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RESPONSE TO:

TOWN OF CORNWALL
REQUEST FOR PROPOSAL:
DESIGN, PERMITTING AND CONSTRUCTION OF A WASTEWATER TREATMENT FACILITY

August 25, 2025

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August 25, 2025

ATTN: Gordon Ridgway, First Selectman
Selectmen's Office
Town of Cornwall
24 Pine Street, Cornwall, Connecticut 06753
O: 860.672.4959
E: selectmen@cornwallct.gov

Re: Response to RFP
Design, Permitting, and Construction
Of a Wastewater Treatment Facility

Dear Selectman Ridgway and Board:

Thank you for evaluating the credentials and presentations of the various firms that responded to the Town's Request for Qualifications this spring. NSU is honored and appreciative to have been selected to provide a formal proposal for the Design/Build of a new wastewater treatment facility.

As described in our qualifications package, Natural Systems Utilities (NSU) has been providing Design/Build services for community-scale membrane bioreactors (MBRs) for four decades. An MBR will not only meet the stringent permit limits of a discharge to the Housatonic River, but it will also position the Town for future water reuse applications.

NSU's strong qualifications will be augmented via partnership with Langan, CT, Inc. (Langan) of New Haven, Connecticut. Langan will help secure a surface water discharge permit. NSU will design and build the treatment facility. NSU has also collaborated with WMC Consulting Engineers of Newington, Connecticut on several projects. (WMC is expected to be designing the associated collection system under separate contract).

This document is organized as follows:

A. Introduction and Purpose 2
B. Scope of Work 3
C. Projected Schedule 13
D. Fee Proposal and Authorization Page 14
E. Safety and Sustainability Awards 19
F. Team Resumes 22
G. RFQ Response (For Reference) 50

A. Introduction and Purpose

The Town of Cornwall is seeking Design/Build proposals from pre-qualified firms to design, permit, engineer, construct, and commission a ~15,000 gallon per day (GPD) Membrane Bioreactor (MBR) system for the treatment of wastewater collected from the Village of West Cornwall, in the Town of Cornwall. The goal of the project is to produce high-quality effluent that meets all regulatory discharge requirements while cost-effectively ensuring system reliability and long-term performance. The proposed treatment system will be located on a parcel of land to be obtained by the Town and the discharge of treated effluent will be to the Housatonic River.

Per Town guidance, it is assumed that the:

- Site for the MBR facility has been chosen (on Sharon-Goshen Turnpike, Route 128)
- WWTP building/structure shall reflect the historic nature of West Cornwall Village
- Town will provide site topographic, boundary survey, site, and geotechnical reports and plans
- Town is responsible for permitting, design, and construction of the associated collection system

This scope outlined in this document is divided into two phases, consistent with the RFP. The first phase includes the design and permitting of the treatment facility and discharge. The second phase includes construction, testing, and startup.

At this time, the Town is requesting a detailed proposal for the first phase, and more general information on the second phase including an estimate of the cost for construction and start-up of the proposed facility. The Town will use the estimate for budgeting purposes only, as it will be refined as the design process proceeds – as is customary for Design/Build project delivery.

The selected firm will be responsible for providing a complete MBR-based wastewater treatment system, including design, permitting, engineering, procurement, construction, testing, commissioning, and start-up of the system. The firm may also be considered for long term licensed operations services.

B. Scope of Work

The proposed scope of work is detailed below and divided into the respective two phases.

PHASE 1

Project Kick-Off Meeting. The NSU team will schedule, coordinate, and lead a project kick-off meeting with the Town and other design professionals (WMC, DTS, etc.). The purpose of this meeting will be to introduce team members, to identify an appropriate point of contact for each entity, and to review and confirm overall responsibilities and schedule. It is also expected during this meeting that Cornwall may present conceptual engineering designs and plans relative to overall conveyance, outfall location, etc.

Pre-Application Meeting #1. It is assumed that the Town will be the applicant. NSU will schedule, coordinate, and lead a pre-application meeting with the Connecticut Department of Energy and Environmental Protection (CT DEEP) through their concierge service. Prior to the meeting, NSU will complete and submit the DEEP APP-001 pre-application package and prepare a project outline. The purpose of this meeting will be to formally introduce the project, to confirm permitting procedures, forms, and contents, and to establish regular lines of communication during the application and review process. NSU and Langan will present the overall conceptual plan/design to CT DEEP during the pre-application meeting. It is recommended that the applicant be in attendance for this pre-application meeting. If unable to attend, a written meeting summary will be provided to Cornwall.

