Weston & Sampson

Weston & Sampson, PE, LS, LA, ARCHITECTS, PC
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February 7, 2023

Mayor David McFadden
Village of Tuxedo Park
80 Lorillard Road
Tuxedo Park, NY 10987

Re: Village of Tuxedo Park
Proposal for Engineering Services
SSES - Plant Flow Assessment

Dear Mayor McFadden:

The Village of Tuxedo Park (Village) owns and operates a wastewater collection system and wastewater treatment plant (WWTP) permitted to discharge an average daily flow of 400,000 gallons per day (gpd) under SPDES Permit No. 0031216. The old static nozzle trickling filter-based secondary treatment plant was completely replaced with a new RBC facility in 2001. The old facilities remain, however, and are used as approved in the permit for management of peak wet weather flows. Significant effort has also been put into collection system improvements to address the Infiltration and Inflow (I/I) within the system due to the age of the system. Some components of the system were put into service nearly 100 years ago. I/I investigative work included a smoke testing program in the early 1990's and Closed-Circuit Television (CCTV) work conducted in 2011. Various spot repairs, pipe relining, and manhole repairs over subsequent years have been conducted to address system deficiencies identified by those programs.

WWTP flow records continue to show both extended periods of elevated average daily flows during wet seasons and short-term peak flows during rain events. In spite of the progress that has been made, the I/I problem persists. Therefore, at the NYSDEC's direction, the Village developed a comprehensive Sewer System Evaluation Survey Work Plan (Work Plan) in December of 2009 which the NYSDEC approved in February of 2010. The Work Plan provided both a summary of I/I related improvements to date and outlined a phased program designed to identify and prioritize additional I/I reduction measures system wide. The I/I Program includes the following three (3) specific phases of work:

- Phase 1: Supplemental Data Gathering and Flow Monitoring
- Phase 2: Inflow and Infiltration Investigations
- Phase 3: Remediation

The Phase 1 investigations were completed during the summer of 2010 and the report of findings submitted and subsequently accepted by the NYSDEC in January 2011. The SSES Work Plan identified 17 independent sewer sub-basins within the Village system. Under Phase 1, flows from each sub-basin were monitored during different weather and groundwater conditions to determine which sub-basins contributed the highest relative proportions of I/I. The results of the Phase 1 investigations identified sub-basins 14 and 15 as priority areas that underwent Phase 2 – Inflow and Infiltration Investigations in the spring of 2011 and Phase 3 – Remediation in the summer of 2012. In addition, sub-basin 2 was identified as a priority area having a high relative I/I component. Sub-basins 10 and 13 were not accessible during Phase 1 and were required by the NYSDEC to be investigated further. The Phase 1 report also outlined the Phase 2 program of sewer line television inspection, flow isolation, manhole inspection, home inspection, and dye testing for these sub-basins (2, 10, and 13). The purpose of these Phase 2 investigations was to identify sewer and manhole defects and inappropriate drain and sump pump connections to the sewer system. The NYSDEC then required that the defects identified within the Phase 2, Sub-basins 2, 10, and 13 report be remediated under Phase 3 repairs. These repairs have been implemented.

The Village has taken steps to reduce infiltration and inflow within its collection system and continues to make improvements. In 2018, a particularly wet year, the average daily sewage flow at the WWTP was reported in excess of 95% of the WWTP's 400,000 gpd design average flow. This resulted in issuance of a Notice of Violation (NOV)

by the NYSDEC on April 9, 2019, one of the conditions of which is to prepare and submit a Flow Management Plan no later than August 1, 2019.

As required by the April 9, 2019 NOV, the final proposed Flow Management Plan, consistent with the requirements specified within 6 NYCRR § 750-2.9(c)(1), was submitted on May 12, 2020. The final proposed Flow Management Plan was deemed acceptable via an email from the NYSDEC dated May 12, 2020. The following provides a summary of the approved Plan of Action specified in the Flow Management Plan and current status of the action items.

1. Complete Construction of Repairs to Sub-basin 2 &10 per Design
   This work will be in accordance with the current approved design. The completion schedule is contingent upon EFC project approvals.

   EFC Project Approval + 6 Months
   Currently Completed with Arold's Contract extended to include Pond 3 Trunk Sewer Repairs

2. Submit Confirmation of Completion of Sub-Basin 2 & 10 Repairs to NYSDEC
   This confirmation letter will include a summary of repairs completed reflecting any modifications that may occur during construction. This completion schedule is contingent upon the timely completion of the scheduled work by the selected contractor. The letter will incorporate detailed summaries for Sub-Basins 2 & 10 of deficiencies which will include the type, location, whether it's a source of inflow or infiltration, if it's located in the public or private segment of the collection system, and whether it has been rehabilitated. We will also include results of post construction flow isolation for Sub-Basins 2 &10 to determine the effectiveness of the rehabilitation, which will be compared to the flow isolation that was conducted during the Phase 2 investigation of these sub-basins.

   Completion of Action 1 + 2 Months
   Currently under contract, with the draft report nearing finalization.

