65,340.00	1.5	100	1.5	Developed
68	86.7-1-22	5 Lupi Ct., Carmel, NY	Value Store It Mahopac, LLc	52,708.00	1.2	100	1.2	Developed
69	86.7-1-21	288 Rt. 6, Carmel, NY	Barile, Michael & Boniello, Tommy		2.8	66	1.8	Developed
70	86.7-1-27	293 Rt. 6, Carmel, NY	Alga, LLC	32,238.00	0.7	100	0.7	Developed
71	86.7-1-28	287 Rt. 6, Carmel, NY	287 Rt. 6, LLC	33,977.00	0.8	100	0.8	Developed
72	86.7-1-20	276 Rt. 6, Carmel, NY	Park Ford of Mahopac Inc	122,404.00	2.8	66	1.9	Developed
73	86.7-1-29	279 Rt. 6, Carmel, NY	Mahopac Terminals, LLC		1.3	100	1.3	Developed
74	86.7-1-30	271 Rt. 6, Carmel, NY	Union Valley Plaza, Inc	51,257.00	1.2	100	1.2	Developed
75	86.7-1-19	260 Rt. 6, Carmel, NY	Empire State Assoc. Holding Co.	47,916.00	1.1	100	1.1	Developed
76	86.7-1-11	21 Mi-Anna Dr, Carmel, NY	Quashie, Philip & Ernestine Daniel	42,987.00	1.0	100	1.0	Single Family
77	86.7-1-12	33 Mi-Anna Dr, Carmel, NY	Cusumano, Leonard & Arcure, Simone	49,599.00	1.1	100	1.1	Single Family

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
78	86.7-1-18	34 Mi-Anna Dr, Carmel, NY	Ciano, Rudolph & Grace	39,480.00	0.9	100	0.9	Single Family
79	86.7-1-17	40 Mi-Anna Dr, Carmel, NY	Ortiz, Carmela	18,900.00	0.4	100	0.4	Single Family
80	86.7-1-16	44 Mi-Anna Dr, Carmel, NY	Ferone Revocable Trust & Peter Ferone Trustee	18,190.00	0.4	100	0.4	Single Family
81	86.7-1-15	50 Mi-Anna Dr, Carmel, NY	Kotash, Damara	31,816.00	0.7	100	0.7	Single Family
82	86.7-1-10	39 Mi-Anna Dr, Carmel, NY	Lee, Raymond & Denise	27,960.00	0.6	100	0.6	Single Family
83	86.7-1-9	45 Mi-Anna Dr, Carmel, NY	Federico, Vincent		1.2	100	1.2	Single Family
84	86.7-1-13	53 Mi-Anna Dr, Carmel, NY	Lombardo, Alfred & Dawn	14,586.00	0.3	100	0.3	Single Family
85	86.7-1-14	57 Mi-Anna Dr, Carmel, NY	Long, Kathleen	18,096.00	0.4	100	0.4	Single Family
86	86.7-1-38	265 Rt. 6, Carmel, NY	Gelber, Barry	19,948.00	0.5	100	0.5	Developed
87	86.7-1-37	255 Rt. 6, Carmel, NY	Lamanna, Gabriel	32,863.00	0.8	100	0.8	Developed
88	86.7-1-34	9-11 Union Valley Rd, Carmel, NY	Sigurjonsson, S & V	10,595.00	0.2	100	0.2	Developed
89	86.7-1-35	5-7 Union Valley Rd, Carmel, NY	Sigurjonsson, Sigurbjorn	16,605.00	0.4	100	0.4	Developed
90	86.7-1-36	1 Union Valley Rd, Carmel, NY	Sigurjonsson, Sigurbjorn	41,402.00	1.0	100	1.0	Developed
91	86.7-1-8.-250	250 Rt. 6, Carmel, NY	Talent & Entertainment Unltd Corp	14,556.00	0.3	100	0.3	Developed
92	86.7-1-7	240 Rt. 6, Carmel, NY	12th Street Realty, LLC	75,521.00	1.7	100	1.7	Developed
93	86.11-1-5	237 Rt. 6, Carmel, NY	West Realty, Inc		1.6	100	1.6	Developed
94	86.7-1-7	240 Rt. 6, Carmel, NY	12th Street Realty, LLC	75,521.00	1.7	100	1.7	Developed
95	86.11-1-6	231 Rt. 6, Carmel, NY	ALOU Corp.	38,300.00	0.9	100	0.9	Developed
96	86.11-1-7.2	227 Rt. 6, Carmel, NY	227 Rt. 6 Corp.	21,780.00	0.5	100	0.5	Developed
97	86.7-1-5.1	222-226 Rt. 6, Carmel, NY	KISCO Co, LLC		0.9	100	0.9	Single Family
98	86.7-1-4.1	220 Rt. 6, Carmel, NY	Wright, Kevin & Williamarie		0.9	100	0.9	Single Family
99	86.7-1-3	6 Bon Miller Rd, Carmel, NY	Morando, Anthony		1.6	100	1.6	Single Family
100	86.7-1-2	10 Bon Miller Rd, Carmel, NY	DBS 17, LLC		3.4	100	3.4	Developed
101	86.11-1-7.1	225 Rt. 6, Carmel, NY	Anthony Michael Realty, Inc		2.0	100	2.0	Developed
102	86.11-1-8	215 Rt. 6, Carmel, NY	Lake Mahopac Motel, Inc		3.0	100	3.0	Developed
103	86.11-1-9	66 Miller Rd, Carmel, NY	AAK Realty, LLC		2.0	100	2.0	Developed
104	Multiple	Jonathan Dr.	Society Hill Condos		20.0	100	20.0	WWTP

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
105	86.11-1-3.2	170 Rt. 6, Carmel, NY	Senior Housing at Mahopac Hill		6.6	100	6.6	Developed
106	86.11-1-3.1	180 Rt. 6, Carmel, NY	County of Putnam		5.4	100	5.4	Developed
107	86.11-1-2	200 Rt. 6, Carmel, NY	200 Rt. 6 Corp.	19,339.00	0.4	100	0.4	Developed
108	86.11-1-10	46-54 Miller Rd, Carmel, NY	Lormat Construction Corp	71,438.00	1.6	100	1.6	Developed
109	86.15-1-1	105 Rt. 6, Carmel, NY	105 Baldwin Place LLC		0.2	100	0.2	Developed
110	86.11-1-15	18 Miller Rd Carmel, NY	3 Sgouros LLC		0.5	100	0.5	Developed
111	86.11-1-23	195 Rt. 6, Carmel, NY	Double Tee-Kay Diner Corp.	40,005.00	0.9	100	0.9	WWTP
112	86.11-1-22	135-183 Rt. 6, Carmel, NY	Improvements Owner LLC, Mahopac		27.3	100	27.3	WWTP
113	86.11-1-20	25 Miller Rd, Carmel, NY	FSB Properties, Inc	18,713.00	0.4	100	0.4	Developed
114	86.11-1-19	21 Miller Rd, Carmel, NY	RCTA Realty, LLC		0.3	100	0.3	Developed
115	86.11-1-18	17 Miller Rd, Carmel, NY	Trott. Bruce	16,671.00	0.4	100	0.4	Developed
116	86.11-1-17	7-11 Miller Rd, Carmel, NY	P.P. LLC		1.4	100	1.4	Developed
117	86.11-1-16	4 Miller Rd, Carmel, NY	Spain, Michael		0.7	100	0.7	Developed
118	86.15-1-10	1 Miller Rd, Carmel, NY	Hawkins, Mari	7,623.00	0.2	100	0.2	Developed
119	86.15-1-9	46 Rt. 118, Carmel, NY	46 Tomahawk LLC	8,625.00	0.2	100	0.2	Developed
120	86.15-1-7	40 Rt. 118, Carmel, NY	Marconi Real Estate, LLC	20,482.00	0.5	100	0.5	Developed
121	86.15-1-7	40 Rt. 118, Carmel, NY	Marconi Real Estate, LLC	20,482.00	0.5	100	0.5	Developed
122	86.11-1-24	129 Rt. 6, Carmel, NY	Barile, Michael & Boniello, Tommy		3.8	100	3.8	Developed
123	86.15-1-6	30 Rt. 118, Carmel, NY	Mirable, Joseph	17,343.00	0.4	100	0.4	Developed
124	86.11-1-25	119 Rt. 6, Carmel, NY	Dring Holding Corp.	130,680.00	3.0	100	3.0	Developed
125	n/a	n/a	n/a	n/a	0.1	100	0.1	Developed
126	86.11-1-26	26 Rt. 118, Carmel, NY	Dring, Debra		0.1	100	0.1	Developed
127	86.15-1-5	24 Rt. 118, Carmel, NY	Baldwin Place Realty LLC		0.0	100	0.0	Developed
128	86.15-1-4	20 Rt. 118, Carmel, NY	Baldwin Place Realty LLC	19,650.00	0.5	100	0.5	Developed
129	86.15-1-3	12 Rt. 118, Carmel, NY	Stokmann Co, LLC	21,780.00	0.5	100	0.5	Developed

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
130	86.15-1-2	8 Rt. 118, Carmel, NY	Stokmann Co, LLC	12,351.00	0.3	100	0.3	Developed
131	86.15-1-1	105 Rt. 6, Carmel, NY	105 Baldwin Place LLC	9,937.00	0.2	100	0.2	Developed
132	86.10-1-3	104 Rt. 6, Carmel, NY	Bernad Creations Ltd	25,172.00	0.6	100	n/a	Union Place
133	86.14-1-7	102 Rt. 6, Carmel, NY	102 Route 6, LLC		1.0	100	n/a	Union Place
134	86.10-1-2	4-50 Baldwin Place Rd, Carmel, NY	Bernad Creations Ltd		0.0	100	n/a	Union Place
135	75.18-1-42	230 Baldwin Place Rd, Carmel, NY	NYS Elec & Gas Corp		3.4	100	3.4	Developed

DEVELOPED PARCELS	
Total Lot Area (Ac)	214
Total Developable Area (Ac)	205
Total Average Design Flow gpd	154,100

UNDEVELOPED PARCELS

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
1U	75.16-1-39	498 Rt. 6, Carmel, NY	Calliope Holdings, LLC		1.08	90	0.97	Small Lot
2U	75.16-1-38	476 Rt. 6, Carmel, NY	Calliope Holdings, LLC	30,000.00	0.69	100	0.69	Small Lot
3U	75.16-1-3	161 Buckshollow Rd, Carmel, NY	Battista, Frank & Yolanda	9,360.00	0.21	100	0.21	Small Lot
4U	75.16-1-33	442 Rt. 6, Carmel, NY	442 Realty Group, LLC		2.33	66	1.54	Large Undeveloped
5U	75.20-2-69	148 Buckshollow Rd, Carmel, NY	Karabaic, Lawrence	9,450.00	0.22	100	0.22	Small Lot
6U	75.19-1-6	406 Rt. 6, Carmel, NY	Hilltop Properties, Inc.		3.41	100	3.41	Large Undeveloped
7U	75.19-1-3	366 Rt. 6, Carmel, NY	Lindil Realty, LLC		2.9	66	1.91	Large Undeveloped
8U	86.7-1-26	4 Lupi Ct, Carmel, NY	Moundroukas, Dino & James		1.01	25	0.25	Small Lot
9U	75.19-1-1.12	Rt. 6, Carmel, NY	C & C Meadowcrest Holding		70.48	100	n/a	Union Place
10U	86.7-1-39	269 Rt. 6, Carmel, NY	Town of Carmel		0.75	100	0.75	Small Lot
11U	86.7-1-33	15 Union Valley Rd, Carmel, NY	Sigurjonsson, Sigurbjorn		0.5	100	0.50	Small Lot
12U	86.11-1-14	24 Miller Rd, Carmel, NY	Miller Road, LLC		95	30	28.50	Large Undeveloped
13U	86.11-1-1	150 Rt. 6, Carmel, NY	Baldwin Hills Realty, LLC		12.9	100	n/a	Union Place
14U	86.6-1-4	Baldwin Place Rd, Carmel, NY	Baldwin Hills Realty, LLC		186.99	100	164.00	Union Place

Key Map No.	Tax Map	Address	Owner	Lot Area (SF)	Lot Area (Ac)	Percent Developable (%)	Developable Area (Ac)	Category
15U	75.18-1-44	224 Baldwin Place Rd, Carmel, NY	Ferri, Sam		3.53	100	3.53	Large Undeveloped
16U	75.18-1-43	228 Baldwin Place Rd, Carmel, NY	Ferri, Sam		3.01	100	3.01	Large Undeveloped

Notes: 1. Lot area taken from imagemate online or eparcel when available.
2. Lot area scaled from tax map in grey.

