GNHWPCA Protecting the Environment
Greater New Haven Water Pollution Control Authority
260 East Street New Haven, CT 06511
203.466.5280 p 203 772.1564 f www.gnhwpca.com

REGULAR MEETING OF THE
GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
BOARD OF DIRECTORS
WEDNESDAY, FEBRUARY 14, 2024 6:00 P.M.
260 EAST STREET
NEW HAVEN, CONNECTICUT

AGENDA

1. Approval of minutes of January 10, 2024 – Regular Meeting.
2. Public participation relating to agenda items.
3. Presentation, by RSM US LLP, on the audit of the financial statements of the Authority for the year ended June 30, 2023.
4. Consideration and approval of a resolution with respect to the authorization, issuance and sale of not exceeding $30,000,000 Greater New Haven Water Pollution Control Authority Regional Wastewater System Revenue Refunding Bonds.
5. Consideration and approval of a resolution authorizing the Executive Director, Sidney J. Holbrook, to negotiate, execute and deliver a task order with Hazen and Sawyer, P.C. for professional services relating to an odor assessment and control services study at the East Shore Water Pollution Abatement Facility, for an aggregate amount not to exceed $104,168.
6. Consideration and approval of a resolution authorizing the Executive Director, Sidney J. Holbrook to negotiate, execute and deliver a grant agreement with the State of Connecticut Department of Energy and Environmental Protection with respect to the Westville Area Flood Resilience Project Development, for an amount not to exceed $506,000.
7. Consideration and approval of a resolution authorizing the Executive Director, Sidney J. Holbrook, to negotiate, execute and deliver a task order with Fuss and O'Neill, Inc. for design services relating to the Westville Area Flood Resilience Project Development, for an aggregate amount not to exceed $506,000, subject

to grant funding approval by the State of Connecticut Department of Energy and Environmental Protection.

8. Consideration and approval of certain Departmental Budget Transfer Requests.
9. Executive summary and department updates and presentations.
10. Consideration and approval, as necessary, of any other new business of the Authority.
11. Call to the public.
12. Adjournment.

RESOLUTION WITH RESPECT TO THE AUTHORIZATION, ISSUANCE AND SALE OF NOT EXCEEDING $30,000,000 GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY REGIONAL WASTEWATER SYSTEM REVENUE REFUNDING BONDS

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY

Section 1. Not exceeding $30,000,000 Regional Wastewater System Revenue Refunding Bonds (the "Refunding Bonds") of the Greater New Haven Water Pollution Control Authority (the "Authority") may be issued in one or more series and in such principal amounts as the Executive Director and the Treasurer shall determine in the best interests of the Authority for the purpose of achieving net present value savings and/or to restructure debt service payments of the Authority. The Refunding Bonds are hereby authorized to refund all or any portion of any one or more series of the Authority's outstanding Regional Wastewater System Revenue Bonds (the "Refunded Bonds"). The Refunding Bonds shall be issued and sold either in a negotiated underwriting or a competitive offering, and at such time or times as the Executive Director and the Treasurer shall determine to be most opportune for the Authority. If the Refunding Bonds are sold in a negotiated underwriting, the Executive Director and the Treasurer shall appoint the managing underwriter. The Refunding Bonds shall mature in such amounts and on such date or dates as shall be determined by the Executive Director and the Treasurer, in accordance with the provisions of the Connecticut General Statutes, as amended, and shall bear interest payable at such rate or rates as shall be determined by the Executive Director and the Treasurer. The Refunding Bonds shall be executed in the name and on behalf of the Authority by the manual or facsimile signatures of the Executive Director and the Treasurer, bear the Authority seal or a facsimile thereof, and be approved as to their legality by Robinson & Cole LLP, Bond Counsel. The Refunding Bonds shall be special limited obligations of the Authority, payable solely from revenues and other receipts, funds and monies pledged therefor pursuant to the Indenture of Trust dated as of August 1, 2005, as amended and supplemented (the "Indenture"), between the Authority and U.S. Bank Trust Company, National Association (as successor to Wachovia Bank, National Association), as trustee. Each of the Refunding Bonds shall recite that every requirement of law relating to its issue has been duly complied with, and that such bond is within every debt and other limit prescribed by law. The aggregate denominations, form, details, and other particulars thereof, including the terms of any rights of redemption and redemption prices, the designation of the certifying, paying, registrar and transfer agent, shall be subject to the approval of the Executive Director and the Treasurer. The net proceeds of the sale of the Refunding Bonds, after payment of underwriters' discount and other costs of issuance, shall be deposited in an irrevocable escrow account in an amount sufficient to pay the principal of, interest and redemption premium, if any, due on the Refunded Bonds to maturity or earlier redemption pursuant to the plan of refunding. The Executive Director and the Treasurer are authorized to appoint an escrow agent and other professionals and to execute and deliver any and all escrow, investment and related agreements necessary to provide for such payments on the Refunded Bonds and to provide for the transactions contemplated hereby. The Executive Director and the Treasurer are authorized to prepare and distribute preliminary and final Official Statements of the Authority for use in connection with the offering and sale of the Refunding Bonds, and they are hereby authorized to execute and deliver on behalf of the Authority a Bond Purchase Agreement, a Continuing Disclosure Agreement, a Tax Regulatory Agreement and any other agreement, document or certificate as they shall deem necessary and appropriate. The Authority may issue taxable bonds or notes as the issuance of such taxable bonds or notes is hereby determined to be in the public interest.

Section 2. This resolution shall be effective immediately upon its approval by the Board of Directors of the Authority and shall be effective until December 31, 2024.

Section 3. For the avoidance of doubt, in all instances the Executive Director and Treasurer, acting on behalf of the Authority, shall act jointly and in concert in all decisions and execution of all documents and agreements authorized herein.

GNHWPCA
Protecting the Environment

Greater New Haven Water Pollution Control Authority
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DATE: February 1, 2024

TO: Sidney J. Holbrook, Executive Director

FROM: Gary Zrelak, Director of Operations

RE: Task Order Recommendation
Hazen and Sawyer, P.C.
Odor Control Study – Phase 2

Sid:

I request that the above-mentioned recommendation be added to the February 14, 2024 Board Meeting Agenda for resolution.

This request is to provide the Authority with professional services for an odor assessment and control services study. This project will involve a study to investigate sources of odors within the ESWPAF and surrounding areas to enable the Authority to implement the appropriate odor abatement measures.

I recommend approval of the attached Hazen and Sawyer proposal dated January 5, 2024. The amount of these services shall not exceed One Hundred Four Thousand, One Hundred Sixty-Eight Dollars (**$ 104,168.00).**

This project is funded 100% from the Authority's Approved Capital Budget.

Gary Zrelak
Director of Operations

e-copy: Gabe Varca, Director of Finance & Administration
Lou Criscuolo, Deputy Director of Finance and Administration
Tom Sgroi, Director of Engineering
Joseph Megale, Deputy Director of Operations

Hazen and Sawyer
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January 5, 2024

Mr. Gary Zrelak
Director of Operations
Greater New Haven Water Pollution Control Authority
260 East St.
New Haven, CT 06511

Re: Odor Control Study –Phase 2 Proposal

Dear Mr. Zrelak:

Hazen and Sawyer (Hazen) is pleased to present our proposal to provide Phase 2 of the professional engineering odor assessment and control services for the Greater New Haven Pollution Control Authority (GNHWPCA) at the East Shore Water Pollution Abatement Facility (ESWPAF) located at 345 East Shore Parkway, New Haven, CT. The Phase 2 odor control study will investigate sources of odors within the ESWPAF, a limited section of the collection system adjacent to a neighborhood school, as well as the surrounding industrial park areas, to identify possible sources of recent nuisance odor complaints, and enable GNHWPCA to implement the appropriate odor abatement measures under a future project.

