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April 18, 2014

Mayor Mark Epley and Board of Trustees
Inc. Village of Southampton
23 Main Street
Southampton, New York 11968

**Re: Formation of the Village of Southampton Sewer System
Proposal for Professional Engineering and Planning Services
H2M File No.: LP14-0457**

Dear Mayor Epley and Village Board:

It was our pleasure participating in the April 3, 2014 sewer informational meeting hosted by the Planning Commission. Mr. Marc Chiffert, P.E. had conveyed to us the importance of tailoring a sewerage program that addresses the cost concerns, village character, environmental importance and long term impacts that this project will have on all Village residents for generations to come. We are happy it was well received and provided insight into the technical, legal and financial aspects of what probably feels like a daunting undertaking. So, as you requested after the meeting, we are pleased to provide this proposal for professional engineering services to assist the Village in improving the water quality of Agawam Lake, while at the same time, allow for some change of use in the business district via the formation of a sewer system.

H2M architects + engineers (H2M) has been providing consulting engineering services to municipalities across Long Island for about 80 years. We offer the Village our experience, qualifications and professional expertise in wastewater planning and project development to assist in the successful formation of the *Village of Southampton Sewer System*. H2M understands the intricacies of planning for sanitary infrastructure in Suffolk County, and has the ability to carefully integrate affordability, environmental improvement, protection of public health and support of long-term economic stability into projects of this type - all while complying with the regulatory requirements of: Suffolk County Department of Health Services (SCDHS), United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), New York State Environmental Facilities Corporation (NYSEFC), New York State Municipal Law, and the New York State Health Commissioner.

This proposal is for modifying the County sponsored *Map & Plan / Feasibility Study* to include the "hybrid sewer system" we presented at the April 3, 2014 Planning Commission meeting and to comply with SEQRA. H2M was a subconsultant to CDMSmith on the County project directly responsible for the layout of the sewer system and sizing of the proposed sewage treatment plant. We have decided to retain **Cameron Engineering & Associates, LLP (CEA)** for SEQRA compliance. CEA prepared the September 2005 *Feasibility Study for the Village of Southampton on Vacuum Sewering the Commercial District*. Our team is unique because of the work both firms have performed relative to the sewerage of the Village.

Project Understanding

The water quality of Lake Agawam is impacted by the quality of upgradient groundwater. The Village has long identified nitrogen loading to groundwater from on-site wastewater disposal systems as one of the key factors in its degradation. The *Comprehensive Management Plan for Lake Agawam* identified



elevated nitrogen concentrations in groundwater, stormwater and bottom sediments within the lake as significant contributors to the poor water quality conditions.

The Village of Southampton Planning Commission has made it a priority to address existing sanitary flow limitations that currently prevent the expansion of businesses within the business center. The high water table prevents existing onsite sanitary disposal systems from functioning properly. The elevated water table inhibits property owners from installing new onsite disposal systems in accordance with current regulations. The shallow depth to the water table reduces the available capacity within existing leaching pools resulting in the need for costly pump out services to prevent wastewater back-ups and/or overflows. The shallow water table also creates a direct pathway for untreated sanitary wastewater to enter the environment, which poses a potential threat to public health. This situation will surely grow worse as global warming continues and sea levels continue to rise.

One of the first steps to successfully improve water quality is to form a Village “sewer system.” The successful formation and subsequent implementation of a Village “sewer system” hinges on the ability to make the initial capital investment affordable.

Suffolk County Sewer District Capacity Study

The Suffolk County Department of Public Works (SCDPW) commissioned a *Map & Plan / Feasibility Study* that included the Village of Southampton. The draft report was completed in July 2013 and identified a plan that was unaffordable without substantial grant funding. The plan prepared under the SCDPW project investigated the measures and compared the costs between creating a County sewer district to a Village sewer system. The capital costs to proceed as a County district were found to be greater than the costs associated with proceeding as a Village sewer system primarily due to longer project duration expectations. Projects of this nature typically progress at a slower pace when driven by the County compared to similar projects administered by a Village. If this project were to proceed as a County district, the Village would also lose all future administrative control. The upfront capital cost savings coupled with the long term administrative and financial benefits make proceeding as a Village entity the recommended direction for the Village of Southampton.

The wastewater flow projections were based on water-use records for the area. Evaluation of these records identified a seasonal variation in water consumption due to the influx of tourism experienced during summer months. Therefore, the design flow used in the County study was based on summertime water consumption, which was equal to approximately 145,000 gallons per day (gpd).