UNDEVELOPED PARCELS	
Total Lot Area (Ac)	385
Total Developable Area (Ac)	209
Total Average Design Flow gpd	88,800

DEVELOPED AND UNDELOPED PARCELS	
Total Lot Area (Ac)	599
Total Developable Area (Ac)	414
Total Average Design Flow gpd	242,900
Total Average Design Flow gpd with 20% Contingency	**291,480**
Use	**300,000**

Mahopac Sewer Study

Table 5-1 - Engineers Opinion of Probable Capital Construction Cost for Service Area Collection System (March 2019)

Category	Item	Unit	Unit Cost	Quantity	Total
Site	8" Gravity Sewer- Pavement Restoration - 25% Rock Excavation	LF	$ 220	10,900	$ 2,398,000
	8" Gravity Sewer- Non-Pavement Restoration - 25% Rock Excavation	LF	$ 180	3,500	$ 630,000
	12" Gravity Sewer- Pavement Restoration - 25% Rock Excavation	LF	$ 260	3,600	$ 936,000
	12" Gravity Sewer- Non-Pavement Restoration - 25% Rock Excavation	LF	$ 200	1,100	$ 220,000
	6" Sewer Service Lines - Non Pavement Restoration - 25% Rock Excavation	LF	$ 190	11,000	$ 2,090,000
	Concrete Sewer Manholes	EA	$ 4,000	85	$ 340,000
	2" Low Pressure Sewer	LF	$ 144	1,440	$ 207,360
	Land Acquisition and Easements	LS	$ 100,000	1	$ 100,000
	Erosion Control	LS	$ 300,000	1	$ 300,000
	Maintenance and Protection of Traffic	LS	$ 50,000	1	$ 50,000
				Subtotal =	$ 7,271,360
	Design, Permitting, and Construction Oversight:		25%		$ 1,817,840
	Contingency:		35%		$ 2,544,976
				Total =	$ 11,634,176
				USE	**$ 11,600,000**

Notes and assumptions:

* Assumes minimal utility conflicts

* This Cost Estimate is based on experience with similar projects, vendor quotes and contractor cost opinions as of the date specified at the top of this table.

*The actual cost(s), when obtained by competitive bidding, may be higher or lower depending on economic conditions at the time bids are received.

Mahopac Sewer Study

Table 5-2 - Engineers Opinion of Probable Capital Construction Cost for Sewer Conveyance to Heritage Hills WWTP (March 2019)

Category	Item	Unit	Unit Cost	Quantity	Total
Site	Duel 8" Sewer Forcemain - Pavement Restoration - 25% Rock Excavation	LF	$ 270	11,000	$ 2,970,000
	Single 8" Sewer Forcemain - Pavement Restoration - 25% Rock Excavation	LF	$ 230	7,600	$ 1,748,000
	Sewer Pump Station	EA	$ 350,000	2	$ 700,000
	Air Release Valves	EA	$ 6,000	6	$ 36,000
	Erosion Control	LS	$ 150,000	1	$ 150,000
	Heritage Hills Collection System Upgrade	LS	$ 400,000	1	$ 400,000
	Maintenance and Protection of Traffic	LS	$ 50,000	1	$ 50,000
				Subtotal =	$ 6,054,000
	Design, Permitting, and Construction Oversight:		25%		$ 1,513,500
	Contingency:		35%		$ 2,118,900
				Total =	$ 9,686,400
				USE	**$ 9,700,000**

Notes and assumptions:

* Assumes minimal utility conflicts

* This Cost Estimate is based on experience with similar projects, vendor quotes and contractor cost opinions as of the date specified at the top of this table.

*The actual cost(s), when obtained by competitive bidding, may be higher or lower depending on economic conditions at the time bids are received.

Mahopac Sewer Study

Table 5-3 - Engineers Opinion of Probable Capital Construction Cost for Conveyance Connection to Mahapac STP (March 2019)

Category	Item	Unit	Unit Cost	Quantity	Total
Site	Duel 8" Sewer Forcemain - Pavement Restoration - 25% Rock Excavation	LF	$ 270	9,300	$ 2,511,000
	Single 8" Sewer Forcemain - Pavement Restoration - 25% Rock Excavation	LF	$ 230	7,500	$ 1,725,000
	Sewer Pump Station	EA	$ 350,000	2	$ 700,000
	Air Release Valves	EA	$ 6,000	6	$ 36,000
	Erosion Control	LS	$ 150,000	1	$ 150,000
	Maintenance and Protection of Traffic	LS	$ 50,000	1	$ 50,000
				Subtotal =	$ 5,172,000
	Design, Permitting, and Construction Oversight:		25%		$ 1,293,000
	Contingency:		35%		$ 1,810,200
				Total =	$ 8,275,200
				USE	**$ 8,300,000**

Notes and assumptions:

* Assumes minimal utility conflicts

* This Cost Estimate is based on experience with similar projects, vendor quotes and contractor cost opinions as of the date specified at the top of this table.

*The actual cost(s), when obtained by competitive bidding, may be higher or lower depending on economic conditions at the time bids are received.

Mahopac Sewer Study

Table 5-4 - Engineers Opinion of Probable Capital Construction Cost for Conveyance to New Waste Water Treatment Plant (March 2019)

Category	Item	Unit	Unit Cost	Quantity	Total
Site	6" Sewer Forcemain - Non Pavement Restoration - 25% Rock Excavation	LF	$ 180	5,000	$ 900,000
	Sewer Pump Station	EA	$ 300,000	2	$ 600,000
	Air Release Valves	EA	$ 6,000	2	$ 12,000
	Erosion Control	LS	$ 30,000	1	$ 30,000
	Maintenance and Protection of Traffic	LS	$ 15,000	1	$ 15,000
				Subtotal =	$ 1,557,000
	Design, Permitting, and Construction Oversight:		25%		$ 389,250
	Contingency:		35%		$ 544,950
				Total =	$ 2,491,200
				USE	**$ 2,500,000**

Notes and assumptions:

* Assumes minimal utility conflicts

* This Cost Estimate is based on experience with similar projects, vendor quotes and contractor cost opinions as of the date specified at the top of this table.

*The actual cost(s), when obtained by competitive bidding, may be higher or lower depending on economic conditions at the time bids are received.

APPENDICES

Appendix A

Mahopac Village Center SPDES PERMIT

New York State Department of Environmental Conservation
Division of Environmental Permits, Region 3
21 South Putt Corners Road, New Paltz, NY 12561
Phone: (845) 256-3054 • **FAX:** (845) 255-4659
Website: www.dec.ny.gov

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

May 12, 2016

Mahopac Improvements Owner, LLC
c/o DLC Management Corp.
Attn. Daniel Taub
580 White Plans Road
Tarrytown, NY 10591

RE: Mahopac Village Center WWTP
DEC # 3-3720-00099/00001
NY0090646
Town of Carmel, Putnam County

Dear Mr. Taub,

Please find the attached State Pollutant Discharge Elimination system (SPDES) Discharge Permit for Mahopac Village Center WWTP, for discharge of 18,000 gallons per day (GPD) of treated sanitary wastewater to Tributary of Muscoot River, Waters Index No. H-31-P44-14-3, Class C.

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown.

Please contact me at 845-256-3059 to discuss any questions you may have regarding the above. Thank you.

Best Regards,

Tracey O'Malley
Environmental Analyst

eCc. Town of Carmel Supervisor
EPA Region II; region2_NPDES@epa.gov
Putnam County Department of Health
D. DeGraw, A. Stor, NYCDEP
Glenn Wilson, DLC Management Corp.
Keane Coppelman Engineers PC
NYSEFC
Armand DeAngelis, DOW, R3
Aparna Roy, DOW, R3
DEC Bureau of Water Permits

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES) DISCHARGE PERMIT

Industrial Code:	8999	SPDES Number:	NY0090646
Discharge Class (CL):	02	DEC Number:	3-3720-00099/00001
Toxic Class (TX):	N	Effective Date (EDP):	May 12, 2016
Major Drainage Basin:	13	Expiration Date (ExDP):	April 30, 2021
Sub Drainage Basin:	02	Modification Dates: (EDPM)	
Water Index Number:	H-31-P44-14-3		
Compact Area:	NYC Watershed		

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.)(hereinafter referred to as "the Act"):

PERMITTEE NAME AND ADDRESS

Name:	Mahopac Improvements Owner, LLC c/o DLC Management Corp.	Attention:	Daniel Taub, Vice President	
Street:	580 White Plains Road			
City:	Tarrytown	State:	NY	Zip Code: 10591

is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name:	Mahopac Village Center WWTP										
Location (C,T,V):	(T) Carmel							County:	Putnam		
Facility Address:	155 Route 6										
City:	Mahopac						State:	NY	Zip Code:	10017	
From Outfall No.:	001	at Latitude:	41 °	20 '	54 "	& Longitude:	73 °	45 '	20 "		
into receiving waters known as:	Tributary of Muscoot River (ISEL Stream)								Class:	C	

and (list other Outfalls, Receiving Waters & Water Classifications)

in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth in this permit; and 6 NYCRR Part 750-1and 750-2.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name:	Keane Coppelman Gregory Engineers, PC				
Street:	113 Smith Avenue				
City:	Mount Kisco	State:	NY	Zip Code:	10549
Responsible Official or Agent:	Peter Lind			Phone:	(914) 241-6787

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:
Town of Carmel Supervisor
EPA Region II; region2_NPDES@epa.gov
Putnam County Department of Health
D. DeGraw, A. Stor, NYCDEP
Glenn Wilson, DLC Management Corp.
Keane Coppelman Engineers PC
NYSEFC
Armand DeAngelis, DOW, R3
Aparna Roy, DOW, R3
NYSDEC BOW Permits

Permit Administrator: John W Petronella	
Address: 625 Broadway Albany, NY 12233-1750	
Signature: John W Petronella	Date: 5/12/2016

PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

OUTFALL	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
	This cell describes the type of wastewater authorized for discharge. Examples include process or sanitary wastewater, storm water, non-contact cooling water.	This cell lists classified waters of the state to which the listed outfall discharges.	The date this page starts in effect. (e.g. EDP or EDPM)	The date this page is no longer in effect. (e.g. ExDP)

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQ.	SAMPLE TYPE
e.g. pH, TRC, Temperature, D.O.	The minimum level that must be maintained at all instants in time.	The maximum level that may not be exceeded at any instant in time.	SU, °F, mg/l, etc.	See below	See below

PARAMETER	EFFLUENT LIMIT or CALCULATED LEVEL	COMPLIANCE LEVEL / ML	ACTION LEVEL	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Limit types are defined below in Note 1. The effluent limit is developed based on the more stringent of technology-based limits, required under the Clean Water Act, or New York State water quality standards. The limit has been derived based on existing assumptions and rules. These assumptions include receiving water hardness, pH and temperature; rates of this and other discharges to the receiving stream; etc. If assumptions or rules change the limit may, after due process and modification of this permit, change.	For the purposes of compliance assessment, the permittee shall use the approved EPA analytical method with the lowest possible detection limit as promulgated under 40CFR Part 136 for the determination of the concentrations of parameters present in the sample unless otherwise specified. If a sample result is below the detection limit of the most sensitive method, compliance with the permit limit for that parameter was achieved. Monitoring results that are lower than this level must be reported, but shall not be used to determine compliance with the calculated limit. This Minimum Level (ML) can be neither lowered nor raised without a modification of this permit.	Action Levels are monitoring requirements, as defined below in Note 2, which trigger additional monitoring and permit review when exceeded.	This can include units of flow, pH, mass, temperature, or concentration. Examples include µg/l, lbs/d, etc.	Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly. All monitoring periods (quarterly, semiannual, annual, etc) are based upon the calendar year unless otherwise specified in this Permit.	Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period.

Notes:

1. EFFLUENT LIMIT TYPES:
   a. DAILY DISCHARGE: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.
   b. DAILY MAX: The highest allowable daily discharge. DAILY MIN: The lowest allowable daily discharge.
   c. MONTHLY AVG: The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
   d. 7 DAY ARITHMETIC MEAN (7 day average): The highest allowable average of daily discharges over a calendar week.
   e. 30 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of: the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
   f. 7 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar week.
   g. RANGE: The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown.

2. ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards.