The proposed discharge location on the Housatonic River corresponds to the CT DEEP-listed segment CT6000-00_06 or Housatonic River-06. It is listed in the CT DEEP 2022 Integrated Water Quality Report as being impaired for recreational use due to the Escherichia coli (E. coli) pollutant. It has an approved Total Maximum Daily Limit (TMDL) Plan dated September 2012 under the Connecticut Statewide Bacteria TMDL titled Housatonic River Watershed Summary. (Based on the latest CT DEEP reports, Mill Brook does not have any impairments). The preferred strategic location for discharge to the Housatonic, considering factors such as flow, pollutant loading limitations, impairment status, and other relevant considerations will be identified based on direct coordination with CT DEEP and the project team. Effluent limits will also be discussed.

Membrane Alternatives. Concurrent with the pre-application tasks, NSU will provide an analysis of various membranes based upon initial construction cost, operating cost, functionality, replaceability, and long-term reliability. Manufacturer's information, third-party evaluations, and NSU's deep, direct experience will be considered. A recommendation based on lowest life-cycle cost will be made based on this analysis.

Pre-Application Meeting #2. A second pre-application meeting will be scheduled with specific staff from the municipal wastewater and NPDES departments responsible for the review and issuance of the permit. This second meeting will facilitate alignment on specific surface water discharge permitting requirements and expectations, should they differ from the expected permit application package components (detailed below).

It will also provide an additional opportunity to ask questions and receive feedback from CT DEEP on any outstanding items from the prior meeting. It is best practice for a consultant to coordinate with individual CT DEEP staff members reviewing the application and establish an open line of communication and transparency. The purpose of this meeting is to confirm the application scope, required supporting documents, and permit strategy. This meeting is a key step in identifying discharge parameters that require assessment, determining sampling requirements, and confirming site-specific regulatory expectations.

Engineering Design and Permitting. Following confirmation of the design flow in cooperation with the town and establishment of design permit effluent requirements, NSU will proceed with design services for the MBR-based WWTP that will include all components of a technically complete CT DEEP application. It is assumed that the raw influent is domestic in nature (non-industrial) and that treatment will be provided to satisfy the following limits:

Biochemical Oxygen Demand	<10 mg/l
Total Suspended Solids	<10mg/l
Ammonia Nitrogen	<1 mg/l

These limits are stricter than those listed in existing and draft permits for much larger discharges to the Housatonic, upstream of West Cornwall. Thus, they are expected to be conservative. It is also possible that CT DEEP imposes a limit for phosphorus. NSU has accounted for a potential limit of 1-2 mg/l. Due to the low volume of the proposed discharge, additional limits are not anticipated. The 7Q10 (the lowest average flow rate for a 7-consecutive-day period expected to occur once every 10 years) for the Housatonic River in West Cornwall is estimated to be about 110 cubic feet per second (cfs). This flow is used by regulatory agencies to assess the dilution capacity of a stream to ensure that water quality standards are maintained even during low-flow conditions. Based on this flow rate, the full design flow of the proposed MBR will constitute only 0.021% of the total flow, even during drought conditions. This represents a dilution factor of nearly 5000:1.

Whether additional parameters are regulated or additional permit application components are needed due to the potential discharge location(s) will also be discussed during the pre-application meetings. The design will be consistent with the standards established by the New England Interstate Water Pollution Control Commission's Technical Report 16 - *Guides for the Design of Wastewater Treatment Works* (TR-16). In general, this will include site layout, generalized building design, process and hydraulic design, process equipment, plumbing, HVAC, structural, electrical and instrumentation components, emergency power, integration with the existing and proposed infrastructure, an engineer's report, technical specifications, and technical application forms and supporting documentation. Major tankage is anticipated to be precast concrete.

A representative drawing set list follows. This list is not intended to include all possible drawings, nor is it intended to indicate that each of the drawings shown below will be applicable. Some of the detail sheets may not be needed for the Phase 1 permit submittal.

