

MAP, PLAN & REPORT

SPRING LAKE SEWER DISTRICT

Town of Ulster
Ulster County, New York

JULY 2020

Town Board

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I. BACKGROUND

The Town of Ulster plans to establish a Sewer District in the Spring Lake area of the Town, immediately south of the City of Kingston. The Town received a grant from NYSHCR Office of Community Renewal Small Cities to assist in funding of the capital improvements.

The Spring Lake area is depicted on the topographic map in Exhibit 1. The Spring Lake area of the Town of Ulster is located in the southern portion of the township, bordered generally to the north by the City of Kingston, to the west by the New York State Thruway (I-87), and to the south and east by other portions of the Town of Ulster. Lucas Avenue, the county road (CR 1) that serves the area, is proposed to be the location of the main sewer line to convey wastewater to the public sewer.

The proposed project will be served via a new series of sewers that will be owned by the Town of Ulster and operated by the Town of Ulster Wastewater Department, but would be tributary to the City of Kingston sewer collection system. The City of Kingston sewer collection system conveys wastewater to the City of Kingston Wastewater Treatment Facility (WWTF). The City of Kingston WWTF serves the City of Kingston, population 23,893 (2010 census). The City of Kingston WWTF had a major expansion in 1998 and has undergone several other improvement projects since 1998. The most recent comprehensive review of the City of Kingston WWTF was performed by Malcom Pirnie/Arcadis in August 2013. At that time, a review of the flows at the City of Kingston WWTF yielded an average flow of 5.0 Million gallons per day (MGD). The WWTF has a permitted flow (SPDES Permit No. 3-5108-00044-0003) and design capacity of 6.8 MGD. This can be summarized as follows:

Collection / Conveyance System:	Gravity Sewers, Pump Stations, Force Mains
WWTF Treatment:	Secondary Treatment
Discharge Location:	Rondout Creek
WWTF Treatment Capacity:	6.8 MGD
Current Treatment Plant Flow:	5.0 MGD

There are unused allocations of flow capacity for the Port Ewen Sewer District (Town of Esopus) and the Washington Avenue Sewer District (Town of Ulster) that are tributary to the City of Kingston WWTF. These commitments could, over time, lead to an additional flow demand of 0.34 MGD. If in the future, this additional flow is realized, the Kingston WWTF will have a remaining capacity of 1.46 MGD.

The Town of Ulster has access to the unused capacity of the Washington Avenue Sewer District via an inter-municipal agreement. The existing inter-municipal agreement between the Town of Ulster and the City of Kingston provided for 75,000 gallons per day (gpd) of wastewater capacity, with an option to purchase an additional 75,000 gpd of wastewater capacity at the City of Kingston WWTF via the City of Kingston sewage collection system. Of this 75,000 gpd, the Town of Ulster is using approximately 5,000 to 6,000 gpd of this allotment. The Spring Lake Sewer District

Phase I would utilize approximately 20,000 gpd of the available capacity.

As previously noted, the Spring Lake area currently relies on septic systems for the disposal of sanitary sewage. Historically, the Spring Lake area has a location of known sewage disposal system problems. It is the intent of the Town of Ulster to transfer unused flow allocations from the Washington Avenue Sewer District as noted above, to service the proposed Spring Lake Sewer District. The proposed Spring Lake Sewer District Phase I will encompass approximately 65 acres. Based upon the following breakdown, it will include a total of 111 existing residences and 2 existing commercial properties or equivalent dwelling units (edus). Since the businesses located in the extension area are small businesses with flow similar to those of one or two single family residences, and each business has approximately 2 tenants, they will be considered as two edus each for the purpose of this report. The following land uses are included in the extension area: mobile home park, one family year round residences, two family year round residences, commercial multi-purpose structure, vacant land, and commercial with convenience market, retail, and gas station, and vacant land. Below is a summary of the composition of the proposed service area:

846. 62 Mobile Home Park Residencies	(62 edus)
848. 45 Single Family Homes	(45 edus)
850. 2 Two Family Homes	(4 edus)
852. 2 Vacant Residential Undeveloped Buildable Lots	(2 edus)
854. 2 Commercial Business Properties	(4 edus)

The service area/District Boundary is depicted in Exhibit 3.