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
001	All year unless otherwise noted.	Tributary of Muscoot River	EDP	ExDP

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
								Location		
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
Flow	Monthly Average			0.018	mgd	Continuous	Recorder		X	
$CBOD_5$	Daily Maximum	5.0	mg/l			Quarterly	Grab	X	X	
Solids, Suspended	Daily Maximum	10	mg/l			Quarterly	Grab4	X	X	
Solids, Settleable	Daily Maximum	0.1	ml/l			Daily	Grab	X	X	
pH	Range	6.5 – 8.5	SU			Daily	Grab	X	X	
Nitrogen, Ammonia (as NH_3) (Jun 1 – Oct 31)	Daily Maximum	1.3	mg/l			Quarterly	Grab		X	
Nitrogen, Ammonia (as NH_3) (Nov 1 – May 31)	Daily Maximum	2.0	mg/l			Quarterly	Grab		X	
Temperature	Daily Maximum	Monitor	Deg F			Daily	Grab	X	X	
Phosphorus (as P)	Monthly Average	1.0	mg/l			Quarterly	Grab		X	
Dissolved Oxygen	Daily Minimum	7.0	mg/l			Quarterly	Grab		X	
Effluent Disinfection required		[X] All Year		[ ] Seasonal from _____ to _____						
Coliform, Fecal	30-Day Geometric Mean	200	No./ 100 ml			Quarterly	Grab		X	
Coliform, Fecal	7 Day Geometric Mean	400	No./ 100 ml			Quarterly	Grab		X	
Chlorine, Total Residual	Daily Maximum	0.1	mg/l			Daily	Grab		X	(1,2)
Giardia Lamblia, Cysts		See (3)	NA			NA	NA		X	(3)
Enteric Viruses		See (3)	NA			NA	NA		X	(3)
Turbidity		See (4)	NTU			Continuous	Recorder		X	(4)

FOOTNOTES:

(1) Monitoring is only required if chlorine is used for disinfection.

(2) Total Residual Chlorine - When chlorine is used for disinfection, a minimum residual of 0.2 mg/l shall be maintained in the chlorine contact tank prior to dechlorination.

(3) Giardia Lamblia Cysts and Enteric Viruses - The facility must be capable of achieving a 99.9% removal and/or inactivation of giardia lamblia cysts and enteric viruses. The capability shall be demonstrated by maintaining the turbidity and chlorine levels specified and operating the microfiltration unit and the disinfection system on a continuous basis, in accordance with the provisions set forth in the WWTP's Operation and Maintenance Manual.

(4) Turbidity - The turbidity levels shall be maintained at less than or equal to 0.5 nephelometric turbidity units (NTU) in 95% of the measurements taken each month and an instantaneous maximum of 5.0 NTU shall not be exceeded.

DISCHARGE NOTIFICATION REQUIREMENTS

(a) Except as provided in (c) and (g) of these Discharge Notification Act requirements, the permittee shall install and maintain identification signs at all outfalls to surface waters listed in this permit. Such signs shall be installed before initiation of any discharge.

(b) Subsequent modifications to or renewal of this permit does not reset or revise the deadline set forth in (a) above, unless a new deadline is set explicitly by such permit modification or renewal.

(c) The Discharge Notification Requirements described herein do not apply to outfalls from which the discharge is composed exclusively of storm water, or discharges to ground water.

(d) The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have **minimum** dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address :

NYSDEC Division of Water Regional Phone: ( ) - ### -####

(e) For each discharge required to have a sign in accordance with a), the permittee shall, concurrent with the installation of the sign, provide a repository of copies of the Discharge Monitoring Reports (DMRs), as required by the **RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS** page of this permit. This repository shall be open to the public, at a minimum, during normal daytime business hours. The repository may be at the business office repository of the permittee or at an off-premises location of its choice (such location shall be the village, town, city or county clerk's office, the local library or other location as approved by the Department). In accordance with the **RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS** page of your permit, each DMR shall be maintained on record for a period of five years

(f) The permittee shall periodically inspect the outfall identification sign(s) in order to ensure they are maintained, are still visible, and contain information that is current and factually correct. Signs that are damaged or incorrect shall be replaced within 3 months of inspection.

DISCHARGE NOTIFICATION REQUIREMENTS (continued)

(g) All requirements of the Discharge Notification Act, including public repository requirements, are waived for any outfall meeting any of the following circumstances, provided Department notification is made in accordance with (h) below:

(i) such sign would be inconsistent with any other state or federal statute;

(ii) the Discharge Notification Requirements contained herein would require that such sign could only be located in an area that is damaged by ice or flooding due to a one-year storm or storms of less severity;

(iii) instances in which the outfall to the receiving water is located on private or government property which is restricted to the public through fencing, patrolling, or other control mechanisms. Property which is posted only, without additional control mechanisms, does not qualify for this provision;

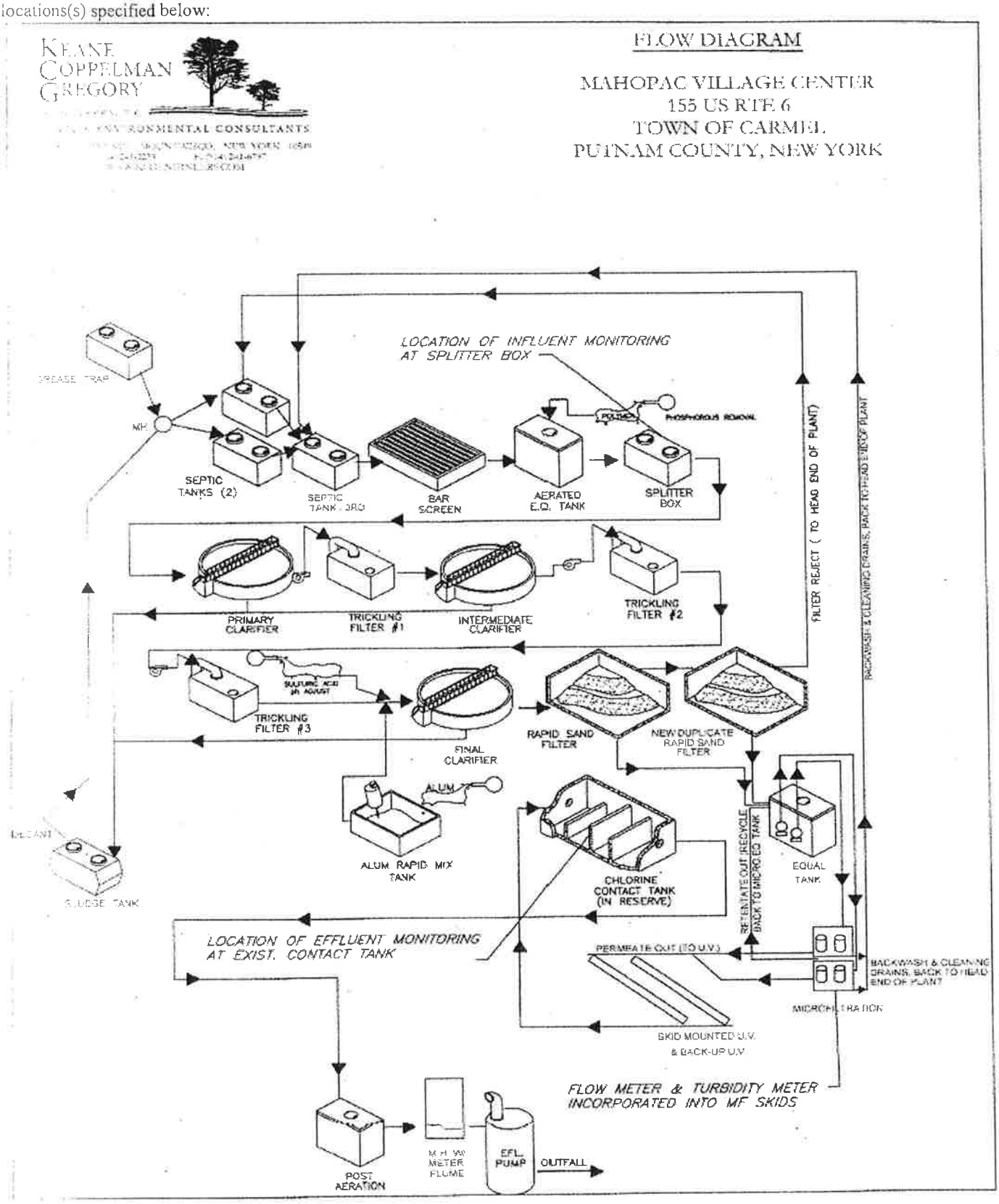
(iv) instances where the outfall pipe or channel discharges to another outfall pipe or channel, before discharge to a receiving water; or

(v) instances in which the discharge from the outfall is located in the receiving water, two-hundred or more feet from the shoreline of the receiving water.

(h) If the permittee believes that any outfall which discharges wastewater from the permitted facility meets any of the waiver criteria listed in (g) above, notification (form enclosed) must be made to the Department's Bureau of Water Permits, 625 Broadway, Albany, N.Y. 12233-3505, of such fact, and, provided there is no objection by the Department, a sign and DMR repository for the involved outfall(s) are not required. This notification must include the facility's name, address, telephone number, contact, permit number, outfall number(s), and reason why such outfall(s) is waived from the requirements of discharge notification. The Department may evaluate the applicability of a waiver at any time, and take appropriate measures to assure that the ECL and associated regulations are complied with.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the locations(s) specified below:



GENERAL REQUIREMENTS

A. The regulations in 6 NYCRR Part 750 are hereby incorporated by reference and the conditions are enforceable requirements under this permit. The permittee shall comply with all requirements set forth in this permit and with all the applicable requirements of 6 NYCRR Part 750 incorporated into this permit by reference, including but not limited to the regulations in paragraphs B through I as follows:.

B. General Conditions

1. Duty to comply	6NYCRR Part 750-2.1(e) & 2.4
2. Duty to reapply	6NYCRR Part 750-1.16(a)
3. Need to halt or reduce activity not a defense	6NYCRR Part 750-2.1(g)
4. Duty to mitigate	6NYCRR Part 750-2.7(f)
5. Permit actions	6NYCRR Part 750-1.1(c), 1.18, 1.20 & 2.1(h)
6. Property rights	6NYCRR Part 750-2.2(b)
7. Duty to provide information	6NYCRR Part 750-2.1(i)
8. Inspection and entry	6NYCRR Part 750-2.1(a) & 2.3

C. Operation and Maintenance

1. Proper Operation & Maintenance	6NYCRR Part 750-2.8
2. Bypass	6NYCRR Part 750-1.2(a)(17), 2.8(b) & 2.7
3. Upset	6NYCRR Part 750-1.2(a)(94) & 2.8(c)

D. Monitoring and Records

1. Monitoring and records	6NYCRR Part 750-2.5(a)(2), 2.5(c)(1), 2.5(c)(2), 2.5(d) & 2.5(a)(6)
2. Signatory requirements	6NYCRR Part 750-1.8 & 2.5(b)

E. Reporting Requirements

1. Reporting requirements	6NYCRR Part 750-2.5, 2.6, 2.7 & 1.17
2. Anticipated noncompliance	6NYCRR Part 750-2.7(a)
3. Transfers	6NYCRR Part 750-1.17
4. Monitoring reports	6NYCRR Part 750-2.5(e)
5. Compliance schedules	6NYCRR Part 750-1.14(d)
6. 24-hour reporting	6NYCRR Part 750-2.7(c) & (d)
7. Other noncompliance	6NYCRR Part 750-2.7(e)
8. Other information	6NYCRR Part 750-2.1(f)
9. Additional conditions applicable to a POTW	6NYCRR Part 750-2.9
10. Special reporting requirements for discharges that are not POTWs	6NYCRR Part 750-2.6

F. Planned Changes

1. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

   a. The alteration or addition to the permitted facility may meet of the criteria for determining whether facility is a new source in 40 CFR §122.29(b); or
   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, or to notification requirements under 40 CFR §122.42(a)(1); or
   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

   In addition to the Department, the permittee shall submit a copy of this notice to the United States Environmental Protection Agency at the following address: U.S. EPA Region 2, Clean Water Regulatory Branch, 290 Broadway, 24th Floor, New York, NY 10007-1866.

GENERAL REQUIREMENTS continued

G. Notification Requirement for POTWs

1. All POTWs shall provide adequate notice to the Department and the USEPA of the following:
   a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; or
   b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
   c. For the purposes of this paragraph, adequate notice shall include information on:
      i. the quality and quantity of effluent introduced into the POTW, and
      ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

POTWs shall submit a copy of this notice to the United States Environmental Protection Agency, at the following address: U.S. EPA Region 2, Clean Water Regulatory Branch, 290 Broadway, 24th Floor, New York, NY 10007-1866.

H. Sludge Management

The permittee shall comply with all applicable requirements of 6 NYCRR Part 360.

I. SPDES Permit Program Fee

The permittee shall pay to the Department an annual SPDES permit program fee within 30 days of the date of the first invoice, unless otherwise directed by the Department, and shall comply with all applicable requirements of ECL 72-0602 and 6 NYCRR Parts 480, 481 and 485. Note that if there is inconsistency between the fees specified in ECL 72-0602 and 6 NYCRR Part 485, the ECL 72-0602 fees govern.

J. Water Treatment Chemicals (WTCs)

New or increased use and discharge of a WTC requires prior Department review and authorization. At a minimum, the permittee must notify the Department in writing of its intent to change WTC use by submitting a completed *WTC Notification Form* for each proposed WTC. The Department will review that submittal and determine if a SPDES permit modification is necessary or whether WTC review and authorization may proceed outside of the formal permit administrative process. The majority of WTC authorizations do not require SPDES permit modification. In any event, use and discharge of a WTC shall not proceed without prior authorization from the Department. Examples of WTCs include biocides, coagulants, conditioners, corrosion inhibitors, defoamers, deposit control agents, flocculants, scale inhibitors, sequestrants, and settling aids.