We have prepared an approach based on our discussions and site visits with Plant Operations, coupled with our project team members' experience on similar projects. We believe the proposed approach will achieve the project objectives discussed in the RFP and provide GNHWPCA with a sound basis for determining the appropriate mitigation measures to control odors within and around the ESWPAF.

The attached proposal is organized as follows, in accordance with GNHWPCA's priorities:

- Work Plan
- Cost Proposal

The Cost Proposal section provides an estimated level of effort, not-to-exceed budget, and schedule for Phase 2, with a breakdown of the costs and labor hours by the tasks discussed in the Work Plan. The remaining Phase 1 budget is also included within the cost proposal.

Approach to the Scope of Work

Hazen proposed a two-phased approach to the Odor Control Study that consists of the following steps:

- Establishing goals and objectives; and
- Reviewing existing information and facilities; and
- Reinforcing our understanding through meetings with operating staff; and
- Field monitoring to characterize the current conditions from both an odor compound and physical system perspective; and
- Data compilation and review; and

Job no

- Alternatives evaluation; and
- Development of recommendations to address the identified cause(s) of odor complaints.

In following with the tenets of the above "roadmap," Hazen is proposing the following two-phased approach to address the odor complaint issues at the ESWPAF:

- Phase 1 – an initial stage where work is focused on the review of existing documents and data, identifying data gaps, odor complaints and procedures, plant operations, O&M procedures, operating strategies, and site inspections.
    - Which has now been complete
- Phase 1B – An evaluation of Ventilation/HVAC Layout and Flow
    - Which is ongoing
- Phase 2 – a follow-up to Phase 1, involving further investigation of the Phase 1 findings through the collection of additional plant data and information.

Scope of Work

Phase 2: Further Evaluation and Sampling / Monitoring

After our initial site visit trip report, Greater New Haven Water Pollution Control Authority (GNHWPCA) requested that we define the steps we recommended to address the odors at the ESWPAF and then develop a prioritized list of odorous process units. GNHWPCA reviewed and commented on that spreadsheet list and asked Hazen to focus our priorities on the ventilation and odor capture concepts for the plant odor sources. Hazen has reordered the tasks for the follow-up odor assessment and control work at the ESWPAF to emphasize those elements that are of critical importance to GNHWPCA. Below are the new tasks along with a brief description of the work to be included in each task, that will be the basis for Hazen's proposed scope of work.

Task 1 – Evaluate Supply and Exhaust Layout

Hazen will review the design drawings and confirm in the field the existing clean air supply and exhaust register, damper and duct system for each of the five key odor sources identified herein. The current layout will be compared to system designs that are consistent with today's requirements for nuisance odor capture, containment, and conveyance to the odor control technology. Keep in mind that the odor control system layouts have changed over the years by taking into consideration the nature of the odors being captured and the needs of staff who must work in the foul odor environment.

Review existing layout/drawings for all odor sources with a focus on:

- Headworks
- Thickening
- Dewatering

- Truck Loading
- Primaries

After the odorous exhaust air flow rates are determined, the supply air flow rates can be calculated. As noted above, the supply air flow rates are typically 10% to 15% less than the exhaust air flow rates.

Task 1.1 – Conduct NFPA 820 Evaluation

Hazen will conduct a ventilation evaluation of the key odor source areas identified above and compare it to the requirements of NFPA 820 and highlight these areas that may need to be upgraded. The ventilation evaluation conducted in Phase 1 will determine the effective ventilation rate to not only capture and control the odorous emissions contained at the odor source but that will provide a more comfortable working environment for the staff when performing their O&M duties in these areas. These ventilation rates will generally be greater than the ventilation rates noted in NFPA 820 as NFPA is based on the harm and damage an explosion or fire can have on the structure and human habitation, and less concerned about worker comfort.

The National Fire Protection Association (NFPA) has developed requirements for the wastewater treatment plant and collection system – NFPA 820 ***Standard for Fire Protection in Wastewater Treatment and Collection Facilities*** (The latest edition is 2024. The prior edition was 2020).

This standard provides requirements for protection against fire and explosion hazards specific to wastewater treatment facilities and their associated collection systems. It does not consider worker area comfort. These standards are generally considered the standard of care for ventilating specific areas at the wastewater facility and provide a minimum level of ventilation to be considered based on electrical classification.

Task 1.2 – Discuss with GNHWPCA Classification and Supply/Exhaust Implications

During the NFPA 820 review Hazen will identify the range of operations that GNHWPCA may operate under based on the current or modified process area classification. GNHWPCA will then decide with Hazen's assistance the course of action to take moving forward.

Based on the course of action selected by GNHWPCA, Hazen will identify the appropriate supply and exhaust flow rates to be implemented.

Task 1.3 – Discuss / Develop Conceptual Supply and Exhaust Layouts

Hazen will meet with GNHWPCA and present background information on the up-to-date concepts when designing an odor control ventilation system, supply and exhaust, at a wastewater treatment facility.

Hazen will prepare a conceptual ventilation system, supply and exhaust, layout for the identified key odor control sources noted previously.

Task 1.4 – Technical Memorandum

Hazen will prepare and deliver a technical memorandum that will summarize the information from Task 1

Task 2 – Odor Monitoring Program – Plant Based

The extent of plant-based monitoring will depend in large part on the results of the ability of the existing odor control system to capture, contain, and convey the odors to the wet scrubbers for treatment more effectively. If that is successful, there may not be much need to conduct a comprehensive odor monitoring program at the key plant odor sources. Instead, a more qualitative or plant odor survey may be recommended. Nevertheless, if the nuisance odors are not effectively captured and contained at any of the key odor source unit operations, Hazen would recommend a monitoring program to characterize the odor conditions. These odor monitoring services and/or odor surveys are more appropriate for summertime implementation when the conditions are more favorable for odor generation and release.

Record information

The community has been logging nuisance odor complaints for the past number of years. These complaints can be considered their report card on how the plant is operating and whether they consider it to be a good neighbor. At the same time, the community would like to know that GNHWPCA and the plant staff are listening to them and take their complaints seriously and are trying to take steps to mitigate the impact they may have on the community. Developing a dialogue with community representatives can help, but the community wants to know what positive steps are being taken to address the nuisance odors. Communicating with them the work that Hazen has done is a first step.