The recommended collection and conveyance infrastructure was identified to be low pressure sewers. Low pressure sewers were selected to minimize disruption to local business, reduce the need for dewatering, allow for trenchless installation methods to be implemented and minimize construction costs. Each business would require their own grinder pump station and emergency backup generator. Additionally, the recommended treatment technology was based on achieving the highest level of nitrogen removal due to the environmental sensitivity associated with Lake Agawam. In order to achieve this level of nitrogen removal, the County study recommended using a membrane bioreactor (MBR) technology, which is proven to achieve the limit of technology in terms of nitrogen removal. Added benefits for using this technology are associated with its relatively small foot-print and modular design that allow for efficient future expansion of the facility to accommodate potential growth of the service area or for change of use within the sewered area.

The County also considered the existing treatment plant servicing the Southampton Hospital to accommodate the flow from the Village. Following an investigation of this option, the County study



determined this alternative not feasible due to existing capacity and site limitations, incompatibility of existing tankage to be repurposed with the selected MBR technology, and the costs associated with maintaining treatment of the hospital flow during construction of the new facility and demolition of the existing facility.¹

Since H2M was part of the engineering team that worked on the County project, we find ourselves in a unique position of having the ability to refine the efforts already made under the County project to consider a less expensive option for sewerage as discussed hereinafter. Our responsibilities under the County project included the evaluation of wastewater generation rates, recommendation of infrastructure determined to be best suited for the service area, and determination of the associated capital and operational cost opinions.

Hybrid Sewer System and Sewage Treatment Plant

The “**Hybrid Sewer System**” (**HSS**) is a term coined by H2M to describe our plan. The hybrid system takes advantage of the benefits of a relatively shallow gravity sewer system to allow the clustering of grinder pump stations and then uses small diameter low pressure sewers to convey wastewater to the proposed Village of Southampton **Membrane BioReactor Advanced Wastewater Treatment Facility (MBR-AWTF)**. The low pressure sewer lines will be located in the parking lots and be “weaved” to get to the location of the new MBR-AWTF.

The flow capacity of the MBR-AWTF is approximately 145,000 gallons per day (gpd) as derived in the County study. We understand the Village may alter the boundaries of the proposed sewerage area to include a few more properties so the flow would be somewhat higher. We will add the additional properties, calculate the additional flow, and address the sewerage of the additional lots as part of this proposal. The boundaries of the sewerage area will be redrawn as necessary.

As we explained at the Planning Commission meeting, our plan redirects the building waste drain line (that currently conveys the sewage to the septic system located in the back parking lots) to a cluster of grinder pump stations. The grinder pump stations are to be located on Village property and are owned, operated and maintained by the Village of Southampton Sewer System, which is the taxing entity responsible for the debt and annual costs associated with the sewer system and MBR-AWTF. The pump stations will be provided with emergency power and would be located in the parking lots to allow for ready maintenance and repair by labor employed by the taxing entity. This plan eliminates the expenses associated with the construction of deep gravity sewers such as deep sheeting, groundwater dewatering, extensive surface restoration, and constant traffic control. This plan also results in the substantial reduction of the number of grinder pump stations. A formal cost comparison of all the options will be provided in the revised Map & Plan.

Grants and Low Interest Loans

Our proposed program is centered on this basic premise: *County, state and/or federal grants and low interest loans are necessary to make this project affordable!* The Village has to be in a solid position to get a high rating in order to successfully undertake this project in this highly competitive municipal arena. Like the Village of Southampton, several Suffolk County unsewered hamlets have come to realize that sewerage projects of this scope and complexity require initial investments of hard earned tax dollars to “jump start” the project. An unfunded financial commitment by the grant applicant shows clear intent on

¹ Our team will re-visit the Southampton Hospital treatment facility option based on potential relocation of the hospital to the SUNY Southampton campus.



seeing the project successfully to its conclusion and usually is reflected in a higher point total or ranking. The program we outline in this proposal initially focuses on the objectives of (1) this project being made eligible for grants and (2) for being highly ranked because of the way in which the project is conceived, planned and progressed. Our track record of solid program management with funding agencies, and the many projects we have brought to them, benefits the Village of Southampton.