1. WTC use shall not exceed the rate explicitly authorized by this permit or otherwise authorized in writing by the Department.
2. The permittee shall **maintain a logbook** of all WTC use, noting for each WTC the date, time, exact location, and amount of each dosage, and, the name of the individual applying or measuring the chemical. The logbook must also document that adequate process controls are in place to ensure that excessive levels of WTCs are not used.
3. The permittee shall **submit a completed *WTC Annual Report Form*** each year that they use and discharge WTCs. This form shall be attached to either the December DMR or the annual monitoring report required below.

The *WTC Notification Form* and *WTC Annual Report Form* are available from the Department's website at http://www.dec.ny.gov/permits/93245.html .

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

A. The monitoring information required by this permit shall be summarized, signed and retained for a period of at least five years from the date of the sampling for subsequent inspection by the Department or its designated agent. **Also, monitoring information required by this permit shall be summarized and reported by submitting;**

[X] (if box is checked) completed and signed Discharge Monitoring Report (DMR) forms for each __1__ month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

[ ] (if box is checked) an annual report to the Regional Water Engineer at the address specified below. The annual report is due by February 1 each year and must summarize information for January to December of the previous year in a format acceptable to the Department.

[X] (if box is checked) a monthly "Wastewater Facility Operation Report..." (form 92-15-7) to the:
[X] Regional Water Engineer and/or [X] County Health Department or Environmental Control Agency specified below

Send the **original** (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water, Bureau of Water Compliance
625 Broadway
Albany, New York 12233-3506
Phone: (518) 402-8177

Send the **first copy** (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer, Region 3
100 Hillside Avenue, Suite 1W
White Plains, NY 10603-2860
Phone: (914) 428-2505

Send an **additional copy** of each DMR page to:

Putnam County Health Department
1 Geneva Road
Brewster, NY 10509

NYC Department of Environmental Protection
465 Columbus Avenue, Suite 350
Valhalla, NY 10595

B. Monitoring and analysis shall be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

C. More frequent monitoring of the discharge(s), monitoring point(s), or waters of the State than required by the permit, where analysis is performed by a certified laboratory or where such analysis is not required to be performed by a certified laboratory, shall be included in the calculations and recording of the data on the corresponding DMRs.

D. Calculations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

E. Unless otherwise specified, all information recorded on the DMRs shall be based upon measurements and sampling carried out during the most recently completed reporting period.

F. Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be directed to the New York State Department of Health, Environmental Laboratory Accreditation Program.

Appendix B

Society Hill Condo SPDES PERMIT

20-2 (1/89)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)

DISCHARGE PERMIT

Special Conditions (Part I)

RECEIVED
NYS DEC - REGION 3
TOWN OFFICE

Industrial Code: 8999
Discharge Class (CL): 02
Toxic Class (TX): N
Major Drainage Basin: 13
Sub Drainage Basin: 02
Water Index Number: H-31-P44-14-P50-2
Compact Area: Croton

SPDES Number: NY-0207365
DEC Number: 3-3720-00172
Effective Date (EDP): 04/01/99
Expiration Date (ExDP): 04/01/04
Modification Date(s):
Attachment(s): General Conditions (Part II) Date: 11/90

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act as amended, (33 U.S.C. Section 1251 et. seq.)(hereafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS Attention: Diane Praetorious

Name: Ceder Hill Sewer Works Corp., c/o Exclusive Management
Street: 2 Stowe Road, Suite 13
City: Peekskill State: NY Zip Code: 10566

is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name: Society Hill Condominiums
Location (C,T,V): Carmel (T) County: Putnam
Facility Address: Route 6
City: Carmel State: NY Zip Code: 10512
NYTM - E: . NYTM - N: 4 .
From Outfall No.: 001 at Latitude: 41° 21′ 02″ & Longitude: 73° 45′ 08″
into receiving waters known as: Trib. of Amawalk Reservoir Class: D

and; (list other Outfalls, Receiving Waters & Water Classifications)

NYSDEC has determined that this facility discharges to an intermittent stream as defined in the NYC WR&R.

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in Special Conditions (Part I) and General Conditions (Part II) of this permit.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name: Cedar Hill Sewer Works Corp., c/o Exclusive Management
Street: 2 Stowe Rd., Suite 13
City: Peekskill State: NY Zip Code: 1056610598
Responsible Official or Agent: Diane Praetorious Phone: (914)739-5105

This permit and the authorization to discharge shall expire on midnight of the expiration date shown and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for a permit renewal no less than 180 days prior to the expiration date shown above.

DISTRIBUTION:
J. Marcogliese/E. Zicca
R. Hannaford/E. Reilly
USEPA, Region II
NYCDEP, (Valhalla)
Putnam County Health Dept.

Permit Administrator:	William E. Steidle NYSDEC
Address:	21 South Putt Corners Road New Paltz NY 12561-1696
Signature:	Date: 3/5/99

Society Hill

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning 4/1/99 the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

LIMITATIONS APPLY: [x] All Year [ ] Seasonal from _____ to _____
Outfall Number 001

EFFLUENT LIMITATIONS

[x] Flow	30 day arithmetic mean	0.0225	[X] MGD [ ] GPD		
[x] CBOD, 5 - Day	30 day arithmetic mean	5.0	mg/l and	0.94	lbs/day(1)
[ ] BOD, 5 - Day	7 day arithmetic mean		mg/l and		lbs/day
[ ] UOD(2)			mg/l and		lbs/day
[x] Solids, Suspended	30 day arithmetic mean	10	mg/l and	1.88	lbs/day(1)
[ ] Solids, Suspended	7 day arithmetic mean		mg/l and		lbs/day

[x] Effluent disinfection required: [x] All Year [ ] Seasonal from _____ to _____

[x] Coliform, Fecal	30 day geometric mean shall not exceed 200/100 ml		
[x] Coliform, Fecal	7 day geometric mean shall not exceed 400/100 ml		
[x] Chlorine, Total Residual	Daily Maximum	0.1	mg/l
[x] pH	Range	6.0 to 9.0	SU
[x] Solids, Settleable	Daily Maximum	0.1	ml/l
[x] Ammonia	Daily Maximum	2.0 mg/l as NH3	
[x] Chlorine, Total Resid.	Daily Min. in Contact Chamber	0.5 mg/l	
[ ] Dissolved Oxygen	Daily Minimum	greater than 7.0 mg/l	
[x] Phosphorus	Daily Maximum	1.0 mg/l as P	
[ ]			

MONITORING REQUIREMENTS

Parameter	Frequency	Sample Type	Sample Location Influent	Sample Location Effluent
[x] Flow, [X] MGD [ ] GPD	Continuous	-	x	
[x] CBOD, 5 - Day, mg/l	1/month	Grab	x	x
[x] Solids, Suspended, mg/l	1/month	Grab	x	x
[x] Coliform, Fecal, No./100 ml(3)	1/month	Grab		x
[ ] Nitrogen, TKN (as N), mg/l				
[x] Ammonia (as NH_3), mg/l	1/month	Grab		x
[x] pH, SU (standard units)	1/day	Grab	x	x
[x] Solids, Settleable, ml/l	1/day	Grab	x	x
[x] Chlorine, Total Residual, mg/l(3)	1/day	Grab		x
[x] Phosphorus, Total (as P), mg/l	1/Quarter	Grab		x
[x] Temperature, Deg. F	1/day	Grab	x	x
[x] Dissolved Oxygen, mg/l	1/day	Grab		x
[x] Cl2 Residual in Contact Tank	1/day	Grab		
[ ]				
[ ]				

NOTES: (1) and effluent value shall not exceed___ % and___ % of influent values for BOD_5 & TSS respectively.

(2) Ultimate Oxygen Demand shall be computed as follows:
UOD = 1 1/2 x $CBOD_5$ + 4 1/2 x TKN (Total Kjeldahl Nitrogen)

(3) Monitoring of these parameters is only required during the period when disinfection is required. The operator/permittee shall physically inspect the disinfection equipment daily to insure it is operating properly and must maintain a written log of the inspections.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning six months from the date of NYCDEP certification of "functional completion" of the facility's upgrade as required in the facility's Final Upgrade Plan the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

LIMITATIONS APPLY: [x] All Year [ ] Seasonal from _____ to _____
Outfall Number 001

EFFLUENT LIMITATIONS

[x] Flow	30 day arithmetic mean	0.0225	[x] MGD [ ] GPD	
[ ] BOD, 5 - Day	30 day arithmetic mean		mg/l and	lbs/day(1)
[ ] BOD, 5 - Day	7 day arithmetic mean		mg/l and	lbs/day
[ ] UOD(2)			mg/l and	lbs/day
[ ] Solids, Suspended	30 day arithmetic mean		mg/l and	lbs/day(1)
[ ] Solids, Suspended	7 day arithmetic mean		mg/l and	lbs/day
[x] Effluent disinfection required:	[X] All Year [ ] Seasonal from		to	
[x] Coliform, Fecal	30 day geometric mean shall not exceed 200/100 ml			
[x] Coliform, Fecal	7 day geometric mean shall not exceed 400/100 ml			
[x] Chlorine, Total Residual	Daily Maximum		0.1	mg/l
[x] pH	Range		6.0-9.5	SU
[x] Solids, Settleable	Daily Maximum		0.1	ml/l
[x] Ammonia	Daily maximum		2.0 mg/l as NH3	
[x] CBOD,5-Day	Daily maximum		5.0 mg/l	
[x] Suspended Solids	Daily maximum		10 mg/l	
[x] Dissolved Oxygen	Daily minimum		7.0 mg/l	
[x] Phosphorus, Total	Daily Maximum		1.0 mg/l as P	

MONITORING REQUIREMENTS

Parameter	Frequency	Sample Type	Sample Location Influent	Sample Location Effluent
[x] Flow, [X] MGD [ ] GPD	Continuous	Recorder	x	x
[x] CBOD, 5 - Day, mg/l	1/month	grab	x	x
[x] Solids, Suspended, mg/l	1/month	grab	x	x
[x] Coliform, Fecal, No./100 ml(3)	1/month	grab		x
[ ] Nitrogen, TKN (as N), mg/l				
[x] Ammonia (as NH_3), mg/l	1/month	grab		x
[x] pH, SU (standard units)	1/day	grab	x	x
[x] Solids, Settleable, ml/l	1/day	grab	x	x
[x] Chlorine, Total Residual, mg/l(3)(4)	1/day	grab		x
[x] Phosphorus, Total (as P), mg/l	1/month	grab		x
[x] Temperature, Deg. F	1/day	grab	x	x
[x] Dissolved oxygen, mg/l	1/day	grab		x

NOTES: (1) and effluent value shall not exceed ___ % and ___ % of influent values for $CBOD_5$ & TSS respectively.
(2) Ultimate Oxygen Demand shall be computed as follows:
UOD = 1 1/2 x $CBOD_5$ + 4 1/2 x TKN (Total Kjeldahl Nitrogen)
(3) Monitoring of these parameters is only required during the period when disinfection is required. The operator/permittee shall physically inspect the disinfection equipment daily to insure it is operating properly and must maintain a written log of the inspections.
(4) If chlorine is used for disinfection.

DISCHARGE NOTIFICATION REQUIREMENTS

a) Within ninety days after the effective date of this permit modification, the permittee shall install and maintain identification signs at all outfalls to surface waters listed in this permit. The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in a manner that poses minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have **minimum** dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address :

b) If, upon the effective date of this modification, the permittee has installed signs that include the information required by § 17-0815-a(2)(a), but do not meet the specifications listed above, the permittee may continue to use the existing signs for a period of up to five years, after which the signs shall comply with the specifications listed above.

c) The permittee shall periodically inspect the outfall identification signs in order to insure that they are maintained, are still visible and contain information that is current and factually correct.

d) Within ninety days after the effective date of this permit modification, the permittee shall provide for public review at a repository accessible to the public, copies of the Discharge Monitoring Reports (DMRs) as required by the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of this permit. This repository shall be open to the public at a minimum of normal daytime business hours. The repository may be at the business office repository of the permittee or at an off-premises location of its choice (such location shall be the village, town, city or county clerk's office, the local library or other location as approved by the Department). In accordance with the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of your permit, each DMR shall be maintained on record for a period of three years.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning six months from the date of NYCDEP certification of "functional completion" of the facility's upgrade as required in the facility's Final Upgrade Plan the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
001					
Giardia Lamblia, Cysts	(Note 1)		NA	NA	NA
Enteric Viruses	(Note 2)		NA	NA	NA
Turbidity	(Note 3)		NTU	Continuous (After microfiltration/equivalent)	Recorder
Chlorine Residual	(Note 4)		Mg/l	1/Day (Chlorine contact tank prior to dechlorination)	Grab

Note 1 - Facility must be capable of achieving a 99.9% removal and/or inactivation of giardia lamblia cysts. Capability shall demonstrated by maintaining the turbidity and chlorine levels specified and operating the microfiltration unit and the disinfecti system on a continuous basis, in accordance with the provisions set forth in the WWTP's Operation and Maintenance Manual

Note 2 - Facility must be capable of achieving 99.99% removal/inactivation of enteric viruses. Capability shall be demonstrat as stated above in Note 1.