One other recommendation would be to initiate a perimeter qualitative assessment program where plant staff (typically managers and/or shift supervisors) conduct a drive around the outside of the plant on their way into work each day and make odor observations in general or at predefined locations. These observations would use odor industry parameters like odor intensity (how strong an odor is perceived), odor character (what the odor smells like), and hedonic tone (how pleasant or unpleasant an odor is perceived), as well as noting the time, location, wind direction and speed, and meteorological conditions. The observations would be made by driving through the streets adjacent to the plant and recording any odor(s) they detect as they head to work. The odor surveys are done before entering the plant because that is when they would be most sensitive to plant-based odors. The ultimate would have a single individual per shift perform these odor surveys on their way in to work. However, to conduct an odor survey at least once a day during the more odorous time of the day would be a good start. Depending on what is observed, criteria would be established to act as triggers for a specific response depending on the severity of the odors perceived. The response would vary from doing nothing to tracking the odor to its source and developing a plan to get it under control. The daily logs would be filed. We find that if situations ever get to the point of litigation against GNHWPCA, these daily logs will demonstrate to a judge, for example, that the Authority took the nuisance odor complaints from the public seriously and developed this odor survey program to track the plants progress on mitigating off-site nuisance odors.

Hazen will develop a draft odor survey program and work with GNHWPCA to finalize it. Hazen would also assist with some light odor training to help the participants become more familiar with the odor parameters they will use to make their daily observations.

Task 3 – Odor Monitoring Program – Targeted Program

The Odor Monitoring Program task has been broken up into the following five subtasks. Each subtask represents an independent work assignment and includes a work effort that considers a full assessment of all the potential elements in that subtask. For example, Subtask 3.5 assumes that all the odor sources would be monitored, with most at multiple locations. Hazen will not be able to determine which sources and locations will need to be monitored until the work from Phase 1 is completed. The level of effort, therefore, is likely to be less than represented in each subtask and the associated estimate of probable costs for labor and ODC costs. In addition to each task being developed as an ala carte offering, an economy of scale could be reached if more than one subtask was conducted simultaneously. Please keep this in mind when reviewing the scope of work and the estimate of probable costs.

Task 3.1 - Interceptor Monitoring

Following up to the smoke testing conducted in Phase 1B in the interceptor along Pope Street and Woodward Avenue, hydrogen sulfide and differential pressure will be conducted during the warmer summer weather. In the summer, continuous recording/data logging H_2S monitors (Acrulog Units) will be deployed at the same locations as the Differential Pressure (DP) monitors discussed below and will remain in place for up to two weeks at each location. The monitors should be checked after about one week to ensure they are still in place and that they are recording the correct information. DP can be monitored at any time.

Continuous recording DP monitors will provide data on the pressure reading within the headspace of the sewer compared to the outside ambient atmosphere. If the DP reading is negative, then outside ambient air will be seeking a way to enter the sewer. If the DP reading is positive, then the odorous air within the headspace of the sewer will be seeking a way to exit the sewer through any air pathway that is available. Because the collection system is dynamic and constantly changing, it is important to understand how the DP varies with time and whether it remains positive, negative, or varies between both indicators over time. DP is generally independent of temperature and can be monitored throughout the year.

The DP monitors will remain in place at a minimum for up to two weeks at each location. The monitors should be checked after about one week to ensure they are still in place and that they are recording the correct information.

- Deploy DP monitors at: the interceptor MH where the carbon unit is connected; and, at a manhole at the intersection of Pope St. and Woodward Ave
- H_2S monitors to be deployed at the same locations in warmer weather

Morris Cove Pump Station (PS) data regarding when the station cycles the pumps on and off along with duration will be requested to allow for comparison of DP and PS data.

Task 3.2 – Smoke Testing

Smoke testing may be recommended for any of the odor sources but more likely for the odor sources where discrepancies were noted in Task 1. Smoke testing would be used for varied purposes, including identifying: leaks; bad connections, dead zones, impaired ability to remove the smoke in a timely manner, air flow patterns, etc. It is anticipated that potentially up to five plant-based locations including but not limited to: headworks, primaries, solids tanks, dewatering room, and fog tanks, could be smoke tested. The process units would be selected after the ventilation assessment and balancing work associated with Task 1 is completed.

Although the level of smoke testing required will be determined in the Phase 1 work, based on the five plant-based locations listed above, the testing program would consist of the following:

- Headworks Building – the areas to be smoke tested would include but not be limited to the lower room, upper room, and a combined lower and upper room. Tests would be conducted during two alternate wastewater flow conditions, low and high flows. A total of 6 smoke tests are projected.
- Primary Tanks – The areas to be smoke tested would include but not be limited to the inlet, main quiescent tanks, weir effluent end, and the channels. Testing would be done at all four of these locations on two representative batteries. A total of 8 smoke tests are projected.
- Solids Tanks – The tanks to be smoke tested would include but not be limited to four tanks. The tanks would be evaluated when they are half or nearly half full and when they are full. A total of 8 smoke tests are projected.
- Dewatering and Thickening Room – The Dewatering room would be evaluated with the doors closed and open, and an additional contingency smoke test for conditions to be specified later. One smoke test would be dedicated for the solids Thickening room. A total of four (4) smoke tests are projected.
- Fog Tanks – Two fog tanks would be smoke tested. The tanks would be evaluated when they are half or nearly half full and when they are full. A total of four (4) smoke tests are projected.

Hazen projects that up to 30 smoke tests may be warranted based on the results of the work completed in Phase 1. Smoke tests would be conducted by multiple investigators using Superior smoke candles. The candles would be deployed in the areas to be evaluated. The investigators will record the details associated with each smoke test in the area under investigation to assess for leaks, dead zones, bad connections, air flow patterns, timing to clear the smoke out, etc.

Task 3.3– Monitoring for Other Sulfur-Based Compounds

Recognizing that H_2S is not the only odor associated with wastewater collection, it may be necessary to collect whole air samples in glass lined SILCO canisters (Summa canisters) and sent out to an independent laboratory for analysis for up to 20 sulfur-based compounds that are associated with wastewater odors. The independent laboratory will follow the procedure outlined in ASTM D5504 - ***Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by***

Gas Chromatography and Chemiluminescence. Because the Summa canisters collect whole air samples over a reduced time frame of 20 minutes, Hazen will review the Acrulog continuous H_2S monitoring data to assess what the optimum time of the day to collect the sample is and then collect the grab sample in the Summa canister within that time window. Hazen will collect up to 10 samples in Summa cannisters and have them analyzed by an independent laboratory following the procedure outlined in ASTM D5504.

Task 3.4 – Wet Scrubber – Odor Control Monitoring

During the summer, high and low range Acrulog units will be used to monitor the inlet and discharge, respectively, of the wet scrubbers. The Acrulog monitors would be deployed for a minimum of two weeks and checked for service after each week. During that monitoring it will be determined whether any additional odor characterization may be necessary. The Acrulog units will be housed in a plastic, NEMA rated enclosure provided by Detection Instruments (Source of the Acrulog rental units.). Each wet scrubber will have one enclosure with two Acrulog monitors, a high range unit for the inlet odorous air monitoring and a low range unit for the wet scrubber exhaust monitoring in addition to other accessories necessary to conduct the wet scrubber monitoring such as sample air pumps. Three enclosures will be rented to conduct simultaneous monitoring of the three wet scrubbers.