3. Complete an Assessment of WWTP Flows Following Repairs
   This assessment will summarize daily average flows for the 6 months following completion of sub-basin 2 & 10 repairs during a wet and dry season (3 months each). This data will then be compared to historic data prior to 2010 when repairs performed under the current approved Work Plan were performed to assess the effectiveness of the work completed. We will also include results of post construction flow isolation for Sub-Basins 2 &10 to determine the effectiveness of the rehabilitation, which will be compared to the flow isolation that was conducted during the Phase 2 investigation of these sub-basins.

   Completion of Action 2 + 6 Months
   Included within this proposal

4. Submit WWTP Flow Assessment Report
   This report will summarize the Flow Assessment study and include additional proposed actions and schedule of their completion as appropriate to the report findings. A detailed summary of deficiencies within Sub-Basins 2, 10, 13, 14, & 15 will be provided which will include the type, location, whether it is a source of inflow or infiltration, if it is located in the public or private segment of the collection system, and whether it has been rehabilitated. Deficiencies that have not been rehabilitated within Sub-Basins 2, 10, 13, 14, & 15 will be discussed within the WWTP Flow Assessment Report. The report will include discussion on deficiencies within private sewers, private manholes, and connections with sump pumps or other inappropriate items. The report will include the course of action set forth by the Board of Trustees to remediate deficiencies within private laterals. The additional proposed actions in the WWTP Flow Assessment Report will include the investigations and rehabilitation of sub-basins 5, 8 & 16 regardless of the results of the flow assessment study. In the event the Village discovers another significant source of I/I, unrelated to sub-basins 5, 8, &16, that is found to contribute more I/I than Sub-Basins 5, 8, & 16, the Village requests the right to address those deficiencies first or instead of Sub-Basin 5, 8, & 16 depending on its magnitude and NYSDEC consent.

   Completion of Action 3 + 1 Month
   Included within this proposal.

   Investigation of Sub-Basins 5, 8, & 16 shall be included within a separate proposal.

Action item No. 1 is Substantially Completed as of February 2021. The contract was amended to include additional sewer remediation work for the Pond 3 Trunk Sewer which is nearing completion. The following is Weston & Sampson's proposed scope of services to assist the Village with remaining in compliance with *Action Item No. 3, Complete an Assessment of WWTP Flows following Repairs & Action Item No. 4, Submit WWTP Flow Assessment Report*, as outlined above.

SCOPE OF SERVICES

Upon written authorization to proceed, Weston & Sampson will immediately begin work which will include the following tasks.

Task 1: Historic Flow/Rain Data Collection and Analysis

This task will include collection and review of available domestic water usage, WWTP flow data, and rain data since the repairs were substantially completed within Sub-basins 2 &10. This data will be reviewed to identify correlations and develop general estimates of I/I in relation to storm magnitudes for the system as a whole. The analysis will review dry and wet weather rainfall and WWTP flow data to develop typical dry weather, moderate and heavy rainfall flow hydrographs for the WWTP. These hydrographs will be compared to estimate total inflow contributions for these storm events. This new information will be compared to the similar analysis that was conducted in 2010 with the goal of assessing the overall effectiveness of I/I remediation measures that have been implemented.

Task 2: Summary Report

Upon completion of our analysis, we will prepare a technical memorandum summarizing our analysis and findings. This technical memorandum will summarize daily average flows for the months following completion of sub-basin 2 & 10 repairs during wet and dry seasons. This data will then be compared to historic data from the originally 2010 analysis to assess the effectiveness of the work completed. We will also include results of post construction flow isolation for Sub-Basins 2 &10 to determine the effectiveness of the rehabilitation, which will be compared to the flow isolation that was conducted during the Phase 2 investigation of these sub-basins.

Owner's Responsibilities

Weston & Sampson assumes that the necessary water and wastewater treatment plant operating and performance data shall be provided by the Village in electronic (Microsoft Excel) format.

FEE SCHEDULE:

The proposed fees below include labor, equipment, materials, and expenses required to complete the scope of work as outlined above. Our proposed fees are summarized in the table below.

Project Task	Total Fee
Task 1: Historic Flow/Rain Data Collection and Analysis (Lump Sum)	$19,000
Task 2: Summary Report (Lump Sum)	$10,600
TOTAL FEE	$29,600

PAYMENT

- Project compensation will be invoiced on the basis of percent completion for lump sum tasks.
- All expenses, including travel time, mileage, communication, and reproduction costs are included in the estimated fees provided above.

PERFORMANCE SCHEDULE:

Weston & Sampson is prepared to proceed with work immediately upon execution of an agreement and receipt of written notice to proceed. The memorandum shall be completed within Sewer System Evaluation Survey Workplan Schedule identified within the above section.

GENERAL TERMS & CONDITIONS

Weston & Sampson's services will be provided as described herein and in accordance with our previously approved Term's & Conditions under our current 2020 On-Call Services Agreement. To accept this proposal, please sign below. Once signed, return a copy of each to this office.

We look forward to continuing to assist the Village with this important infrastructure project. Please feel free to call 518-463-4400 or email zongolj@wseinc.com if you have any questions.

Very truly yours,
Weston & Sampson PE, LS, LA, ARCHITECTS, PC

Joseph M. Zongol, PE
Senior Associate

ACCEPTED FOR:
Village of Tuxedo Park

Accepted by: _____

Title: _____

Date: _____

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