Note 3 - The turbidity levels shall be maintained at less than or equal to 0.5 NTU in 95% of the measurements taken each mo and an instantaneous maximum of 5.0 NTU.

Note 4 - When chlorine is used for disinfection, a minimum residual of 0.2 mg/l shall be maintained in the chlorine contact ta prior to dechlorination.

Appendix C

Mahopac STP SPDES PERMIT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)
DISCHARGE PERMIT

First3.99

Industrial Code:	4952	SPDES Number:	NY0026590
Discharge Class (CL):	07	DEC Number:	3-3720-00024/00002
Toxic Class (TX):	N	Effective Date (EDP):	05/01/08
Major Drainage Basin:	13	Expiration Date (ExDP):	4/13/13
Sub Drainage Basin:	02	Modification Dates:(EDPM)	12/04/12
Water Index Number:	H-31-P44-23-P59-2		
Compact Area:	Croton		

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.)(hereinafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS

Name: NYC Department of Environmental Protection Attention: Jose A. Atkinson, Chief, WW Operations
Street: PO Box 358
City: Grahamsville State: NY Zip Code: 12740
is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name: Mahopac (V) WWTP
Location (C,T,V): Carmel (T) County: Putnam
Facility Address: Route 6 & Croton Falls Road
City: Carmel State: NY Zip Code: 10541
NYTM -E: NYTM - N:
From Outfall No.: 001 at Latitude: 41 ° 22 ' 53 " & Longitude: 73 ° 43 ' 24 "
into receiving waters known as: Mud Pond Brook Class: A(TS)
and; (list other Outfalls, Receiving Waters & Water Classifications)

in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth this permit; and 6 NYCRR Part 750-1.2(a) and 750-2.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name: NYC Department of Environmental Protection
Street: PO Box 358
City: Grahamsville State: NY Zip Code: 12740
Responsible Official or Agent: Jose A. Atkinson, Chief, WW Operations Phone: (845) 334-7199

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:

CO BWP - Permit Coordinator
R3 - S. Karimipour / E. Shirkey
EPA Region II - Michelle Josilo
Putnam Co Health Dept

Deputy Regional Permit Administrator: John W. Petronella	
Address: 21 South Putt Corners Rd New Paltz, NY 12561	
Signature:	Date: 12 / 4 / 12

PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

L:\DCW\SPDESFORMS\REORGANIZED PERMIT FORMS\0 Easy permits\Ind EZ.wpd

OUTFALL	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
	This cell describes the type of wastewater authorized for discharge. Examples include process or sanitary wastewater, storm water, non-contact cooling water.	This cell lists classified waters of the state to which the listed outfall discharges.	The date this page starts in effect. (e.g. EDP or EDPM)	The date this page is no longer in effect. (e.g. ExDP)

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQ.	SAMPLE TYPE
e.g. pH, TRC, Temperature, D.O.	The minimum level that must be maintained at all instants in time.	The maximum level that may not be exceeded at any instant in time.	SU, °F, mg/l, etc.		

PARA-METER	EFFLUENT LIMIT	PRACTICAL QUANTITATION LIMIT (ML)	ACTION LEVEL	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Limit types are defined below in Note 1. The effluent limit is developed based on the more stringent of technology-based standards, required under the Clean Water Act, or New York State water quality standards. The limit has been derived based on existing assumptions and rules. These assumptions include receiving water hardness, pH and temperature; rates of this and other discharges to the receiving stream; etc. If assumptions or rules change the limit may, after due process and modification of this permit, change.	For the purposes of compliance assessment, the analytical method specified in the permit shall be used to monitor the amount of the pollutant in the outfall to this level, provided that the laboratory analyst has complied with the specified quality assurance/quality control procedures in the relevant method. Monitoring results that are lower than this level must be reported, but shall not be used to determine compliance with the calculated limit. This ML can be neither lowered nor raised without a modification of this permit.	Action Levels are monitoring requirements, as defined below in Note 2, that trigger additional monitoring and permit review when exceeded.	This can include units of flow, pH, mass, Temperature, concentration. Examples include µg/l, lbs/d, etc.	Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly.	Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period.

Note 1: DAILY DISCHARGE: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day. DAILY MAX: The highest allowable daily discharge. DAILY MIN: The lowest allowable daily discharge. MONTHLY AVG (daily avg): The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. RANGE: The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown. 7 DAY ARITHMETIC MEAN (7 day average): The highest allowable average of daily discharges over a calendar week. 12 MRA (twelve month rolling avg): The average of the most recent twelve month's monthly averages. 30 DAY GEOMETRIC MEAN (30 d geo mean): The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of : the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. 7 DAY GEOMETRIC MEAN (7 d geo mean): The highest allowable geometric mean of daily discharges over a calendar week.

Note 2: ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards. The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results in excess of the stated Action Level.

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
001	June 1 – October 31	Mud Pond Brook	EDPM	12/31/16

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
								Location		
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
Flow	Monthly average	0.3	mgd			Continuous	Recorder	x	x	(1)
$CBOD_5$	Daily max	5.0	mg/l	12.5	lbs/d	1/month	6-hr comp	x	x	(2)
Solids, Suspended	Daily max	10	mg/l	25.0	lbs/d	1/month	6-hr comp	x	x	(2)
Solids, Settleable	Daily max	0.1	ml/l			1/day	Grab	x	x	
pH	Range	6.5 - 8.5	SU			1/day	Grab	x	x	
Ammonia (as NH3)	Monthly average	1.1	mg/l			1/month	6-hr comp		x	
Total Nitrogen (as N)	Monitor					1/3 months	6-hr comp		x	
Phosphorus (as P)	Monthly average	0.25	mg/l			1/month	6-hr comp		x	
Phosphorus (as P)	12 mo rolling avg	0.20	mg/l			1/month	6-hr comp		x	
Dissolved Oxygen	Daily min	7.0	mg/l			1/day	Grab		x	
Effluent Disinfection required: [x] All Year [ ] Seasonal from _____ to										
Coliform, Fecal	30 day geometric mean	200	No./ 100 ml			1/month	Grab		x	
Coliform, Fecal	7 day geometric mean	400	No./ 100 ml			1/month	Grab		x	
Chlorine, Total Residual	Daily max	0.1	mg/l			1/day	Grab		x	(3)
Giardia Lamblia, Cysts									x	(4)
Enteric Viruses									x	(4)
Turbidity			NTU			Continuous	Recorder		x	(5)

	EFFLUENT LIMIT		PQL	MONITORING ACTION LEVEL		UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FN
	Monthly Avg.	Daily Max.	Daily Max.	TYPE I	TYPE II				
Temperature				70		Deg F	1/day	Grab	(7)

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
001	November 1 - May 31	Mud Pond Brook	EDPM	12/31/16

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
								Location		
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
Flow	Monthly average	0.3	mgd			Continuous	Recorder	x	x	(1)
UOD	Daily max	25	mg/l	63	lbs/d					(6)
$CBOD_5$						1/month	6-hr comp	x	x	
Solids, Suspended	Daily max	10	mg/l	25.0	lbs/d	1/month	6-hr comp	x	x	(2)
Solids, Settleable	Daily max	0.1	ml/l			1/day	Grab	x	x	
pH	Range	6.5 - 8.5	SU			1/day	Grab	x	x	
Ammonia (as NH3)	Monthly average	2.2	mg/l			1/month	6-hr comp		x	
Total Nitrogen (as N)	Monitor					1/3 months	6-hr comp		x	
Nitrogen, TKN (as N)						1/month	6-hr comp		x	
Phosphorus (as P)	Monthly average	0.25	mg/l			1/month	6-hr comp		x	
Phosphorus (as P)	12 mo rolling avg	0.20	mg/l			1/month	6-hr comp		x	
Dissolved Oxygen	Daily min	7.0	mg/l			1/month	Grab		x	
Effluent Disinfection required: [x] All Year [ ] Seasonal from _____ to										
Coliform, Fecal	30 day geometric mean	200	No./ 100 ml			1/month	Grab		x	
Coliform, Fecal	7 day geometric mean	400	No./ 100 ml			1/month	Grab		x	
Chlorine, Total Residual	Daily max	0.1	mg/l			1/day	Grab		x	(3)
Giardia Lamblia, Cysts									x	(4)
Enteric Viruses									x	(4)
Turbidity			NTU			Continuous	Recorder		x	(5)

	EFFLUENT LIMIT		PQL	MONITORING ACTION LEVEL		UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FN
	Monthly Avg.	Daily Max.	Daily Max.	TYPE I	TYPE II				
Temperature				70		Deg F	1/day	Grab	(7)

NOTES:

(1) Influent or Effluent flow monitoring required.

(2) Effluent shall not exceed 15 % and 15 % of influent concentration values for CBOD5 & TSS respectively.

(3) Total Residual Chlorine - When chlorine is used for disinfection, a minimum residual of 0.2 mg/l shall be maintained in the chlorine contact tank prior to dechlorination.

(4) Giardia Lamblia Cysts and Enteric Viruses - The facility must be capable of achieving a 99.9% removal and/or inactivation of giardia lamblia cysts and enteric viruses. The capability shall be demonstrated by maintaining the turbidity and chlorine levels specified and operating the microfiltration unit and the disinfection system on a continuous basis, in accordance with the provisions set forth in the WWTP's Operation and Maintenance Manual.

(5) Turbidity - The turbidity levels shall be maintained at less than or equal to 0.5 nephelometric turbidity units (NTU) in 95% of the measurements taken each month and an instantaneous maximum of 5.0 NTU shall not be exceeded.

(6) Ultimate Oxygen Demand shall be computed as follows:
UOD = 1 ½ x CBOD5 + 4 ½ x TKN (Total Kjeldahl Nitrogen)

(7) TEMPERATURE ACTION LEVEL REQUIREMENTS - Temperature has been reported present in the discharge but at levels that currently do not require technology or water quality based effluent limits. An Action Level of 70 degrees Fahrenheit has been established for the discharge temperature. Routinely or excessively exceeding this Action Level will result in reconsideration of technology or water quality based effluent limits. Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted.

If the discharge temperature exceeds the Action Level of 70 degrees Fahrenheit, the permittee shall undertake a short-term, high-intensity monitoring program. Samples of the receiving water upstream from the discharge in addition to those required for routine monitoring purposes shall both be taken twice per day, concurrently, on each of seven consecutive operating days and analyzed. Results shall be submitted no later than the 28th day of the month following the month during which the samples were collected. Results may be appended to a DMR or transmitted under separate cover to the same address. If levels higher than the action levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits.

If the results from the short-term, high intensity monitoring program show that the discharge temperature is both greater than 70 degrees Fahrenheit and greater than the upstream temperature on four of the seven consecutive days, the permittee shall submit a Report of Noncompliance Event form to the Department within 5 days of these events.