Two programs are currently targeted for funding, namely the Suffolk County Sewer Infrastructure program and the New York State Environmental Facilities Corporation State Revolving Fund program. H2M has worked with both the Town of Riverhead and the Village of Patchogue to prepare applications for both programs. Riverhead was awarded the largest grant of over \$8 million and Patchogue \$578,000, which was the full amount of the grant request. Only four awards were made from the Suffolk County Sewer Infrastructure program. We have also successfully assisted other municipalities across Long island in preparing their funding applications for projects of similar complexity to what we are proposing to do for the Village of Southampton.

Technical Approach

H2M is pleased to present our technical approach for the entire project. We have prepared a Project Flowchart that helps explain the steps. The flowchart is attached to this proposal.

The project flowchart shows the phases required to plan, fund, design, construct, and operate a municipal sewer system and sewage treatment plant in Suffolk County. The flowchart is experienced based.²

Our proposed procedure for implementing the Village's project is shown on the flowchart. There are seven phases that are necessary, namely:

- **Phase I - Map & Plan for Sewer District Formation**
- **Phase II - State Environmental Quality Review Act (SEQRA) Compliance**
- **Phase III - NYSEFC Project Listing and Loan Application**
- **Phase IV - Engineering Design Report**
- **Phase V - Construction Plans and Specifications (Design) / Bidding and Award**
- **Phase VI - Infrastructure Construction**
- **Phase VII - Startup and Training**

This proposal is for the completion of Phases I and II. Subsequent phases build upon the conclusions, recommendations, costs, and schedule developed in the Map & Plan and SEQRA determination.

² H2M has completed Map & Plans for the formation of:

- Flanders-Riverside Sewer District
- Sayville Sewer District
- Ronkonkoma Hub Sewer District
- Mastic-Shirley Sewer District
- Calverton Sewer District (Town of Riverhead)
- Brookhaven Sewer Improvement Area No. 1 (a.k.a. East Patchogue - Town of Brookhaven)

➤ **Phase I: Map & Plan for the Formation of the Village of Southampton Sewer System**

Based on the law, a Map & Plan must be prepared that complies with the requirements of NYS Department of Health. The requirements of the N.Y.S. State Environmental Quality Review Act (SEQRA) must also be undertaken. New York State Environmental Facilities Corporation (NYSEFC) will require a SEQRA determination prior to advancing the project to funding. These steps are unavoidable by state regulation and for good reason. They establish the basis for all subsequent phases, determine the costs for building and maintaining the sewer infrastructure, and determine the project's impact to the environment. The tax implications for paying down capital debt for the infrastructure and the annual operation and maintenance costs are also determined for review by the State Comptroller's office and determine the viability of the selected plan.³

We propose to prepare a stand-alone document that evaluates the Hybrid Sewer System options. The way the project will be progressed will also be studied; i.e. Wicks Law vs. Project Labor Agreement vs. Partial Use of Village Forces. We will determine the project costs for construction of the system and the sewage treatment plant. The annual operation and maintenance costs will also be determined. The cost effective option will be determined and presented to the Board and the Planning Commission so that a final option can be selected.

In order to reduce the cost of the Map & Plan, we will reuse the information presented in the Suffolk County report to the maximum extent possible. There is no reason to duplicate the effort of that report. As such we will reuse: the mapped boundary, wastewater flow, location of the sewage treatment plant, type of treatment plant, and layout of the sewer system. The information will be updated to include the few additional properties that were mentioned at the April 3, 2014 meeting.

The Map & Plan most importantly sets forth the costs associated with implementing the entire project. The tax implications for the taxpayers of the sewer system must be determined and presented prior to forming of the taxing entity.

Grants that have been obtained by the Village are then considered in determining the actual revenue needed to fund the project. H2M assisted the Village of Patchogue in receiving over \$7 million in grants for the upgrade of their treatment facility because their project was shovel-ready and Patchogue funded the planning without grants. Our team has helped numerous municipalities across Long Island and the tri-state region in qualifying for grants and low-interest loans. New York State Environmental Facilities Corporation (NYSEFC) and the H2M team have worked together on many projects where grants and/or loans were acquired. They have come to respect our ability to move projects along while securing funds through their agency. This professional relationship extends to all our clients. NYSEFC is more inclined to fund projects where initial planning costs were paid for by the applicant. It appears to be their way of making certain that the applicant is serious about their project.

➤ **Phase II: State Environmental Quality Review Act Compliance**

Phase II will be completed by Cameron Engineering & Associates, LLP (CEA) as a sub-consultant to H2M. All billing for their service will be included in the billing from H2M.