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SAMPLE DRAWING LIST INVENTORY

Sheet Count	Sheet Title	SHEET NAME
1	CS	Cover Sheet
2	A1	Building Rendering
3	A2	Building Elevations
4	A4	Architectural Floor Plan
5	A5	Preliminary Truss Layout
6	A6	Architectural Details
7	S1	Building Floor Plan - Top Slabs
8	S2	Structural Sections
9	S4	Sludge Holding Tank
10	S5	Structural Details
11	P1	Process Flow Diagram (P&ID)
12	P2	Hydraulic Profile
13	M1	Mechanical Floor Plan
14	M2	Process Building Floor Plan
15	M3	Tanks Floor Plan
16	M4	Equalization Tank Sections
17	M5	Pre-anoxic Tank Sections
18	M6	Aeration Tank Sections
19	M7	Post-Anoxic Tank Sections
20	M8	Membrane Tank Section
21	M9	Mechanical Sections
22	M11	Process Sections
23	M13	Wet Well & Post Aeration Sections
24	M14	Chemical Storage & Fine Screen
25	M15	Sludge Holding Tank Sections
26	M16	Mechanical Details

Sheet Count	Sheet Title	SHEET NAME
27	M18	Ultraviolet Details
28	M19	Chemical Feeds
29	M20	Plumbing Plans
30	M21	Plumbing Riser Diagram
31	E1	Electrical Symbols Legend
32	E2	Service Entrance One-Line Diagram
33	E3	MCC One Line Diagram
34	E6	Electrical Floor Plan
35	E7	HVAC & Lighting Plan
36	E8	AC Conduit & Panels
37	E9	DC Wire & Conduits
38	E10	Electrical Details
39	D1	Symbols and Abbreviations
40	D2	Fine Screen & EQ
41	D3	Process Tankage Train
42	D4	Membrane Tankage
43	D5	Membrane Backwash
44	D6	UV & Wet Well
45	D7	Post-Aeration Tank
46	D8	Sludge Holding Tank
47	D9	Process Blowers
48	D10	Membrane Blowers
49	D11	EQ / Sludge Tank Blowers
50	D12	Chemical Feeds
51	D13	Grading Plan
52	D14	Utility Plan

Permit Application Package. It is anticipated that the Town of Cornwall will be the applicant. NSU will support the application package and complete all technical items related to the wastewater treatment plant, the surface water discharge, and water quality.

A permit application package will be prepared consisting of CT DEEP administrative and technical forms, NSU/Langan prepared documents and plans, applicant-provided documents and plans, and specific notifications. The NSU/Langan prepared permit application package will address components specific to wastewater treatment and wastewater discharge (outfall). The applicant will be responsible for regulatory permit fees and elements related to the collection system and linear infrastructure, and outfall. It is expected to include the following components:

- Permit Application for Wastewater Discharges from Domestic Sewage Treatment Works (to Surface Waters) Form (Form DEEP-WPMD-APP-300)
- Attachment AA – Certification of Notice Form – Notice of Application (Form DEEP-APP-005A) with a copy of the published notice of permit application
- Attachment A – Executive Summary (Form DEEP-WPED-APP-101)
- Attachment B – Applicant Background Information (Form DEEP-APP-008)
- Attachment C – Applicant Compliance Information Form (Form DEEP-APP-002)
- Attachment D – United States Geological Survey (USGS) Map
- Attachment F – Connecticut Natural Diversity Database (NDDB) Endangered and Threatened Species Information (if determined applicable)
- Attachment I-1 – Site Plans
- Attachment I – Operation & Maintenance of Collection and Treatment Systems – Description, Plan Checklist, and Certification (Form DEEP-WPED-APP-103)
- Attachment M – Process Flow Diagrams
- Attachment N – Collection, Treatment, and Disposal Systems Descriptions and Plans
- Attachment P – Sewage Sludge Information for Domestic Sewage Treatment Facilities (Form DEEP-WPED-APP-108)
- Attachment Y – Discharge Information (Form DEEP-WPMD-APP-301).

Additional detail regarding Attachments I and N follows.