MONITORING LOCATIONS

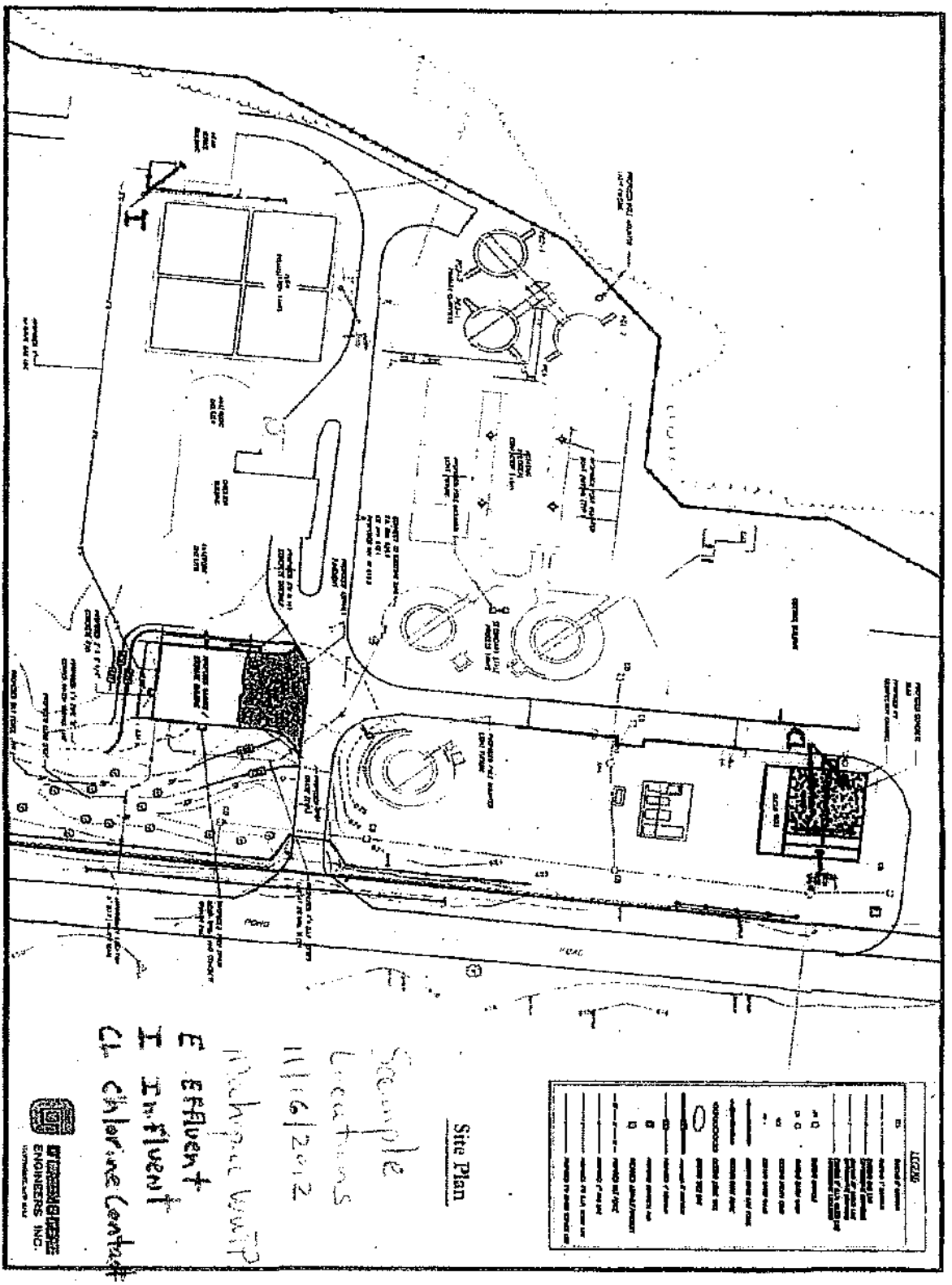
The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the location(s) specified below:

Influent Sample Point – at the influent channel before the screens and grit chamber.

Effluent Sample Point (001) – at the effluent channel weir just before wastewater flows into the final effluent pipe.

Flow Meter Location – at the influent channel; after the screens and grit chamber and before the EQ flow splitter box.

SEE NEXT PAGE FOR DIAGRAM


Site Plan
Sample Locations 11/16/2012
Effluent
Influent
Chlorine Contact Tank
ENGINEERS INC.

SCHEDULE OF COMPLIANCE

a) The permittee shall comply with the following schedule:

Outfall Number(s)	Compliance Action	Due Date
001	Permittee shall submit an approvable engineering report to assess passive cooling measures which may be implemented to reduce effluent temperature to the maximum extent practical. Such measures can be operational or physical modifications which NYCDEP believes will prove effective. The report must contain a detailed proposal and implementation schedule.	EDPM + 90 days

The above compliance actions are one time requirements. The permittee shall comply with the above compliance actions to the Department's satisfaction once. When this permit is administratively renewed by NYSDEC letter entitled "SPDES NOTICE/RENEWAL APPLICATION/PERMIT," the permittee is not required to repeat the submission(s) noted above. The above due dates are independent from the effective date of the permit stated in the letter of "SPDES NOTICE/RENEWAL APPLICATION/PERMIT."

b) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice as prescribed in 6 NYCRR Part 750-1.2(a) and 750-2. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of non-compliance shall include the following information:

1. A short description of the non-compliance;
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
3. A description or any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.

c) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer at the location listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS and to the Bureau of Water Permits, 625 Broadway, Albany, N.Y. 12233-3505, unless otherwise specified in this permit or in writing by the Department.

DISCHARGE NOTIFICATION REQUIREMENTS

a) The permittee shall maintain the existing identification signs at all outfalls to surface waters, which have not been waived by the Department in accordance with 17-0815-a. The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have **minimum** dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name:

_____

Permittee Contact:

_____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address :

NYSDEC Division of Water Regional Phone: ( ) - ### -####

b) For each discharge required to have a sign in accordance with a), the permittee shall provide for public review at a repository accessible to the public, copies of the Discharge Monitoring Reports (DMRs) as required by the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of this permit. This repository shall be open to the public, at a minimum, during normal daytime business hours. The repository may be at the business office repository of the permittee or at an off-premises location of its choice (such location shall be the village, town, city or county clerk's office, the local library or other location as approved by the Department). In accordance with the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of your permit, each DMR shall be maintained on record for a period of five years.

c) The permittee shall periodically inspect the outfall identification signs in order to ensure that they are maintained, are still visible and contain information that is current and factually correct.

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

a) 6 NYCRR Part 750 is hereby incorporated by reference and its conditions are enforceable requirements of this permit. The permittee shall comply with all conditions set forth in this permit and with 6 NYCRR Part 750, including, but not limited to: additional monitoring and reporting requirements and conditions, including noncompliance reporting.

b) The monitoring information required by this permit shall be summarized, signed and retained for a period of at least five years from the date of the sampling for subsequent inspection by the Department or its designated agent. **Also, monitoring information required by this permit shall be summarized and reported by submitting;**

[X] (if box is checked) completed and signed Discharge Monitoring Report (DMR) forms for each __1__ month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

[ ] (if box is checked) an annual report to the Regional Water Engineer at the address specified below. The annual report is due by February 1 each year and must summarize information for January to December of the previous year in a format acceptable to the Department.

[X] (if box is checked) a monthly "Wastewater Facility Operation Report..." (form 92-15-7) to the:
[X] Regional Water Engineer and/or [X] County Health Department or Environmental Control Agency specified below

Send the **original** (top sheet) of each DMR page to:
Department of Environmental Conservation
Division of Water, Bureau of Water Compliance
625 Broadway, Albany, New York 12233-3506
Phone: (518) 402-8177

Send an **additional copy** of each DMR page to:
Putnam County Health Department
1 Geneva Road
Brewster, NY 10509

Send the **first copy** (second sheet) of each DMR page to:
Department of Environmental Conservation
Regional Water Engineer, Region 3
100 Hillside Avenue, Suite 1W
White Plains, NY 10603-2860

NYC Department of Environmental Protection
465 Columbus Avenue, Suite 350
Valhalla, NY 10595

c) Monitoring and analysis shall be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

d) More frequent monitoring of the discharge(s), monitoring point(s), or waters of the State than required by the permit, where analysis is performed by a certified laboratory or where such analysis is not required to be performed by a certified laboratory, shall be included in the calculations and recording of the data on the corresponding DMRs.

e) Calculations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

f) Unless otherwise specified, all information recorded on the DMRs shall be based upon measurements and sampling carried out during the most recently completed reporting period.

g) Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be directed to the New York State Department of Health, Environmental Laboratory Accreditation Program.

Appendix D

Heritage Hills WWTP SPDES PERMIT

copy make

New York State Department of Environmental Conservation
Division of Environmental Permits
NYSDEC HEADQUARTERS
625 BROADWAY
ALBANY, NY 12233
(518) 402-9167

SPDES PERMIT RENEWAL

1/29/2019

KEITH J SORENSEN
Heritage Hills Sewage Works Corp.
PO Box 873
Southbury CT 06488-0873

Permittee Name: HERITAGE HILLS SEWAGE-WORKS CORP
Facility Name: HERITAGE HILLS STP
Ind. Code: 4952 County: WESTCHESTER
DEC ID: 3-5552-00050/00001 SPDES No.: NY0026891
Permit Effective Date: 7/1/2019
Permit Expiration Date: 6/30/2024

Dear Permittee,

The State Pollutant Elimination System (SPDES) permit renewal for the facility referenced above is approved with the new effective and expiration dates. This letter together with the previous valid permit for this facility effective on 07/01/2014 and any subsequent modifications constitute authorization to discharge wastewater in accordance with all terms, conditions and limitations specified in the previously issued permit(s).

As a reminder, SPDES permits are renewed at a central location in Albany in order to make the process more efficient. All other concerns with your permit, including applications for permit modification or transfer to a new owner, a name change, and other questions, should be directed to:

Regional Permit Administrator
NYSDEC Region 3 Headquarters
21 S Putt Corners Rd
New Paltz, NY 12561
(845) 256-3041

If you have already filed an application for modification of your permit, it will be processed separately by that office.

If you have questions concerning this permit renewal, please contact Michael R Schaefer at (518) 402-9167.

Sincerely,

Kent P. Sanders

Kent P. Sanders
Deputy Permit Administrator

cc:
RPA
BWC
RWE
File
BWP

KEITH
TROMPEL: EMAIL
COX: EMAIL

New York State Department of Environmental Conservation
Division of Environmental Permits
NYSDEC HEADQUARTERS
625 BROADWAY
ALBANY, NY 12233
(518) 402-9167

SPDES PERMIT RENEWAL

12/23/2013

MARC A BRASSARD
HERITAGE HILLS SEWAGE WORKS CORP
PO BOX 873
SOUTHBURY CT 06488-0873

Permittee Name: HERITAGE HILLS SEWAGE-WORKS CORP
Facility Name: HERITAGE HILLS STP
Ind. Code: 4952 County: WESTCHESTER
DEC ID: 3-5552-00050/00001 SPDES No.: NY0026891
Permit Effective Date: 7/1/2014
Permit Expiration Date: 6/30/2019

Dear Permittee,

The State Pollutant Elimination System (SPDES) permit renewal for the facility referenced above is approved with the new effective and expiration dates. This letter together with the previous valid permit for this facility effective on 07/01/2009 and any subsequent modifications constitute authorization to discharge wastewater in accordance with all terms, conditions and limitations specified in the previously issued permit(s).

As a reminder, SPDES permits are renewed at a central location in Albany in order to make the process more efficient. All other concerns with your permit, including applications for permit modification or transfer to a new owner, a name change, and other questions, should be directed to:

Regional Permit Administrator
NYSDEC REGION 3 HEADQUARTERS
21 SOUTH PUTT CORNERS RD
NEW PALTZ, NY 12561-1620
(845) 256-3185

If you have already filed an application for modification of your permit, it will be processed separately by that office.

If you have questions concerning this permit renewal, please contact LINDY SUE CZUBERNAT at (518) 402-9167.

Sincerely,

Stuart M. Fox

Stuart M. Fox
Deputy Chief Permit Administrator

cc:
RPA
BWC
RWE
File
BWP

#2 RECEIVED DEC 2 3 2008 Perm File

New York State Department of Environmental Conservation
Division of Environmental Permits, 4th Floor
625 Broadway, Albany, New York 12233-1750
Phone: (518) 402-9167 • FAX: (518) 402-9168
Website: www.dec.ny.gov

COPY

Alexander B. Grannis
Commissioner

DEC 1 7 2008

Mark A. Brassard
Heritage Hills of Westchester
P.O. Box 304
Somers, NY 10589

FACILITY INFORMATION

NAME: Heritage Hills Pollution Control Plant
LOCATION: Somers (T)
COUNTY: Westchester
SPDES NO: NY 002 6891
DEC ID NO.: 3-5552-00050/00001

Dear SPDES Permittee:

Enclosed please find a validated NOTICE/RENEWAL APPLICATION/PERMIT form renewing your State Pollutant Discharge Elimination System (SPDES) permit for the referenced facility. This validated form, together with the previously issued permit (see issuance date of this permit in Part 3 of the NOTICE/RENEWAL APPLICATION/PERMIT form), and any subsequent permit modifications constitute authorization to discharge wastewater in accordance with all terms, conditions and limitations specified therein.

The instructions and other information that you received with the NOTICE/RENEWAL APPLICATION/PERMIT package fully described procedures for renewal and modification of your SPDES permit under the Environmental Benefit Permit Strategy (EBPS). As a reminder, SPDES permits are renewed at a central location in Albany in order to make the process more efficient. All other concerns with your permit such as applications for permit modifications, permit transfers to a new owner, name changes, and other questions should be directed to the Regional Permit Administrator at the following address:

Margaret Duke
NYSDEC - Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696
(845)256-3054

If you have already filed an application for modification of your permit, it will be processed separately through our regional office. If you have questions concerning this permit renewal, please contact Lindy Sue Czubernat at (518) 402-9165.

Sincerely,

William R. Alrine

Chief Permit Administrator

Enclosure
cc: RPA
RWE
BWP

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
State Pollutant Discharge Elimination System (SPDES)
NOTICE / RENEWAL APPLICATION / PERMIT

RECEIVED NYSDEC 08 OCT 27

Please read ALL instructions on the back before completing this application form. Please TYPE or PRINT clearly in ink.