Deploy H_2S monitors at the inlet and outlet of each wet scrubber

Task 3.5 Odor Source Monitoring

During the summer, Acrulog units may be used to monitor H_2S at some or all the odor sources identified previously. The need for, and location of deployment, will depend on the results of the work completed in Phase 1. If testing would be necessary at all five locations the testing program would consist of the following:

- Headworks Building – Acrulog H_2S monitors would be placed inside the building at two locations – the lower and upper floors and would be deployed simultaneously. A total of 2 Acrulog H_2S monitors shall be deployed, simultaneously
- Primary Tanks – Acrulog H_2S monitors would be placed under the covers at the inlet end of the tanks, at the quiescent surface area, at the weirs area, and in the channels. The Acrulog units should be placed in up to two Primary Tank batteries. A total of 8 Acrulog H_2S monitors shall be deployed, simultaneously.
- Solids Thickening Room – An Acrulog H_2S monitor would be placed in the middle of the Solids Thickening Room. A total of 1 Acrulog H_2S monitor shall be deployed.
- Sludge Dewatering Room – Acrulog H_2S monitors would be placed close to the belt filter press unit and in the open room. A total of 2 Acrulog H_2S monitors shall be deployed.
- Truck Loading – Acrulog H_2S monitors shall be placed above the truck bay and at ground level around the truck. A total of 2 Acrulog H_2S monitors shall be deployed.

The actual location of the Acrulog monitors placement will be determined during a reconnaissance visit to the plant with plant staff. The selected location will be out of the way of plant staff so as not to interfere with their normal daily duties. The Acrulog H_2S units would be deployed for up to two weeks and would be checked after one week to ensure it was operating effectively. A total of

Task 4 – Project Management

Under this task, we will provide general project management, invoicing, activity and meeting coordination, schedule management, and staff/personnel administration required over the period to complete this work.

Cost Proposal and Project Schedule

This section presents our estimated not-to-exceed fee (project budget) and labor hours (level of effort) for Phase 1, broken down by the Work Plan tasks discussed in Section 1, along with a Project Schedule depicting the duration of each task.

Estimated Fee and Level of Effort

As shown in **Table 1**, we estimate a total not-to-exceed cost of **$104,168.00** for Phase 2. A total of **167 labor hours** is anticipated. Hourly rates were provided in our Amendment #1 for the On-Call Engineering Services contract, dated October 15, 2020.

Table 1: Estimated Level of Effort and Fee for Phase 2 of the Odor Control Study

	Labor Hours	Labor Cost	Other Direct Costs	Total
Task 1 – Evaluate Supply and Exhaust Layout	101	$ 20,716.00	$ -	$ 20,716.00
Task 2 – Odor Monitoring Program – Plant Based	46	$ 8,896.00	$ 500.00	$ 9,396.00
Task 3 - Odor Monitoring Program – Targeted Program	279	$ 47,802.00	$ 21,150.00	$ 68,952.00
Task 4 – Project Management	20	$ 5,104.00	$ -	$ 5,104.00
Total	**446**	**$ 82,518.00**	**$ 21,650.00**	**$ 104,168.00**

Work will be invoiced monthly based on actual work performed, and in accordance with the terms of our current On-Call Engineering Services contract. Other direct costs include reimbursable expenses, such as transportation, which we will bill at cost, with no administrative markup.

Project Schedule

We anticipate the work included in Phase 2 to occur during the summer months of 2024.

We trust that this proposal is acceptable, and we look forward to continuing our work with GNHWPCA under our current On-Call Engineering Services contract. If you have any questions or require additional information, please do not hesitate to me at (860) 936-3902 or blevin@hazenandsawyer.com.

Very truly yours,

Benjamin Levin, PE, PMP, Assoc. DBIA
Associate Vice President

cc: I. Schroeder, J. Megale – GNHWPCA
R. Pope, G. Archambault – Hazen

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MEMORANDUM

DATE: February 1, 2024

TO: Sidney J. Holbrook

FROM: Thomas Sgroi, PE
Director of Engineering

RE: Task Order Recommendation
Westville Area Flood Resilience Project Development
Fuss and O'Neill, Inc. Design Services

Sid:
I request that the above-mentioned recommendation be added to the February 14th, 2024 Board Agenda for resolution.

This grant opportunity represents a crucial step forward in the Authority's ongoing efforts to assist the City of New Haven and State in addressing stormwater management issues related to the sanitary sewers and storm sewers in the Fairhaven area of New Haven. Building upon prior studies, the project aims to identify strategic areas where the implementation of green and blue infrastructure projects can effectively reduce stormwater inflow into our sanitary sewer system while reducing surface flooding in the streets. By aligning with the overarching goals of the City and CT Institute for Resilience and Climate Adaptation (CIRCA) to promote revitalization and mitigate environmental and economic impacts on vulnerable populations, this initiative holds significant promise for our community.

Fuss and O'Neill, Inc. will assist the Authority in meeting the goals of this grant award and provide design services in accordance with the attached scope of service. I recommend an approval of funds in the amount of $460,000 plus a 10% contingency of $46,000 for a total amount not to exceed **$506,000**. Pending execution of the Grant by the DEEP and the Authority, this project will receive a 100% grant.

Thomas V. Sgroi, PE
Director of Engineering

e-copy: Gabe Varca, Gary Zrelak
Lou Criscuolo, Isabella Schroeder, Ricardo Ceballos

FUSS & O'NEILL

February 2, 2024

Mr. Thomas Sgroi, PE
Director of Engineering
Greater New Haven Water Pollution Control Authority
260 East Street
New Haven, CT 06511

Re: Professional Engineering Services
Westville Area Flood Resilience Project Development
Westville Area of City of New Haven, CT
Fuss & O'Neill Reference No. 20200469.A30

Dear Mr. Sgroi:

At your request, we are pleased to provide this agreement to assist the Greater New Haven Water Pollution Control Authority (GNHWPCA) to develop a flood resilience plan for the Westville Area of the City of New Haven. The GNHWPCA has secured a $506,000 grant from the DEEP Climate Resilience Fund (DCRF) on behalf of the impacted parties to assist in identifying and developing a cost-effective solution to minimize/eliminate potential impacts of future flood events. The goal of this plan is to develop scientifically informed nature-based solutions and preliminary engineering designs (30% design) for infrastructure improvements to minimize stormwater discharges to the combined sewer system and eliminate street flooding and sewer system backups.

The following paragraphs describe Fuss & O'Neill's (the Consultant) proposed scope of services and schedule of fees for the DCRF funded flood resilience study.

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Connecticut
Maine
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Vermont

Project Understanding

The Westville Area in the City of New Haven, generally encompassing the neighborhood extending from Combined Sewer Outfall 6 (CSO-006) at the West River and Whalley Avenue to the New Haven city limit just north of the Wilbur Cross Parkway, has experienced property and street flooding and sewer backups during major storms and recent intense rainfall events. This has resulted in disruption of traffic and street closures, sewer backups, and damage to commercial and residential units. The Westville Area is nearly fully developed and comprises an area of approximately 3+ square miles of sewered properties. Portions of the sanitary sewer system in the Westville neighborhood are combined with storm sewers, and many sections of roadway in the neighborhood lack any formal drainage infrastructure. Illicit connections to the combined sewer system (building drains, footing drains, roof leaders, and yard drains) are common in the neighborhood due to the age of the original development. Impacts from drainage-related flooding

and sewer backups are anticipated to worsen as the intensity and frequency of extreme precipitation increases. Previous resilience planning studies have identified the need for resilience interventions to address the flooding and sewer backups in the Westville neighborhood.

The GNHWPCA is partnering with the City of New Haven and other stakeholders (CTDOT, SCRCOG, neighborhood groups, and watershed organizations) to undertake this study, which includes ongoing community engagement. The project will result in recommended infrastructure improvements to be implemented by the City of New Haven, CTDOT, and the community to reduce existing and future sewer backups and street flooding. The plan will also evaluate the costs and benefits of the alternatives to cost-effectively address the project goals.