Attachment I – Operation & Maintenance of Collection and Treatment Systems – Description, Plan Checklist, and Certification Form DEEP-WPED-APP-103 helps ensure the applicant has an adequate and robust Operations and Maintenance (O&M) Plan for the system it intends to install and operate. A complete O&M Plan will be prepared, which at a minimum will include the required plan elements listed in Form DEEP-WPED-APP-103. A draft will be provided to the Client for review and comment, and one round of comments will be addressed prior to completion. Finalization will require an authorized signatory of the Client to sign the Applicant Certification of an Operation and Maintenance Plan Checklist on page 4 of Form DEEP-WPED-APP-103. It is anticipated that revisions to the O&M may be necessary following final design and construction. Any such revisions would be covered under Phase 2.

Attachment N –A design describing the proposed means of collecting, treating, and disposing of wastewater in the form of drawing plans, specifications, and a narrative description component, will need to be submitted. Per the RFP, NSU will be responsible for providing the treatment system component and information related to final effluent and in-stream water quality. The applicant will be responsible for plans, specifications, and a narrative for the collection system and the disposal system (conveyance from the treatment system and outfall). The details of the collection and disposal systems are also required to support the preparation of Process Flow Diagrams required in Attachment M and the Executive Summary in Attachment A.

Finalization of the package requires that the Applicant Certification of the Permit Application for Wastewater Discharges from Domestic Sewage Treatment Works (to Surface Waters) Form DEEP-WPMD-APP-300 be signed by an authorized signatory of both the Client and NSU/Langan. According to CT DEEP's website, it is recommended that a final permit application package submission be made at least 180 days prior to the planned first day of discharge. However, based on previous experience, it is recommended that a final permit application package submission be made up to 365 days prior to the planned first day of discharge. In addition, construction of any collection, treatment, and disposal systems prior to an issued permit by CT DEEP is done at risk. Details pertaining to timing of submissions and overall project schedule will be confirmed during the pre-application meeting process.

A final permit application package, plus one copy, will be submitted to the Central Permit Processing Unit of CT DEEP located at 79 Elm Street in Hartford, CT 06106 by certified priority mail. NSU has budgeted up to twenty (20) hours for staff and senior personnel to participate in calls, virtual meetings, or email correspondence, as needed to respond to questions and address CT DEEP comments throughout the technical review and permit issuance process. NSU will also serve as liaison between the Town and CT DEEP, maintaining communication and documentation through the pre-submittal and permit processing stages.

Following CT DEEP's technical review, a public notice in the form of a Notice of the Tentative Determination will be published by CT DEEP, and a thirty-day comment period will follow with the option for public hearings. Locally, regularly scheduled town meetings may include this project on their agenda items, and special meetings may also be planned for this project. If significant public comments are received, and public hearings hosted by CT DEEP, or local meetings hosted by the Town, require NSU/Langan support and technical expertise, such services would be available and charged on a Time & Expense (T&E) basis.

NSU/Langan will review and provide comments on any draft permit issued to the applicant by CT DEEP and has budgeted up to four (4) hours for this work. If major revisions or perceived issues are discussed or desired, additional scope and fee can be provided for strategic permit support. Specific requirements for notifying, monitoring, or reporting may be listed in the permit that pertain to startup operations and/or a specified initial timeframe of discharge. In this case, such requirements would be supported under Phase 2.

For clarity, the above components and general Phase 1 responsibilities are summarized for each project component in the following table.

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CT DEEP PRE-APPLICATION AND APPLICATION RESPONSIBILITIES

PRE-APPLICATION COMPONENTS	NSU/Langan	Cornwall	Notes
Provide Geotech report for site		X	
Provide native electronic base plans for site (DWG format)		X	
Project Kickoff Meeting	X	X	
Pre-Application Package / Meeting #1	X	Optional	Town encouraged to attend
Membrane Alternatives Report	X		
Pre-Application Package / Meeting #2	X	Optional	Town encouraged to attend
Engineering Design and Permitting	Details Below		
APPLICATION COMPONENT	**NSU/Langan**	**Cornwall**	**Notes**
Permit Application for Wastewater Discharges from Domestic Sewage Treatment Works (to Surface Waters) Form (Form DEEP-WPMD-APP-300)	X		Attachments included, Town signature required
Attachment AA – Certification of Notice Form – Notice of Application (Form DEEP-APP-005A) with a copy of the published notice of permit application	X		
Attachment A – Executive Summary (Form DEEP-WPED-APP-101)	X		Attachments included
Attachment B – Applicant Background Information (Form DEEP-APP-008)		X	One page - to be completed by Town
Attachment C – Applicant Compliance Information Form (Form DEEP-APP-002)		X	Two pages - to be completed by Town
Attachment D – United States Geological Survey (USGS) Map	X		
Attachment F – Connecticut Natural Diversity Database (NDDB) Endangered and Threatened Species Information	X		
Attachment I-1 – Site Plans	Treatment	Collection & Disposal	
Attachment I – Operation & Maintenance of Collection and Treatment Systems – Description, Plan Checklist, and Certification (Form DEEP-WPED-APP-103)	Treatment	Collection & Disposal	
Attachment M – Process Flow Diagrams	X		
Attachment N – Collection, Treatment, and Disposal Systems Descriptions and Plans	Treatment	Collection & Disposal	
Attachment P – Sewage Sludge Information for Domestic Sewage Treatment Facilities (Form DEEP-WPED-APP-108)	X		
Attachment Y – Discharge Information (Form DEEP-WPMD-APP-301).	X	Part A7	
Compilation, packaging, and submittal to CT DEEP	X		Application fee by Town