PART 1 - NOTICE

Date: 09/26/2008

Permittee Contact Name, Title, Address

HERITAGE HILLS OF WESTCHESTER
MARK A BRASSARD
PO BOX 304
SOMERS NY 10589

Facility and SPDES Permit Information

Name: HERITAGE HILLS POLLUTION CONTROL
Ind. Code: 8999 County WESTCHESTER
DEC No.: 3-5552-00050/00001
SPDES No.: 002 6891
Expiration Date: 07/01/2009
Application Due By: 01/02/2009

Are these name(s) & address(es) correct? If not, please write corrections above.

The State Pollutant Discharge Elimination System Permit for the facility referenced above expires on the date indicated.

Submit this application by the "Application Due By" date
listed above in order to keep continuous coverage under your permit.

CAUTION: This short application form and attached questionnaire are the only forms acceptable for permit renewal. Sign Part 2 below and mail this form and the completed questionnaire using the enclosed envelope. *Effective April 1, 1994 the Department no longer assesses SPDES application fees.*

If there are changes to your discharge, or to operations affecting the discharge, then in addition to this renewal application, you must also submit a separate permit modification application to the Regional Permit Administrator for the DEC region in which the facility is located, as required by your current permit. See the reverse side of this page for instructions on filing a modification request.

PART 2 - RENEWAL APPLICATION

CERTIFICATION: I hereby affirm that under penalty of perjury that the information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to section 210.45 of the Penal Law.

Marc A. Brassard — Name of person signing application (see instructions on back)

Vice President — Title

Marc A. Brassard — Signature

10/23/08 — Date

PART 3 - PERMIT (Below this line - Official Use Only)

Effective Date: 7/1/09 Expiration Date: 6/30/14

William R. Adriance — Permit Administrator

Address: NYSDEC - Division of Environmental Permits
625 Broadway, 4th Floor
Albany, NY 12233-1750

William R. Adriance — Signature

DEC 17 2008 — Date

This permit together with the previous valid permit for this facility issued 7/1/04 and subsequent modifications constitute authorization to discharge wastewater in accordance with all terms, conditions and limitations specified in the previously issued valid permit, modifications thereof or issued as part of this permit, including any special or general conditions attached hereto. Nothing in this permit shall be deemed to waive the Department's authority to initiate a modification of this permit on the grounds specified in 6NYCRR §621.14, 6NYCRR §754.4 or 6NYCRR §757.1 existing at the time this permit is issued or which arise thereafter.

~~Attachments: General Conditions dated ___/___~~

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONVERVATION

Please enter the numbers from your current permit	DEC ID 3 -5552 -00050 / 0001 SPDES Number NY 002 6891

QUESTIONNAIRE

for SPDES Private, Commercial & Institutional (PCI) Renewal Applications

Please answer the following questions about your discharge and return this form with your SPDES Application form. Use additional sheets as necessary.

When was your current permit issued (le:signed by a Department representative)? Date 1 / 7 / 04

Yes	No	
☒	☐	Has the SPDES permit for your facility been modified in the past 5 years?
☒	☐	Have any changes been made to your disposal system? If yes, please describe: Replace Vacuum filter with new gravity belt thickener.
☐	☒	Has there been an increase in wastewater discharge quantities to or from your disposal system above what was listed (see design flow) on your permit? If yes, explain:
☒	☐	Have there been a physical expansion or other modifications to your facility? If yes, please describe: Yes - Please see attachment #1
☐	☒	Has there been a change in the type, size or nature of the activity or business being conducted at your facility? If yes, please describe:

Heritage Hills Sewage Works Corp. Memorandum

To: Keith Sorensen
From: Marc A. Brassard MAB
Date: 12/22/08
Re: Sewer Plant Permit
c.c. Mike Tremper, Bob Cox

Attached is a copy of the renewed DEC (SPDES) permit for the Heritage Hills Sewage Plant.
The permit is effective on July 1, 2009 with an expiration date of June 30, 2014.

RECEIVED DEC 0 1 2008

M. Kerper

New York State Department of Environmental Conservation
Division of Environmental Permits, 4th Floor
625 Broadway, Albany, New York 12233-1750
Phone: (518) 402-9167 • FAX: (518) 402-9168
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

YOUR PERMIT IS ENCLOSED
IMPORTANT NOTICE TO ALL PERMITTEES

The permit you requested is enclosed. Please read it carefully and note the conditions that are included in it. The permit is valid for only that activity expressly authorized therein; work beyond the scope of the permit may be considered a violation of law and be subject to appropriate enforcement action. Granting of this permit does not relieve the permittee of the responsibility of obtaining any other permission, consent or approval from any other federal, state, or local government which may be required.

Please note the expiration date of the permit. Applications for permit renewal should be made well in advance of the expiration date (minimum of 30 days) and submitted to the Regional Permit Administrator at the above address. For SPDES, Solid Waste and Hazardous Waste Permits, renewals must be made at least 180 days prior to the expiration date.

The DEC permit number & program ID number noted on page 1 under "Permit Authorization" of the permit are important and should be retained for your records. These numbers should be referenced on all correspondence related to the permit, and on any future applications for permits associated with this facility/project area. If a permit notice sign is enclosed, you must post it at the work site with appropriate weather protection, as well as a copy of the permit per General Condition 1.

If the permit is associated with a project that will entail construction of new water pollution control facilities or modifications to existing facilities, plan approval for the system design will be required from the appropriate Department's regional Division of Water or delegated local Health Department, as specified in the State Pollutant Discharge Elimination System (SPDES) permit.

If you have any questions on the extent of work authorized or your obligations under the permit, please contact the staff person indicated below or the Division of Environmental Permits at the above address.

25 OCT 2008

Andrea Sheeran
Environmental Analyst I
Division of Environmental Permits, Central Office & Region 3
Telephone (518) 402-9179 // (845) 256-3801

Attachments:
-Permit

Cc w/ Attachments:
CO BWP - Permit Coordinator
T. Rudolph, E. Zicca- R3 DOW WP
EPA Region II -Michelle Josilo
NYSEFC
NYCDEP (Valhalla)
Westchester Co. Health Dept.
R3 Chron- NP
File

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)
DISCHARGE PERMIT

Industrial Code: 8999
Discharge Class (CL): 02
Toxic Class (TX): N
Major Drainage Basin: 13
Sub Drainage Basin: 02
Water Index Number: H-31-P44-18
Compact Area: Croton

SPDES Number: NY- 0026891
DEC Number: 3-5552-00050-00001
Effective Date (EDP): 07/01/04
Expiration Date (ExDP): 07/01/09
Modification Dates:(EDPM) 11/01/08

Fin93.99

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.)(hereinafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS

Name: Heritage Hills Sewage Works Corp.
Street: Heritage Hills Drive
City: Somers
Attention: Marc A. Brassard, Vice President
State: NY Zip Code: 10589

is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name: Heritage Hills Pollution Control Plant
Location (C,T,V): (T) Somers
Facility Address: Heritage Hills Drive
County: Westchester
City: Somers
State: NY Zip Code: 10589
NYTM -E:
NYTM - N: 4
From Outfall No.: 001 at Latitude: 41 ° 19 ′ 31 ″ & Longitude: 73 ° 41 ′ 40 ″
into receiving waters known as: Brown Brook Class: C(T)
and; (list other Outfalls, Receiving Waters & Water Classifications)
NYSDEC has determined that this facility discharges to an intermittent stream as defined in the NYC WR&R.

in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth in this permit; and 6 NYCRR Part 750-1.2(a) and 750-2.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name: CAMO Pollution Control
Street: 1910 Route 376
City: Wappingers Falls
State: NY Zip Code: 12572
Responsible Official or Agent: Michael Tremper
Phone: (914) 463-7310

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:

CO BWP - Permit Coordinator
T. Rudolph, E. Zicca
RPA
EPA Region II - Jeffrey Gratz
NYSEFC
NYCDEP (Valhalla)
Westchester Co. Health Dept.

Permit Administrator: William R. Adriance, Chief Permit Administrator	
Address: 625 Broadway, 4th Floor Albany, NY 12233-1750	
Signature: William R. Adriance	Date: 10/20/08

PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

OUTFALL	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
	This cell describes the type of wastewater authorized for discharge. Examples include process or sanitary wastewater, storm water, non-contact cooling water.	This cell lists classified waters of the state to which the listed outfall discharges.	The date this page starts in effect. (e.g. EDP or EDPM)	The date this page is no longer in effect. (e.g. ExDP)

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQ.	SAMPLE TYPE
e.g. pH, TRC, Temperature, D.O.	The minimum level that must be maintained at all instants in time.	The maximum level that may not be exceeded at any instant in time.	SU, °F, mg/l, etc.		

PARA-METER	EFFLUENT LIMIT	PRACTICAL QUANTITATION LIMIT (PQL)	ACTION LEVEL	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Limit types are defined below in Note 1. The effluent limit is developed based on the more stringent of technology-based standards, required under the Clean Water Act, or New York State water quality standards. The limit has been derived based on existing assumptions and rules. These assumptions include receiving water hardness, pH and temperature; rates of this and other discharges to the receiving stream; etc. If assumptions or rules change the limit may, after due process and modification of this permit, change.	For the purposes of compliance assessment, the analytical method specified in the permit shall be used to monitor the amount of the pollutant in the outfall to this level, provided that the laboratory analyst has complied with the specified quality assurance/quality control procedures in the relevant method. Monitoring results that are lower than this level must be reported, but shall not be used to determine compliance with the calculated limit. This PQL can be neither lowered nor raised without a modification of this permit.	Type I or Type II Action Levels are monitoring requirements, as defined below in Note 2, that trigger additional monitoring and permit review when exceeded.	This can include units of flow, pH, mass, Temperature, concentration. Examples include µg/l, lbs/d, etc.	Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly.	Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period.

Note 1: DAILY DISCHARGE: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day. DAILY MAX: The highest allowable daily discharge. DAILY MIN: The lowest allowable daily discharge. MONTHLY AVG (daily avg): The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. RANGE: The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown. 7 DAY ARITHMETIC MEAN (7 day average): The highest allowable average of daily discharges over a calendar week. 12 MRA (twelve month rolling avg): The average of the most recent twelve month's monthly averages. 30 DAY GEOMETRIC MEAN (30 d geo mean): The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of: the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. 7 DAY GEOMETRIC MEAN (7 d geo mean): The highest allowable geometric mean of daily discharges over a calendar week.

Note 2: ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards. TYPE I: The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results in excess of the stated Action Level. TYPE II: The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results that show the stated action level exceeded for four of six consecutive samples, or for two of six consecutive samples by 20 % or more, or for any one sample by 50 % or more.

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
001	All year unless otherwise noted	Brown Brook	11/01/2008	(1)

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Influent	Location Effluent	
Flow	Monthly avg	0.702	mgd			Continuous	Recorder		X	
$CBOD_5$	Daily max	5.0	mg/l	29.3	lbs/d	1/week	6-hr comp		X	
Solids, Suspended	Daily max	5.0	mg/l	29.3	lbs/d	1/week	6-hr comp		X	
Solids, Settleable	Daily max	0.1	ml/l			1/day	Grab		X	
pH	Range	6.0 - 9.0	SU			1/day	Grab		X	
Ammonia (as NH3)	Daily max	2.0	mg/l			1/week	6-hr comp		X	
Phosphorus, Total (as P)	Daily max	1.0	mg/l			1/week	6-hr comp		X	
Temperature	Monitor		Deg F			1/day	Grab		X	
Dissolved Oxygen	Daily min	7.0	mg/l			1/day	Grab		X	
Effluent Disinfection required: [X] All Year [ ] Seasonal from _____ to _____										
Coliform, Fecal	30 day geometric mean	200	No./ 100 ml			1/week	Grab		X	
Coliform, Fecal	7 day geometric mean	400	No./ 100 ml			1/week	Grab		X	
Chlorine, Total Residual	Daily max	0.1	mg/l			1/day	Grab		X	(2)
Chlorine Residual (in Contact Tank)	Daily min	0.5	mg/l			1/day	Grab			(2)

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
001	All year unless otherwise noted	Brown Brook	(1)	07/01/09

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Influent	Location Effluent	
Flow	Monthly avg	0.702	mgd			Continuous	Recorder		X	
$CBOD_5$	Daily max	5.0	mg/l			1/week	6-hr comp		X	
Solids, Suspended	Daily max	5.0	mg/l			1/week	6-hr comp		X	
Solids, Settleable	Daily max	0.1	ml/l			1/day	Grab		X	
pH	Range	6.5 - 8.5	SU			1/day	Grab		X	
Ammonia (as NH3) (June 1 - October 31)	Daily max	1.1	mg/l			1/week	6-hr comp		X	
Ammonia (as NH3) (Nov 1 - May 31)	Daily max	2.0	mg/l			1/week	6-hr comp		X	
Phosphorus, Total (as P)	Monthly avg	0.2	mg/l			1/week	6-hr comp		X	
Temperature (May 1 - Sept 30)	Monitor	70	Deg F			1/day	Grab		X	(3)
Dissolved Oxygen	Daily min	7.0	mg/l			1/day	Grab		X	
Effluent Disinfection required: [X] All Year [ ] Seasonal from _____ to _____										
Coliform, Fecal	30 day geometric mean	200	No./ 100 ml			1/week	Grab		X	
Coliform, Fecal	7 day geometric mean	400	No./ 100 ml			1/week	Grab		X	
Chlorine, Total Residual	Daily max	0.1	mg/l			1/day	Grab		X	(2)

FOOTNOTES:

(1) Six months from the date of NYCDEP certification of functional completion of the facility's upgrade.