The infrastructure improvements are anticipated to include a combination of gray infrastructure, such as sewer separation and a new storm drainage system, and green stormwater infrastructure (i.e., bioswales, rain gardens, subsurface storage and infiltration systems, tree planting, etc.) to maximize the capture of rainfall and reduce runoff volumes where site conditions allow. It is anticipated that the green stormwater infrastructure will, at a minimum, retain or treat the water quality volume (i.e., "first flush" of precipitation), which will significantly improve the quality of any excess stormwater runoff which may ultimately discharge to the West River. Gray infrastructure will be used to cost-effectively manage the remaining stormwater to significantly reduce the flooding and sewer backup issues to the extent possible.

Scope of Services

In accordance with the terms and conditions of our on-call engineering services agreement with the Greater New Haven Water Pollution Control Authority, Fuss & O'Neill proposes to provide the following scope of services, which is based on the approved Scope of Work from the DCRF grant application. Assumptions and limitations are provided at the end of the proposal.

TASK 1A: Preliminary Project Design and Studies

Fuss & O'Neill will conduct studies to develop 30% preliminary-level designs ("Project Design") for reducing stormwater flooding in the West Rock sewershed in the Westville neighborhood of New Haven. These studies will include the following sub-tasks:

TASK 1.A.1: Project Studies and Feasibility Analysis

Review of Existing Plans and Studies

Fuss & O'Neill will gather and review relevant previous plans and studies including but not limited to:

- Westville Whalley Area Sewer Study SSR2022-04 Engineering Report (2023)
- City of New Haven Combined Sewer Overflow Long-Term Control Plan Update (2023)
- CIRCA Resilient Connecticut Phase II Report – Westville ROAR (2021)
- South Central Region: Plan of Conservation and Development 2018-2028 (2018)
- New Haven Vision 2025 (2015)
- West River Watershed Management Plan (2015)
- West River Combined Sewer Overflow Abatement Preliminary Design Memorandum (2014)
- Green Infrastructure Feasibility Scan for Bridgeport and New Haven, CT (2012)
- An Action Plan for the Revitalization of Westville Village (2009)
- SWMM hydraulic model for project area within New Haven
- Review as-built record plans for collection system to verify information in model and rim/invert elevations
- Review available building site plans, any sewer tie cards depicting lateral connections, and determine connectivity of roof leaders to collection system based on records.

Existing Conditions Model Review and Refinement

Fuss & O'Neill will review and refine the existing SWMM hydrologic and hydraulic model for the project area, provided by GNHWPCA, to simulate drainage-related flooding in the project area. We understand that the sewer system hydraulic model was updated in 2016. It is anticipated that minor refinements to the model will be necessary to reflect current site conditions and accurately simulate the frequency, extent, and depth of flooding in the project area. Such refinements may include adding missing storm drainage structures and pipes, updating storm catchment areas, adjustments to West River tailwater conditions, and other minor modifications.

As part of this task, Fuss & O'Neill will develop GIS base mapping of the project area including mapping of the existing storm drainage system, the combined sewer system, parcels, land use, topography based upon latest available LiDAR data, NRCS soils (Hydrologic Soil Groups), impervious surfaces, vulnerable populations and Environmental Justice areas, tree canopy, open space, and planimetric features (buildings, roads, trees, etc.). Fuss & O'Neill will work with staff from the GNHWPCA and the City of New Haven Engineering Department to document local experiences with observed flooding in the project area during past storm events. Areas of observed flooding will also be summarized on the GIS base mapping of the project area.

Fuss & O'Neill will make calibration adjustments to the SWMM model to align simulated results with past observed flooding based on photos, high water marks, or other evidence and dates of past flooding. Previously acquired precipitation data corresponding to these dates will be compiled with newly obtained precipitation data obtained from the NOAA operated weather station located at Tweed New Haven Airport. Staff will correlate modeled backups in the storm drains with visually observed and measured levels during storm events. Three days with two staff have been

budgeted to calibrate the model. Flow metering data collected by SLR in September-December 2022 for the Westville Whalley Area Sewer Study (SSR2022-04) may also be used to assist with the model calibration adjustment.

Fuss & O'Neill will utilize the refined SWMM model to establish baseline conditions in the storm drains and the combined sewer system within the project area. This modeling effort will indicate which roadways, road segments, and properties in the project area will be inundated for various return frequency precipitation events under existing conditions.

If critical infrastructure elevation information is discovered to be missing from the model, F&O will work with City and/or WPCA field staff over the course of one (1) field day to collect the necessary structure elevation and pipe size data for the PCSWMM modeling of the project area. The scope of services also includes in-office preparation for fieldwork and post-processing of the collected data. City of New Haven and/or WPCA staff will be on-site during data collection to open the stormwater structures and provide traffic control.

The refined SWMM model will be utilized to evaluate the existing 2-year, 25-year, and the 100-year 24-hour duration storm events, as well as a shorter-duration, more intense storm event reflective of recent observed rainfall, to be selected in conjunction with GNHWPCA and the City of New Haven. NOAA Atlas 14 precipitation frequency data and the NRCS NOAA_D rainfall distribution will be used in the analysis consistent with the recently updated Connecticut Stormwater Quality Manual. Areas of surcharge and flooding within the project area will be summarized using a combination of GIS maps, tables, and hydraulic profiles.

Future Conditions Model Development

Coordinating with GNHWPCA, Fuss & O'Neill will select and use projections of future precipitation to simulate anticipated future conditions in the storm drains and the combined sewer system, as well as areas of surcharge and flooding, by 2050 and 2100. Fuss & O'Neill will use the best available precipitation projections from the CT Physical Climate Assessment Report (2019). GNHWPCA will coordinate the CT DEEP review of the Climate Change Inclusion Memo prepared by Fuss & O'Neill in Task 2C. Fuss & O'Neill will attend one coordination call with CT DEEP to review the proposed approach.

Fuss & O'Neill will use the future conditions model results as the basis for discussion with stakeholders to inform the prioritization of problem areas. A summary of potential flood frequencies, extents, and depths will be prepared and combined with the summary information on existing conditions for stakeholder review and inclusion in the Final Report.

Development & Assessment of Conceptual Alternatives

Using the refined SWMM model and other information from the Field & Engineering Investigations and Analysis task, Fuss & O'Neill will identify green and gray infrastructure strategies for reducing flooding and related problems, such as sewer backups, within the project area. A summary of strategies will be prepared for review by GNHWPCA and CT DEEP. Through feedback from GNHWPCA and CT DEEP as well as community engagement, Fuss & O'Neill will identify and select specific strategies and develop conceptual alternatives to an approximately 10% design level of detail. Specific tasks include:

Green Infrastructure – Conduct an assessment to identify potential green stormwater infrastructure (GSI) opportunities or other nature-based solutions that may reduce flooding and provide co-benefits including improved stormwater quality, shading/cooling, and community enhancements. These may include but are not limited to bioswales, rain gardens, permeable pavement, increasing tree canopy, reduction in impervious area, and surface and subsurface storage/infiltration systems. Opportunities to implement GSI on City-owned property, within the public right-of-way including City roads and State roads under the jurisdiction of CTDOT, and on privately-owned sites with potential for strong public-private partnerships will be considered.