Coordination with Others. NSU will also coordinate closely with the collection system designer and the discharge line designer to ensure that all scope elements are covered without any gaps or overlaps. During the design phase it is anticipated that the Town will request status meetings at the follow stages of completion: 30%, 70%, 90% and 100%.

Architectural Design. Architectural coordination during Phase 1 is planned, but be limited, as the CT DEEP is more focused on treatability and disposition of wastewater. The bulk of the architectural efforts will be part of Phase 2, although preliminary coordination with a local architect of the Town's choosing, such as Keskinen Architects or Patrick Mulberry in Cornwall Bridge is expected during Phase 1. NSU has reached out to both firms and informally discussed the project. Collaborating with either of these firms or another firm, at the recommendation of the Town, would be welcomed.

Refine Construction Budget. Following the CT DEEP application submittal, most structural, equipment, process, and electrical components are well defined, and the base construction budget and schedule can be further refined. An engineer's estimate for Phase 2 Design/Build efforts will be prepared along with an updated schedule, within 30 days of the CT DEEP application submittal.

PHASE 2

Final Design of WWTP. This task will include final design to a level of detail consistent with Design/Build project delivery and suitable to obtain local building permits. In addition, up to three architectural renderings will be prepared and provided to the Town for review. To facilitate this process, **public engagement and input will be encouraged**, should the Town so desire. Each rendering will be accompanied with a construction price estimate which would be added to the base construction budget, prepared toward the end of Phase 1. Following the Town's selection of one of the renderings, the architectural design will proceed to completion. The following examples are among numerous possible styles to emulate.

ARCHITECTURE FIT FOR PLACE

The Village of West Cornwall is nestled in a picturesque valley beside the Housatonic River, surrounded by forest. The setting complements the historic architecture and contributes to the area's charm including its iconic covered bridge. The overall architectural character of West Cornwall is rooted in the traditions of New England, with buildings often featuring simple forms, gabled roofs, and clapboard siding.

Pierce Homestead c. 1750 (Cornwall)

The Town of Cornwall and the Village of West Cornwall, feature a blend of architectural styles, with a strong presence of historic buildings and notable examples of 19th- century construction. Many of the homes are older, historical properties, some dating back to the 18th and 19th centuries, with features typical of New England residential architecture. Other architectural styles of the area include more ornate structures with intricate details. When considering a specific style, the limited area available should also be considered. The WWTP structure will be designed to be as compact as practical.

Old Toll House c. 1800 (West Cornwall)

Foster-Beck House c 1840s (Greek Revival)

Brick Shed (typ)

Former Cornwall Public Library (1908)

Colonial Garage (B&B typ)

Brick Garage Structure (Behm Design - typ)

Brick Garage Structure (B&B - typ)

Site Plan Approval Support. NSU will support Site Plan Approval on an as needed basis. Because the level of effort, if any, cannot be known at this time, such support would be provided in accordance with current hourly rates.

Procurement and Fabrication. NSU will procure, provide, and/or manufacture all necessary materials and equipment for a functioning MBR-based WWTP, including but not limited to the building structure, membranes, pumps, blowers, process equipment, tanks, meters, controls, instrumentation, electrical components, and an emergency generator. All components will be new and meet the specified design, performance, and warranty criteria.