II. PROPOSED EXTENSIONS OF SANITARY SEWER SERVICE -CAPITAL COST

The Spring Lake Sewer District Phase I as depicted in Exhibit 2 will be a low pressure sewer (LPS) system fed via individual grinder pump stations for each property. The conveyance system will consist of a low pressure force main of 3" diameter and 4" diameter high density polyethylene pipe. Occupied parcels will be serviced in the immediate future via grinder pump stations that will be tributary to the LPS collection system. Modeling will be performed on all occupied and vacant parcels in the proposed district system assuming that all parcels will have grinder pump stations in the future. The grinder pump stations will be equipped with semi-positive displacement, progressive cavity grinder pumps. The progressive cavity grinder pumps will discharge a finely ground slurry into small diameter pressure piping constituting the manifolded force main. All downstream piping will be under low pressure until the gravity portion of the City of Kingston sewer collection system.

The LPS conveyance system will be comprised of the following components: 2960 lineal feet of 2 "and 3" diameter high density polyethylene (HDPE) force main, 550 lineal feet of 4" diameter HDPE force main, terminal and intermediate flushing connections, valve assemblies and appurtenances, and stubs for future connections. As noted previously, individual grinder pump stations will be provided for each occupied premises. These units will be specified for the affected properties based upon design flows. Unit capacities for these LPS grinder pump stations will range from 700 gpd to 6,000 gpd, depending on the type of properties served.

The LPS system will general serve all properties in the Spring Lake Mobile Home Park, all properties that currently lack a sewer connection on Golf Terrace and Catskill Avenue, and designated properties on Lucas Avenue. The installation of the LPS system to provide a public sewer will be a dramatic improvement over the existing collection of individual property sewage disposal systems, most of which have reached the end of their serviceable lives, are not code compliant, may be failing or malfunctioning, or are at risk of malfunctioning or failing.

TABLE 1- PROJECT CAPITAL COST ESTIMATE

Item No.	Quantity	Unit	Description of Work	Unit Price	Amount
1	1	Lump Sum	Maint. & Protection of Traffic	\$ 10,000.00	\$ 10,000.00
2	1	Lump Sum	Site Preparation	\$ 10,000.00	\$ 10,000.00
3	1	Lump Sum	Erosion & Sediment Control	\$ 10,000.00	\$ 10,000.00
4	550	LF	4" Dia. HDPE Low Pressure by Open Cutting / Directional Drilling	\$ 60.00	\$ 33,000.00
5	1,835	LF	3" Dia. HDPE Low Pressure by Open Cutting	\$ 50.00	\$ 91,750.00
6	1,025	LF	2" Dia. HDPE Low Pressure FM by Open Cutting	\$ 50.00	\$ 51,250.00
7	200	CY	Trench Rock Excavation	\$ 130.00	\$ 26,000.00
8	400	CY	Backfill	\$ 32.50	\$ 13,000.00
9	5	Each	3" Ball Valve Assembly (Furnished and Installed)	\$ 625.00	\$ 3,125.00
10	5	Each	4" Ball Valve Assembly (Furnished and Installed)	\$ 850.00	\$ 4,250.00
11	3	Each	In-Line Flushing Connection (Furnished and Installed)	\$ 2,500.00	\$ 7,500.00
12	3	Each	Terminal Flushing Connection (Furnished and Installed)	\$ 2,500.00	\$ 7,500.00
13	44	Each	1 1/4" Electrofusion Tapping Tees (Furnished and Installed)	\$ 200.00	\$ 8,800.00
14	440	LF	1 1/4" Dia. HDPE Service Pipe by Open Cut	\$ 40.00	\$ 17,600.00
15	2	Each	3" Air Relief Valve (Furnished and Installed)	\$ 8,975.00	\$ 17,950.00
16	20	Each	Model WH101-92 Simplex Grinder Pump Station (Furnished)	\$ 4,625.00	\$ 92,500.00
17	20	Each	Model IH091 Simplex Grinder Pump Station (Indoor) Station (Furnished)	\$ 4,150.00	\$ 83,000.00
18	12	Each	Model WH472-92 Duplex Grinder Pump Station (Furnished)	\$ 9,125.00	\$ 109,500.00
19	44	Each	Lateral Kit Assembly (Furnished and Installed)	\$ 625.00	\$ 27,500.00
20	12	Each	Lateral Kit Assembly (Furnished)	\$ 475.00	\$ 5,700.00
21	6	Each	Grinder Pump Core Units (Furnished)	\$ 2,325.00	\$ 13,950.00
22	150	Per 1000 Gal	Water	\$ 5.00	\$ 750.00
Sub-Total					\$ 644,625.00
Construction Contingencies (10% of Sub-Total)					\$ 64,462.50
Construction Sub-Total					\$ 709,087.50
Engineering Construction Inspections (5% of Construction Sub-Total)					\$ 35,455.00
Construction Total					\$ 744,542.50
Engineering Design, Survey, Bidding, and Contract Administration (12% of Construction Total)					\$ 74,454.00
Grant Administration Services (Lump Sum)					\$ 30,000.00
Technical and Administrative Total					\$ 104,454.00
TOTAL CAPITAL COST					\$ 848,996.50
					Call \$850,000