Gray Infrastructure – Conduct an assessment of opportunities for sewer separation and installation of a new or modified storm drainage system(s). This will include review of existing GIS data for the project area to determine potential locations to discharge stormwater (existing outfall locations), potential for subsurface storage, review of existing land use and topography, and the GNHWPCA design standards. Fuss & O'Neill will review recent records plans for rehabilitation/ replacement of existing infrastructure in the Westville neighborhood, and existing GIS records for private site drainage systems connected to the system. The assessment will include the validation of catchments within the project area (if not validated in previous tasks), sizing of proposed storm drain network to convey peak flows for, at a minimum, the 10-year, 24-hour design storm using NOAA Atlas 14 precipitation frequency data and the NRCS NOAA_D rainfall distribution, and evaluation of the existing capacity of the sewer system. The capacity and condition (where already documented) of the existing system will help determine whether existing pipes are to be used as sanitary sewer or storm drain.

Field work will be conducted to review the existing site conditions and topography, areas of current flooding, and spot check of manhole invert elevations. We have budgeted for a total of two (2) days to perform field work for conceptual design.

Other Flood Mitigation Measures – Conduct an assessment of other structural and non-structural mitigation measures and alternatives to reduce the impact of flooding in the project area including but not limited to outfall check valves, building floodproofing, elevation of structures and infrastructure, temporary road closures, flood warning systems, buyouts/relocation, etc. Benefits of these measures will be evaluated qualitatively and will not be included in the SWMM model.

Proposed Conditions Modeling

Use the refined SWMM model with the storm event conditions identified in the previous task to evaluate the flood mitigation benefits of up to 5 combinations of proposed gray and green infrastructure conceptual alternatives including sewer separation, drainage system improvements, and GSI. Areas of surcharge and flooding within the project area will be summarized using a combination of GIS maps, tables, and hydraulic profiles.

Conceptual Order of Magnitude Opinions of Cost

Develop planning level cost estimates (i.e., order of magnitude opinions of cost) for the conceptual alternatives to inform selection of a preferred alternative (or combination of alternatives) for preliminary design.

Technical Memorandum

Fuss & O'Neill will develop a technical memorandum to summarize the modeling and conceptual level alternatives evaluation.

Present Preliminary Findings

Fuss & O'Neill will meet with GNHWPCA, City of New Haven, CTDOT, and CT DEEP to select a preferred alternative to advance to preliminary design.

Deliverables:

- GIS-based figures depicting catchment areas and conceptual layouts and sizes of storm drains, sanitary sewers, GSI features, and other flood mitigation strategies within the project area.
- An analysis of existing and future conditions and table summarizing proposed pipe diameters and lengths on streets within the Westville neighborhood.
- Conceptual order of magnitude opinions of cost.
- Technical memorandum.

TASK 1.A.2: Development of Preliminary Design

Fuss & O'Neill will advance the preferred conceptual alternative selected from the previous task to preliminary design (approximately 30% design). The preliminary design will incorporate:

- Climate change conditions through at least 2050
- Nature-based solutions, where appropriate and to the extent feasible
- Feedback from community residents and stakeholders, including the City of New Haven, the CTDOT, and Westville neighborhood residents and stakeholders, that will be collected during the engagement activities described in task 1D
- The PERSISTS decision-support framework
- At a minimum, design requirements established in the recently updated Connecticut Stormwater Quality Manual. The preliminary design may exceed these minimum standards, as necessary, when incorporating climate change and associated future conditions.

GSI Test Pits & Infiltration Testing

Fuss & O'Neill will perform focused subsurface investigation at up to three (3) locations where green stormwater infrastructure is proposed. The subsurface investigation will consist of test pits excavated by a subcontractor to a depth of four to six feet below the ground surface, and test pit observations and field infiltration testing by Fuss & O'Neill staff to confirm the suitability of site soils for infiltration-based green stormwater infrastructure and design infiltration rates. Fuss & O'Neill will coordinate with "Call Before You Dig" prior to performing the field investigations. A qualified environmental scientist or staff engineer will observe and record soil characteristics, notate depth to groundwater or mottling characteristics, if bedrock or refusal is reached, and conduct the infiltration testing using a Turf-tec infiltrometer or similar method.

We have budgeted one (1) day of test pit observations and field infiltration testing, including subcontractor costs for excavation equipment and equipment operator as well as police details and Maintenance and Protection of Traffic (MPT) plans.

Gray Infrastructure Additional Data Collection

Additional field work will be needed to advance the gray infrastructure elements of the preferred alternative to preliminary design. Field work will consist of additional spot checks on manhole invert elevations, reviewing the constructability of proposed improvements, and identification of existing utilities and potential utility conflicts. We have budgeted for one (1) day of field work for this task.

Deliverables:

- Subsurface characteristics and infiltration testing summary and field notes from data collection in PDF format.

Preferred Alternative & Preliminary Design

Through feedback from GNHWPCA, the City of New Haven Engineering Department, CTDOT, and public engagement meetings, Fuss & O'Neill will advance the preferred conceptual alternative to preliminary design.

Sewer Separation Preliminary Design

In accordance with City and GNHWPCA design standards, a conceptual storm drain network will be designed to collect and convey stormwater currently contributing to the combined sewer system. The refined SWMM model will be used to inform the design. A submodel will be prepared utilizing the SWMM model provided by the Authority. Utilizing available GIS data and utility information, Fuss & O'Neill will provide plan view layouts on GIS base mapping and sizing of the conceptual storm drain network for the Westville neighborhood, determine the length of proposed storm drainage necessary to complete the separation, and summarize the results. Fuss & O'Neill will prepare conceptual estimates of probable project cost for sewer separation based on the preliminary level (approximately 30% design) drawings that will be prepared under this task. Fuss & O'Neill will also evaluate the necessary permits, approvals, and any land requirements for the proposed storm drain network and stormwater discharge.

Fuss & O'Neill will prepare a scope of work for future design phases to determine connectivity of downspouts and removal of any sump pumps (building inspection program) and a cleaning and CCTV inspection program based on information received from GNHWPCA. The CCTV inspection program will evaluate any pipes within the project area that have not been cleaned and inspected in the last five (5) years. We will prepare cost estimates for completion of the CCTV inspection and cleaning and a building inspection program.

GSI Preliminary Design

The preliminary designs for the GSI elements of the preferred alternative will include preliminary sizing consistent with stormwater retrofit design guidance contained in the recently updated Connecticut Stormwater Quality Manual, GIS-based proposed conditions site plan with preliminary grading and layout of the proposed GSI, typical details, and estimates of probable cost based on the preliminary level (approximately 30% design) drawings.

Design Basis Memorandum

Fuss & O'Neill will develop a technical memorandum to document the design development including potential utility conflicts, order of magnitude opinion of construction costs, anticipated permits and approvals, and recommended scope of work for future design phases.

Deliverables:

- Preliminary sizing and layout plan of the proposed improvements (in GIS format)
- Order of magnitude opinion of construction costs
- Anticipated permits, approvals, and land requirements
- Design basis memorandum for inclusion in final report

TASK 1.A.3: CTDEEP Project Review

GNHWPCA will coordinate CT DEEP review of the preliminary design and design basis memorandum. Fuss & O'Neill will attend up to two (2) coordination calls with GNHWPCA and/or CT DEEP.