(2) Monitoring is only required if chlorine is used for disinfection.

(3) TEMPERATURE ACTION LEVEL REQUIREMENTS
Temperature has been reported present in the discharge but at levels that currently do not require technology or water quality based effluent limits. An Action Level of 70 degrees Fahrenheit has been established for the discharge temperature. Routinely or excessively exceeding this Action Level will result in reconsideration of technology or water quality based effluent limits. Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted.

(3) TEMPERATURE ACTION LEVEL REQUIREMENTS (continued)

If the discharge temperature exceeds the Action Level of 70 degrees Fahrenheit, the permittee shall undertake a short-term, high-intensit monitoring program. Samples of the receiving water upstream from the discharge in addition to those required for routine monitoring purpose shall both be taken twice per day, concurrently, on each of seven consecutive operating days and analyzed. Results shall be submitted no late than the 28th day of the month following the month during which the samples were collected. Results may be appended to a DMR o transmitted under separate cover to the same address. If levels higher than the action levels are confirmed, the permit may be reopened b the Department for consideration of revised Action Levels or effluent limits.

If the results from the short-term, high intensity monitoring program show that the discharge temperature is both greater than 70 degree Fahrenheit and greater than the upstream temperature on four of the seven consecutive days, the permittee shall submit a Report o Noncompliance Event form to the Department within 5 days of these events.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR PATHOGEN REDUCTION

During the period beginning startup of new treatment plant + 6 months the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations Monthly Avg.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 001				
Giardia Lamblia, Cysts	(Note 1)	NA	NA	NA
Enteric Viruses	(Note 1)	NA	NA	NA
Turbidity	(Note 2)	NTU	Continuous	Recorder
Chlorine Residual	(Note 3)	Mg/l	1/day	Grab

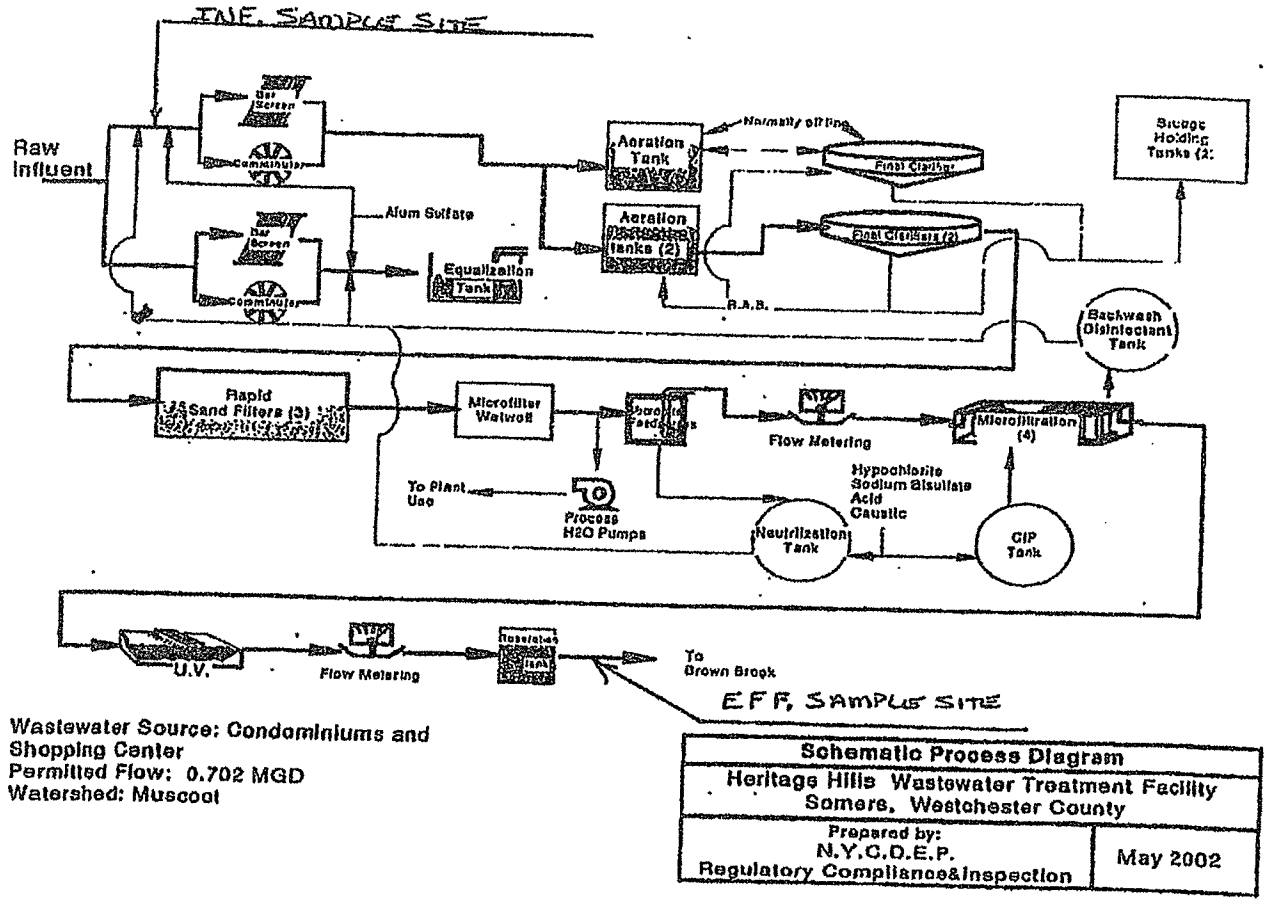
Note 1 - The facility must be capable of achieving a 99.9% removal and/or inactivation of giardia lamblia cysts and enteric viruses. The capability shall be demonstrated by maintaining the turbidity and chlorine levels specified and operating the microfiltration unit and the disinfection system on a continuous basis, in accordance with the provisions set forth in the WWTP's Operation and Maintenance Manual.

Note 2 - The turbidity levels shall be maintained at less than or equal to 0.5 NTU in 95% of the measurements taken each month and an instantaneous maximum of 5.0 NTU shall not be exceeded.

Note 3 - When chlorine is used for disinfection, a minimum residual of 0.2 mg/l shall be maintained in the chlorine contact tank prior to dechlorination.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, a the location(s) specified below:



Wastewater Source: Condominiums and Shopping Center
Permitted Flow: 0.702 MGD
Watershed: Muscoot

Schematic Process Diagram	
Heritage Hills Wastewater Treatment Facility Somers, Westchester County	
Prepared by: N.Y.C.D.E.P. Regulatory Compliance&Inspection	May 2002

Influent Sample Point - at influent sewer manhole before the comminutor.

Effluent Sample Point (001) - at effluent end of post-aeration chamber.

DISCHARGE NOTIFICATION REQUIREMENTS

a) The permittee shall maintain the existing identification signs at all outfalls to surface waters, which have not been waived by the Department in accordance with ECL 17-0815-a. The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have minimum dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address :

NYSDEC Division of Water Regional Phone: ( ) - ### -####

b) For each discharge required to have a sign in accordance with a), the permittee shall provide for public review at a repository accessible to the public, copies of the Discharge Monitoring Reports (DMRs) as required by the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of this permit. This repository shall be open to the public, at a minimum, during normal daytime business hours. The repository may be at the business office repository of the permittee or at an off-premises location of its choice (such location shall be the village, town, city or county clerk's office, the local library or other location as approved by the Department). In accordance with the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of your permit, each DMR shall be maintained on record for a period of five years.

c) The permittee shall periodically inspect the outfall identification signs in order to ensure that they are maintained, are still visible and contain information that is current and factually correct.

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

a) The permittee shall also refer to 6 NYCRR Part 750-1.2(a) and 750-2 for additional information concerning monitoring and reporting requirements and conditions.

b) The monitoring information required by this permit shall be summarized, signed and retained for a period of three years from the date of the sampling for subsequent inspection by the Department or its designated agent. Also, monitoring information required by this permit shall be summarized and reported by submitting;

[X] (if box is checked) completed and signed Discharge Monitoring Report (DMR) forms for each 1 month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

[ ] (if box is checked) an annual report to the Regional Water Engineer at the address specified below. The annual report is due by February 1 and must summarize information for January to December of the previous year in a format acceptable to the Department.

[X] (if box is checked) a monthly "Wastewater Facility Operation Report..." (form 92-15-7) to the:
[X] Regional Water Engineer and/or [X] County Health Department or Environmental Control Agency specified below

Send the original (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water
Bureau of Watershed Compliance Programs
625 Broadway
Albany, New York 12233-3506

Phone: (518) 402-8177

Send the first copy (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer
100 Hillside Avenue, Suite 1W
White Plains, NY 10603

Phone: (914) 428-2505

Send an additional copy of each DMR page to:

Westchester County Health Department
145 Huguenot Street
New Rochelle, NY 10801

NYC Department of Environmental Protection
465 Columbus Avenue, Suite 350
Valhalla, NY 10595

c) Noncompliance with the provisions of this permit shall be reported to the Department as prescribed in 6 NYCRR Part 750-1.2(a) and 750-2.

d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

e) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculations and recording of the data on the Discharge Monitoring Reports.

f) Calculation for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

g) Unless otherwise specified, all information recorded on the Discharge Monitoring Report shall be based upon measurements and sampling carried out during the most recently completed reporting period.

h) Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section five hundred two of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be sent to the Environmental Laboratory Accreditation Program, New York State Health Department Center for Laboratories and Research, Division of Environmental Sciences, The Nelson A. Rockefeller Empire State Plaza, Albany, New York 12201.

Appendix E

Phosphorus Offset

New WWTP

Section 18-61, Variances, of the NYCDEP R & R also state that if a variance for a new or expanded WWTP is approved, the variance will only be granted if the conditions in the area to be served by the new or expanded WWTP are resulting in the release or discharge of inadequately treated sewage into the water supply or there is a 2 to 1 phosphorus offset within the same watershed basin as the WWTP. Specifically, each one kilogram (or pound) of phosphorus loading in the proposed WWTP design flow must be offset by a 2 kilogram (or pound) of reduction in phosphorus loading within the WWTP's discharge basin. Though some of the flows may be eligible for the variance without the 2 to 1 phosphorus offset, the calculations below assume the offset applied to the full flow.

The following calculation shows the existing phosphorus loading from the existing Society Hill WWTP (total phosphorus TP) final effluent limit from their SPDES permit for 22,500 gpd and a TP effluent limit of 1.0 mg (L):

$$22{,}500\ \frac{\text{gallons}}{\text{day}} \div 1{,}000{,}000\ \frac{\text{gallons}}{\text{day}} \times \frac{1.0\ \text{mg}}{\text{L}} \times \frac{8.34\ \text{lbs}}{\text{million gallons}} \times \frac{365\ \text{days}}{\text{year}} = 68.5\ \frac{\text{lbs}}{\text{yr}}\ \text{of P}$$

The following calculation shows the existing phosphorus loading from the existing Mahopac Village Center WWTP (total phosphorus TP) final effluent limit from their SPDES permit for 18,000 gpd and a TP effluent limit of 1.0 mg (L):

$$18{,}000\ \frac{\text{gallons}}{\text{day}} \div 1{,}000{,}000\ \frac{\text{gallons}}{\text{day}} \times \frac{1.0\ \text{mg}}{\text{L}} \times \frac{8.34\ \text{lbs}}{\text{million gallons}} \times \frac{365\ \text{days}}{\text{year}} = 54.8\ \frac{\text{lbs}}{\text{yr}}\ \text{of P}$$

As seen above, the existing combined phosphorus discharge from the Society Hill WWTP and Mahopac Village Center WWTP is 123.3 pounds per year. These plants would be taken offline if the new plant is built.

The following calculation shows the proposed wastewater treatment plant phosphorus loading required assuming a daily flow of 300,000 gallons per day, and a TP effluent limit of 0.06 mg/L:

$$300{,}000\ \frac{\text{gallons}}{\text{day}} \div 1{,}000{,}000\ \frac{\text{gallons}}{\text{day}} \times \frac{0.06\ \text{mg}}{\text{L}} \times \frac{8.34\ \text{lbs}}{\text{million gallons}} \times \frac{365\ \text{days}}{\text{year}} = 54.8\ \frac{\text{lbs}}{\text{yr}}\ \text{of P}$$

As demonstrated above, the 2 to 1 phosphorus offset could be provided by setting the new WWTP effluent limit for TP to 0.06 mg/L. NYSDEC has permitted a phosphorus limit as low as 0.05 mg/L.