In New York State, before an agency decides to approve or fund a project, that agency must first consider the potential environmental impacts of that action during its planning, review and decision-making process. Specifically, the regulations implementing the New York State Environmental Quality Review

³ The Village's attorney prepares the required applications that accompany the Map & Plan for state submission.

Act (SEQRA) require that an agency determine whether the action it proposes to directly undertake, fund or approve may have a significant impact on the environment. If it is determined that the action may have a significant adverse impact, that agency must cause an environmental impact statement (EIS) to be prepared to evaluate, and where necessary, mitigate those adverse impacts.

Since this project is for the formation of a Village sewer system, the Village Board is deemed an involved agency. An involved agency is one that has discretionary approval authority over a project and is responsible for conducting a SEQRA review.

As a first step in the environmental review process, the Village Board must “classify” the action. Actions can be Type I, Type II, or Unlisted Actions. Generally, Type I actions are more likely to require preparation of an EIS, Type II actions are exempt from SEQRA review, and Unlisted actions are projects which must be evaluated because it is undetermined whether an environmental review will be required. In this instance, this proposal is based on the preliminary assessment that the action will be classified as an Unlisted Action. If the action is an Unlisted Action, the Village Board can conduct an “uncoordinated review,” i.e., the Village will be responsible for reviewing the impact of its approval process, and any other agency (e.g., Suffolk County) will conduct its own environmental review as part of its approval and permitting process.

After the Village Board starts the environmental review process and classifies the action, it must determine whether the project is likely to have a significant adverse impact on the environment. If the Village Board determines the action will have a significant adverse impact, the Village Board would issue a Positive Declaration and cause an EIS to be prepared. The Village Board will issue a Negative Declaration where no adverse impact is anticipated. The Village Board relies on the long Environmental Assessment Form (EAF), Parts 1 and 2, to make this determination.

The EAF documents the characteristics of the project and the environmental features that may be affected. For example, the EAF will identify whether the project is located near, or will affect, wetlands or watercourses. CEA will prepare a long Environmental Assessment Form, Parts 1 and 2, on behalf of the Village. Once the Village Board determines that the EAF reasonably reflects the environmental characteristics of the project, and the potential impacts it may have, it will decide whether to issue a Negative Declaration or a Positive Declaration.

At this time, we anticipate that the Village Board would adopt a Negative Declaration as any needed mitigation measures could be integrated into the design of the sewer system and sewer treatment plant, to reduce the potential for environmental impact.

This proposal incorporates the following tasks to develop a long EAF, Parts 1 and 2, including:

- Review prior studies, reports, and memoranda related to potential sewerage and development of the Village.
- Review the draft GEIS prepared by Suffolk County for non-sewered study areas.
- Contact the State Office of Parks Recreation and Historic Preservation (SHPO) to obtain a letter stating where there is historic significance to the sites affected by the installation of the proposed sewer system.
- Prepare an Environmental Assessment Form (EAF) with Supplement including data collection to support the effort and a narrative on specific impacts to be determined in consultation with the Village such as groundwater quality and construction impacts.
- Respond to comments on the Long Form EAF.



- Prepare a Negative Declaration for the Village.
- Attend one meeting with the Village.
- Attend one public meeting (or hearing) for the project.

Our proposed scope of services does not include the cost or work effort to prepare an environmental impact statement or SEQRA coordinated review.

➤ **Phase III: NYSEFC Loan Application**

Phase III can begin upon completion of the Map & Plan and the determination has been made regarding the project's environmental impact. The NYSEFC will require a statement that all the land required to construct the sewage treatment plant and sewage pump stations (if necessary) have been acquired or are in the process of being acquired before an application for funding is considered. The Village should make every attempt to begin to acquire land if it is not already owned by the Village. The funding application is prepared by H2M for signature by the Mayor. A Village Board resolution authorizing the mayor to sign the application is required by NYSEFC. A bonding resolution is also required.

NYSEFC will then rate the project in terms of environmental benefit and smart growth parameters and the score will be published in the NYSEFC Intended Use Plan (IUP). The funding line will be shown in the IUP and at this point the Village will know what the probability of the project being funded will be. The amount of the loan is part of the IUP application.

The Village can then decide to proceed with the Phase IV.