TASK 1B: Match and Implementation Funding Assessment

Fuss & O'Neill will assess funding opportunities and mechanisms which may provide locally derived match and other funding for implementation and/or construction of the project recommendations. This assessment will be included in the Final Report described in Task 1D. Potential mechanisms for assessment may include, but are not limited to:

- Creating a stormwater authority
- Forming a municipal or joint municipal (two or more municipalities) flood prevention, climate resilience, and erosion control board pursuant of Part II of Chapter 477 of the General Statutes
- Establishing a district for a flood prevention, climate resilience and erosion control system
- Establishing a Climate Change and Coastal Resiliency Reserve Fund
- Identifying State, federal, and private grant opportunities that may provide matching funds for the above funding mechanisms
- Providing other potential funding mechanisms that CTDEEP may request and approve

Deliverables:

- Summary to be included in Final Report. A table of detailed preferred actions connected to timelines, and funding sources will be included.

TASK 1C: Federal Resilience Grant Application

The flood resilience plan will identify grant opportunities for possible implementation of the plan recommendations and project designs, including major state and federal grant funding sources. To prepare for targeted grant applications, Fuss & O'Neill will develop:

- A draft project narrative for targeted grant programs. This will be submitted as one of the required deliverables listed in Task 2D.
- Preliminary Order of Magnitude Cost-Estimate: Using the cost estimate methodology conforming to the requirements of the targeted federal resilience grant programs, Fuss & O'Neill will develop itemized opinions of probable cost for proposed project concepts that can be used to develop benefit-cost analysis, including costs for advanced and final design and bidding (along with the studies necessary to complete design, such as geotechnical analysis), construction staging and preparation, demolition of existing structures, traffic control, water control, earthwork, materials, labor, paving restoration, landscaping necessary for restoration, stormwater system repairs or replacement, etc.
- Benefit-Cost Analysis (BCA) will be conducted for the preferred alternative and will conform to FEMA methodology to ensure eligibility in applying for FEMA funds for construction/implementation, even if the initial targeted federal grant funding is not through FEMA.

Deliverables:

- Draft project narrative
- Detailed cost estimate
- Benefit-Cost Analysis and narrative summary

TASK 1D: Required Community and Stakeholder Engagement

Fuss & O'Neill will participate in two (2) public meetings to support the development of the Project Design prior to finalization of the design. Both meetings will be open to the public as well as key stakeholder groups including the Westville Village Renaissance Alliance, the West River Watershed Coalition, and the Mill River Watershed Coalition, City of New Haven, CTDOT, Westville area Aldermen, directly impacted residents and businesses, and other interested community representatives.

- One (1) meeting upon completion of Task 1A1 Project Studies & Feasibility Analysis, to communicate the project goals and solicit community feedback on preferred alternative.
- One (1) meeting upon completion of Preliminary Design to communicate the results to residents in the project area

To maximize inclusive community engagement and reach vulnerable populations and EJ community residents, both public meetings will be scheduled at times outside of working hours, will have translators present, and will provide refreshments at both in-person public meetings. Fuss & O'Neill will prepare two (2) digital flyers and provide the flyers to GNHWPCA for publication and circulation within the community (translation of flyers provided by GNHWPCA).
Fuss & O'Neill will also attend the planned quarterly (virtual) meetings with critical stakeholders organized through GNHWPCA.

Deliverables:

- Agenda and planning for two (2) public meetings
- Presentation materials (PPT and printed) for two (2) public meetings
- Two (2) digital flyers in English and Spanish
- Participation in six (6) virtual quarterly meetings

TASK 2A: Review of Quarterly Reports

Fuss & O'Neill will participate in six (6) coordination calls with GNHWPCA in preparation for the six (6) quarterly reports. During the calls, Fuss & O'Neill will provide GNHWPCA with updates on any ongoing tasks for inclusion in the reports (prepared and submitted by GNHWPCA).

Deliverables:

- Participation in six (6) coordination meetings.

TASK 2B: Final Report Executive Summary

Fuss & O'Neill will prepare a Final Report executive summary, which will not exceed 5 pages and will include:

- Climate Problem and Community Impacts Overview (not to exceed 250 words)
- Proposed Solution(s)
- Community Engagement Efforts and how community feedback was incorporated into the final project outcome
- Engagement and inclusion of Vulnerable Populations/Environmental Justice Community residents
- How the project incorporates climate change into the design
- How the project incorporates nature-based solutions and associated co-benefits
- How the project connects to CIRCA's PERSISTS decision-support framework
- Lessons learned and transferable lessons for other communities
- Plans for next steps, including funding assessment outcomes and federal resilience grant applications for implementation

Deliverables:

- Executive summary for inclusion in Final Report

TASK 2C: Climate Change Inclusion Memo

Fuss & O'Neill will prepare the Climate Change Inclusion Memo for review by CT DEEP. The memo will contain a draft summary of the Project Design which identifies what standard of rainfall it is designed for and how it accounts for future climate change conditions as referenced in the January 2021 Governors' Council on Climate Change report for CT DEEP review and approval. GNHWPCA will coordinate CT DEEP review, and Fuss & O'Neill will respond within 30 days to CT DEEP comments and incorporate CT DEEP feedback into the final Project Design.

Deliverables:

- Climate Change Inclusion Memo

TASK 2D: Final Report - Final Summary and Study Deliverables

Fuss & O'Neill will prepare a Final Report, which will contain:

- A copy of the final Project Design and related activities funded by the grant
- A copy of a draft project narrative for any federal grant application(s) intended to fund implementation of the Project
- A separate executive summary highlighting the process and lessons learned as detailed in Task 2B
- Presentation Slides in Microsoft PowerPoint (PPT) format which communicate the accomplishments and lessons learned including relevant photographs or images.
- A copy of the implementation funding assessment as detailed in Task 1B

Deliverables:

- Final Report (PDF format)

Assumptions

- All deliverables will be provided in electronic format and no hard copies are assumed to be required.

- Initial soils evaluation for the preliminary screening for GSI sites will be limited to review of NRCS soils data and previously conducted soils investigations within the West River watershed area of New Haven.
- SWMM model prepared and provided by GNHWPCA is developed to the level of completeness necessary for the essential modeling tasks included in this scope. This includes the following necessary stormwater system information included within the model for the project area: stormwater structure (manhole and catch basin) locations, sizes, and rim elevations, as well as pipe sizes, pipe materials, invert elevations, and connectivity/flow direction.
- Field work completed as part of the critical elevation survey will be limited to one (1) day. Field data collected during this survey will be limited to: GPS survey of manhole and catch basin rim elevations, measurements of catch basin size, measurements from manhole and catch basin rims to pipe inverts, measurements of pipe size at the manhole and catch basins and confirmation of pipe direction. GNHWPCA staff will be made available during the survey to open the stormwater structures and provide traffic control.
- Conceptual and preliminary design alternatives assume new storm drain will be within the City's right-of-way. Evaluation of potential easements for new stormwater infrastructure is not included in this scope of work.
- GNHWPCA will provide an ArcGIS database depicting the entire collection system (combined and sanitary sewers) within the project area including rim and invert elevations for all manholes based on the most recent information (as-built plans, building site plans, etc.) and outfall locations.
- Additional stakeholder engagement beyond what is detailed in this scope could be provided upon request.
- LIDAR is available for the entire project area, and additional topographic survey will not be required for the conceptual or preliminary design efforts described in the scope of services.
- Cleaning and CCTV inspection of the existing system and review of existing CCTV footage to determine recommendations for replacement or rehabilitation of existing pipes is not included in this scope of work. GNHWPCA will provide a list of pipes that have been inspected within the project area in the last five (5) years.
- GIS information from GNHWPCA and the City of New Haven will be utilized for base mapping. Supplemental planimetric survey is not included.
- Utility information will be compiled from visual field information as well as existing record mapping. The use of ground penetrating radar (GPR) to locate underground utilities is not included.
- Periods of adverse weather could impact the ability to perform field work which therefore could delay the completion of the field work.