TOTAL PROJECTED CAPITAL COST	\$ 850,000.00
Purchase of Capacity from WASHINGTON AVENUE SEWER DISTRICT (15,000 GPD)	\$ 70,000.00
TOTAL ADJUSTED CAPITAL COST	\$ 920,000.00
Less CDBG Funding	\$ 750,000.00
Net Local Share of Project To be Financed	\$ 170,000.00

A. Capital Cost Repayment

The primary capital improvements are proposed to be funded entirely by a grant from the State of New York. There will be a local share with a projected maximum cost of \$170,000. which will be bonded over twenty years. Payments will be collected based on a benefit formula.

B. Operating and Maintenance Costs (annual)

Current charges in the City of Kingston are \$8.30 per 1000 gallons, and the surcharged rate to the Town of Ulster/Spring Lake Sewer District would be \$8.72 per 1000 gallons. There will be annual costs associated with the Town operations, including: flushings, inspections and administration.

For this purpose, we estimate the sewer rate to be:

2020 Estimated Rates

City of Kingston Charges: \$ 8.72/1000 gallons

Town of Ulster Expenses: \$ 1.28/1000 gallons

Cost Per 1000 gallons: \$10.00

C. Debt Repayment

The local cost of the project is expected to be \$170,000.00, with annual total payments averaging \$12,240.00 per year over the life of the 20 year bond issue.

D. Total Annual Cost Per Typical Property

In reviewing the water meter readings for the subject area, water use is very low. The typical single family home in this area use 112 gallons per day. For purposes of this projection, we utilize a daily consumption of 160 gallons per day(14,600 gallons per quarter).

Debt Repayment	1 BU x \$151/BU	=	\$ 151.00
Quarterly Use Charge per Typical Homeowner:	14.6 x \$10.00	=	\$ 146.00
Annual Use Charge per Typical Homeowner:	4 qtr x \$146.00	=	\$ 584.00
Total Estimated Annual Cost for Typical Homeowner:			\$ 735.00

It is noted that this is typical and some homes will use more water than presented above.

TABLE 2 - COST PER TYPICAL SINGLE FAMILY HOME

Charge	Unit	Total
Benefit Assessment	151/Benefit Unit	\$ 151.00
User Charges	\$10/1000 gallons	\$584.00
TOTAL	Estimate based on Average	\$735.00

E. Connection Costs

Each property owner will be provided with a service lateral connection at the property line, and with a pump station kit. Connections will be arranged through the Ulster Sewer Department and grant. there is a one-time connection fee of \$75.00 for single family homes and \$150.00 for small commercial users.

It is understood that the connection fee may be waived or reimbursed out of the

Each property owner wishing to connect will be responsible for installation of the pump station and service line to the lateral., and the proper abandonment of the septic tank system. These costs will be highly variable from property to property.

TABLE 3 - ESTIMATE OF BOND ISSUE REPAYMENT
(assume 20 year bond, 4% interest)