➤ **Phase IV: Engineering Design Report**

H2M, upon authorization of the Village Board, would then prepare the Engineering Design Report for the Village of Bellport Sewer Infrastructure. All regulatory agencies require this document to be prepared. It provides the basis of design, hydraulic profiles, solids mass balance (sludge generation), engineering calculations, site plans, pump sizing calculations, and technical descriptions regarding the sewage treatment plant biological process, sanitary sewers and sewage pumping stations. This document is intended for review by professional engineers within NYSEFC, NYSDEC, and SCDHS to determine if the proposed facilities, equipment, pipes, and electrical system are compliant with governing standards. Regulatory agencies will not review construction plans prepared under Phase V until this report is approved.

➤ **Phase V: Construction Plans & Specifications / Public Bidding and Award**

Phase V of the overall project consists of the preparation of construction plans and specifications. The contract drawings and specifications contain required plan views, elevations, sections, details, general layouts, dimensions, equipment locations, piping, valves, and appurtenances necessary to clearly delineate the required work to construct the Village's sewage treatment plant, sewer system and pump stations.

Specifications include detailed technical specifications containing information regarding the type and quality of materials, start-up, testing and operating requirements, material testing, cash allowances, performance standards, workmanship and other descriptions necessary to execute the work.



The public bidding aspect of Phase VI is undertaken after the design is completed and the documents have been approved by NYSEFC, NYSDEC, and SCDHS.

➤ **Phase VI: Infrastructure Construction**

The construction of the Village's sewer infrastructure is constructed during this phase of the project. Construction administration and technical observation of the construction are provided as part of this service.

➤ **Phase VII: Startup and Training**

Startup services are when the equipment operations are evaluated and optimized under real world operating conditions. It is during these periods of time that project specific operations protocols, adjustments and programming revisions are determined and worked into the various Operations Log Sheets and Guides as well as the facility O&M Manual.

Commissioning the project is where we assist the Village to bring all the elements of the project together. We stay with the Owner at this time of the project. In fact, it is this period of the project where you will see the principle designers the most. The engineers, who designed the system, worked out the process, designed the electrical system, and calculated the heating loads are the engineers who will lead the operations staff toward a full understanding of the subsystems and the plant as a whole. We will be in the field, at the plant, working closely with the operators, and taking every opportunity to explain the design intent and assist in optimizing the process and equipment operations.

H2M understands that it is the operators of the facility who must live with the final product. They must be the ones to make it work right long after the construction is completed. Even the most model, state-of-the-art facility can only be as good as the staff that keeps it running. It will be our responsibility to get the operators to take ownership of the plant. They must feel as if it is their own. We know one way to accomplish this goal. If need be, we will be there in the snow, at 3:00 a.m., on New Year's Day.

An O&M manual that meets NYSDEC requirements will be prepared. The O&M manual will include information on permits, process monitoring, safety, emergency procedures, process operation, troubleshooting, spare parts inventory and maintenance management. Special emphasis will be given to biological nutrient removal process operation. The manual will be prepared with the operator in mind. It will contain figures, graphs, and charts as required. Staffing requirements will be addressed.

Engineering Fees

We propose to complete Phases I and II for the lump sum of \$35,000. Billing will be on a monthly basis in accordance with the work completed to date. The breakdowns of fees are as follows:

Phase I (H2M): \$17,500.

Phase II (Cameron Engineering & Associates): \$17,500.

Should you accept our proposal, please execute one counterpart of this proposal and return it to our office. If preferred by the Village, the Village's attorney may prepare an engineering agreement setting forth the terms of the Phase I and II for execution by the Village and H2M. A Village Board resolution retaining H2M is required as part of any funding application.



Let us show you how H2M can help you solve your problem and show you how we can take your project from the very beginning to successful completion.

We look forward to working with you on this important project. Please call me at (631) 756-8000, ext. 1433 should you have any questions or require additional information.

Very truly yours,

H2M architects + engineers

A handwritten signature in black ink, appearing to read 'Frank M. Russo', with a long horizontal stroke extending to the right.

Frank M. Russo, P.E.
Vice President
Director of Wastewater Engineering

A handwritten signature in blue ink, appearing to read 'Nicholas F. Bono', with a stylized, cursive style.

Nicholas F. Bono, P.E.
Sr. Project Engineer
Wastewater Engineering

Enclosure

Accepted By:

(Printed Name or Typed Name)

(Signature)

(Date)

(Title)

Cc: Mr. Stephen Funsch, Village Administrator (w/ 4 copies for Village Board)
Mr. Marc Chiffert, P.E. (w/encl.)

Village of Southampton Wastewater Collection, Conveyance and Treatment Plant

Project Flowchart