Schedule

We propose to complete the project within the period of performance attached to the DCRF funding and anticipate starting work on this project immediately upon contract approval at the GNHWPCA's February 2024 Board Meeting, completing work within 18 months.

Fees

We propose to perform this work on an hourly rate basis, in accordance with the rates established in out current agreement with GNHWPCA for on-call engineering services last amended October 15, 2023. Estimated budget by project task are provided below.

Task	Basis	Estimated Fees
1A Preliminary Project Studies and Design		
1.A.1 Project Studies & Feasibility Analysis	NTE	*$190,000*
1.A.2 Preliminary Design	NTE	*$120,000*
1.A.3 CT DEEP Project Review	NTE	*$6,000*
1B Match and Implementation Funding Assessment	NTE	*$5,000*
1C Federal Resilience Grant Application	NTE	*$50,000*
1D Required Community & Stakeholder Engagement	NTE	*$30,000*
2A Review of Quarterly Reports	NTE	*$5,000*
2B Final Report Executive Summary	NTE	*$12,000*
2C Climate Change Inclusion Memo	NTE	*$6,000*
2D Final Summary & Study Deliverables	NTE	*$36,000*
	Total	***$460,000***

Hourly and additional services requested by GNHWPCA in addition to the scope of services provided herein will be provided upon expressed authorization according to the hourly rates contained in our on-call agreement with GNHWPCA last amended October 15, 2023.

Receipt of a signed copy of the Authorization to Proceed enclosed with this proposal or issuance of a purchase order referencing this proposal will serve to authorize the work outlined in the Scope of Services.

FUSS & O'NEILL

Thank you for requesting engineering services from Fuss & O'Neill. We look forward to working with you on this project.

Sincerely,

DRAFT

Sara Morrison, MLA, WEDG
Senior Climate Planner

Caleb Scheetz, LEP
Office Manager

Attachments: Authorization to Proceed

GNHWPCA Protecting the Environment
Greater New Haven Water Pollution Control Authority
260 East Street New Haven, CT 06511
203.466.5280 p 203 772.1564 f www.gnhwpca.com

MEMORANDUM

DATE: February 1, 2024

TO: Sidney J. Holbrook

FROM: Thomas Sgroi, PE
Director of Engineering

RE: Allocation of Climate Resiliency Funds
DEEP Climate Resilience Fund Grant
Westville Area Flood Resilience Project Development

Sid:
I request that the above-mentioned recommendation be added to the February 14th, 2024 Board Agenda for resolution.

The Engineering Department recommends and requests a resolution for the allocation of $506,000 application under the State of Connecticut Department of Energy and Environmental Protection (DEEP) Climate Resilience Fund per their notice of Grant award on June 14, 2023. The primary focus of this grant will be to seek solutions to mitigate or minimize the reoccurring flooding in the Fairhaven neighborhood of New Haven. To be approved under a separate request, the Authority will hire an Engineering Consultant to assist with this project.

Pending execution of the Grant by the DEEP and the Authority, this project will receive a 100% grant.

Thomas V. Sgroi, PE
Director of Engineering

e-copy: Gabe Varca, Gary Zrelak
Lou Criscuolo, Isabella Schroeder, Ricardo Ceballos

Greater New Haven Water Pollution Control Authority

345 East Shore Parkway New Haven, CT 06512 203 466 5281 p 203 466 5286 f www.gnhwpca.com

To: Director of Finance and Administration

From: Engineering - Capital Improvements

Date: 02/01/24

Re: Departmental Budget Transfer Request

Transfer Amount	Transfer From	Transfer To
$500,000	02.0000.024.7638	02.0000.019.7605
	Central Interceptor	Boulevard Interceptor
$500,000	**Total**	

Explanation: Funds needed to replenish project budget

Department Signature:

Approved by:

Director of Finance and Administration

Approved by:

Executive Director

Board Approval:

Date of Meeting

Notes:

All departmental budget transfers to and from Regular Wage (5010), Temporary & Part Time Wage (5011), and Overtime Wage (5015) Accounts shall be submitted to the Executive Director for review and approval

All fund transfers between departmental budgets and cost centers less than $10,000 shall be submitted by the Director of Finance and Administration to the Executive Director for review and approval.

All fund transfers between departmental budgets and cost centers equal to and greater than $10,000 shall be approved by the Board of Directors

Greater New Haven Water Pollution Control Authority
345 East Shore Parkway New Haven, CT 06512 203 466 5281 p 203 466 5286 f www.gnhwpca.com

To: Director of Finance and Administration

From: Engineering - Capital Improvements

Date: 02/01/24

Re: Departmental Budget Transfer Request

Transfer Amount	Transfer From	Transfer To
$201	02.0000.019.7584	02.0000.024.7513
	Grit Pad/Collections Maint	Sanitary Infrastructure I & I
$861	02.0000.021.7563	02.0000.024.7513
	CWF Projects Local	Sanitary Infrastructure I & I
$192,688	02.0000.022.7508	02.0000.024.7513
	Emergency Sewer Repair	Sanitary Infrastructure I & I
$159,191	02.0000.022.7513	02.0000.024.7513
	Sanitary Infrastructure I & I	Sanitary Infrastructure I & I
$87,100	02.0000.022.7603	02.0000.024.7513
	Roof Replacement	Sanitary Infrastructure I & I
$61,961	02.0000.024.7621	02.0000.024.7513
	Portable Generator	Sanitary Infrastructure I & I
$14,700	02.0000.022.7625	02.0000.024.7513
	ES HVAC Sub 3	Sanitary Infrastructure I & I
$1,883,343	02.0000.023.7513	02.0000.024.7513
	Sanitary Infrastructure I & I	Sanitary Infrastructure I & I
$300,000	02.0000.024.7638	02.0000.024.7513
	Central Interceptor	Sanitary Infrastructure I & I
$2,700,045	**Total**	

Explanation: Funds needed for SSR 2024-01 - 2024 Collections System Assessment and CIPP Lining Rehab Project

Department Signature:

Approved by:

Director of Finance and Administration

Approved by:

Executive Director

Board Approval:

Date of Meeting

Notes:

All departmental budget transfers to and from Regular Wage (5010), Temporary & Part Time Wage (5011), and Overtime Wage (5015) Accounts shall be submitted to the Executive Director for review and approval

All fund transfers between departmental budgets and cost centers less than $10,000 shall be submitted by the Director of Finance and Administration to the Executive Director for review and approval.

All fund transfers between departmental budgets and cost centers equal to and greater than $10,000 shall be approved by the Board of Directors