Year	Int.	Principal	Principal	Interest	Total
	Rate	Remaining	Payment	Payment	Payment
0	4	\$170,000			\$0.00
1	4	\$161,500.00	\$8,500.00	\$6,800.00	\$15,300.00
2	4	\$153,000.00	\$8,500.00	\$6,460.00	\$14,960.00
3	4	\$144,500.00	\$8,500.00	\$6,120.00	\$14,620.00
4	4	\$136,000.00	\$8,500.00	\$5,780.00	\$14,280.00
5	4	\$127,500.00	\$8,500.00	\$5,440.00	\$13,940.00
6	4	\$119,000.00	\$8,500.00	\$5,100.00	\$13,600.00
7	4	\$110,500.00	\$8,500.00	\$4,760.00	\$13,260.00
8	4	\$102,000.00	\$8,500.00	\$4,420.00	\$12,920.00
9	4	\$93,500.00	\$8,500.00	\$4,080.00	\$12,580.00
10	4	\$85,000.00	\$8,500.00	\$3,740.00	\$12,240.00
11	4	\$76,500.00	\$8,500.00	\$3,400.00	\$11,900.00
12	4	\$68,000.00	\$8,500.00	\$3,060.00	\$11,560.00
13	4	\$59,500.00	\$8,500.00	\$2,720.00	\$11,220.00
14	4	\$51,000.00	\$8,500.00	\$2,380.00	\$10,880.00
15	4	\$42,500.00	\$8,500.00	\$2,040.00	\$10,540.00
16	4	\$34,000.00	\$8,500.00	\$1,700.00	\$10,200.00
17	4	\$25,500.00	\$8,500.00	\$1,360.00	\$9,860.00
18	4	\$17,000.00	\$8,500.00	\$1,020.00	\$9,520.00
19	4	\$8,500.00	\$8,500.00	\$680.00	\$9,180.00
20	4	\$0.00	\$8,500.00	\$340.00	\$8,840.00

Average Annual Payment = 12,240.00
 Benefit Units = 81
 Annual Cost Per BU = \$ 151

(Note: Benefit Units = 1 per single family home, 0.5 per mobile home, 2 per two family home, 2 per commercial property, 0.2 per vacant building lot.

Total Benefit Units = 62 trailers(0.5) + 41 homes(x 1) + 2 commercial (x 2) + 2 two family homes (x 2) + 1 multifamily (x2) = 81 Benefit Units

III. SUMMARY AND RECOMMENDATIONS

1. The Town of Ulster received a \$750,000. CDBG grant to support the installation of a low-pressure sewer (LPS) system in the Spring Lake area of the Town of Ulster. This grant is being used to install Phase 1 of a multi-phased master plan. The LPS system will general serve all properties in the Spring Lake Mobile Home Park, all properties that currently lack a sewer connection on Golf Terrace and Catskill Avenue, and designated properties on Lucas Avenue. The collection system will discharge to the City of Kingston sanitary sewer system on Lucas Avenue.
2. The Total Project Cost is estimated to be \$920,000., which includes the \$70,000. purchase of excess capacity from the Washington Avenue Sewer District of the Town of Ulster. After grant money, the local share of the project is estimated to be \$170,000. It is noted that the capacity from the Washington Avenue Sewer District is capacity purchased from the City of Kingston.
3. Debt retirement is estimated to be \$12,240 per year average, and payments would be made by a benefit assessment formula, as follows:

Total Benefit Units = 62 trailers(0.5) + 41 homes(x 1) + 2 commercial (x 2) + 2 two family homes (x 2) + 1 multifamily (x2) = 81 Benefit Units

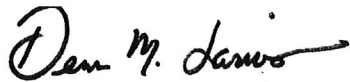
The typical single family home would be charged 1 Benefit Unit, which would equate to approximately \$151. Per year average over the life of the bond issue.
4. In addition to the Benefit Assessment, a sewer use fee would be billed quarterly based on metered water use. This would be charged at an estimated rate of \$10/1000 gallons and for the average user, this would result in annual use fees of \$ 584.00(\$146/qtr), with the bulk of this charge being used to pay the city of Kingston.
5. The district is subject to an inter-municipal agreement between the Town of Ulster and City of Kingston. This agreement is attached as Exhibit 4.
6. The annual cost for the typical single family home connected to the system is estimated as follows:

Charge	Unit	Total
Benefit Assessment	151/Benefit Unit	\$ 151.00
User Charges	\$10/1000 gallons	\$584.00
TOTAL	Estimate based on Average	\$735.00

Properties that are not connected but in the District would be subject to the Benefit Assessment charge.

Respectfully submitted,

BRINNIER AND LARIOS, P.C.

A handwritten signature in black ink, appearing to read "Dennis M. Larios", with a stylized flourish at the end.

Dennis M. Larios, P.E.

EXHIBIT 1

DESCRIPTION OF SPRING LAKE SEWER DISTRICT

see attachment

EXHIBIT 2

**SCHEMATIC MAP SHOWING PROPOSED EXTENSION
SPRING LAKE SEWER DISTRICT
(FOLD OUT)**

EXHIBIT 3

**MAP OF SEWER DISTRICT
SPRING LAKE SEWER DISTRICT
(rear folder)**

EXHIBIT 4

**INTER-MUNICIPAL
AGREEMENT**