Construction and Installation. A dedicated Construction Manager will be onsite to coordinate and oversee all construction efforts. NSU will obtain all local building permits and coordinate with inspections, as needed. NSU will provide all construction equipment, tools, and labor to complete the work including excavation, foundations, structures, tanks, mechanical, electrical, process, and instrumentation components as per the approved design drawings and specifications to deliver a turnkey MBR treatment system.

Commissioning and Start-up. Representatives of NSU's licensed operations staff will be on-site periodically during the construction phase to provide operability input, to familiarize themselves with the facility, and to prepare for commissioning and start-up. Following leak tests and commissioning of individual pieces of equipment and other system components, NSU will perform complete wet testing of the facility to demonstrate and ensure that all features and functionalities are operating as designed. NSU will fine tune system programming and make process adjustments as necessary. NSU will perform all required testing to verify the system's operational readiness. Next, the system will be biologically seeded, prior to accepting raw wastewater to ensure rapid compliance with the discharge permit limits. Finally, NSU will demonstrate that the MBR system is fully operational and can reliably and consistently meet the performance specifications at the design flow. Should actual flow be less than 50% of the design flow, additional flow and loading can be simulated to demonstrate treatment at design capacity.

Post Start-up Scope. The CT DEEP may require the applicant to conduct a Discharge Toxicity Evaluation (DTE) as a permit requirement post-issuance in accordance with Regulations of Connecticut State Agencies (RCSA) 22a-430-4(c)(21). A DTE typically consists of collecting specific toxicity data from sampling the applicant's discharge, a site plan, and a detailed discussion evaluating the results. The pre-application meetings with CT DEEP should help clarify the specific DTE requirements CT DEEP may impose on the applicant, given the location, size, and scope of the project, and understand if any exemptions listed in RCSA 22a-430-4(c)(21)(C) can reasonably be pursued.

Once the post-issuance requirements are better understood, a scope and fee for DTE support, or for an exemption application, can be developed. The strategy proposed is to pursue an exemption. Because the MBR-based treatment system will produce near drinking water quality effluent, an exemption should be possible.

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C. Projected Schedule

The summarized schedule provided below is an estimate based on assumed Notice to Proceed dates for each project phase. NSU cannot control the time required for regulatory review or other approvals, but will diligently act to maintain actual project delivery as close to the below projection as possible.

DRAFT PROJECT SCHEDULE

Task Name	Duration	Start	Finish
Draft Project Schedule	**793 days**	**9/1/25**	**9/12/28**
PHASE 1	**139 days**	**9/1/25**	**3/12/26**
Progressive DB Contract Execution	1 day	9/1/25	9/1/25
ASSUMED NOTICE TO PROCEED	1 day	9/1/25	9/1/25
Project Kick-Off Meeting	1 day	9/16/25	9/16/25
Pre-Application Meeting #1	1 day	10/22/25	10/22/25
Pre-Application Meeting #2	1 day	11/20/25	11/20/25
Membrane Alternative Report	30 days	9/2/25	10/13/25
Surface Water Discharge Scope	90 days	9/2/25	1/5/26
Wastewater Treatment Design	101 days	9/2/25	1/20/26
Conceptual Design Meeting (30%)	1 day	10/14/25	10/14/25
Progress Design Meeting (70%)	1 day	12/17/25	12/17/25
Progress Design Meeting (90%)	1 day	1/29/26	1/29/26
Final Design Meeting (100%)	1 day	2/6/26	2/6/26
CT DEEP Application Package	10 days	2/9/26	2/20/26
Refine Construction Budget/Schedule	30 days	1/30/26	3/12/26
PHASE 2	**397 days**	**9/1/26**	**3/7/28**
ASSUMED NOTICE TO PROCEED	1 day	9/1/26	9/1/26
Procurement (Long Leads)	180 days	9/2/26	5/10/27
Final Engineering Design	45 days	9/2/26	11/3/26
Final Architectural Design	45 days	9/2/26	11/3/26
Site Plan Approval	45 days	11/4/26	1/4/27
Local Building Permits	10 days	1/12/27	1/25/27
Procurement (General Major Items)	1 day	1/26/27	1/26/27
Trades Scope & Scheduling	33 days	12/16/26	1/28/27
PreConstruction meeting	1 day	2/2/27	2/2/27
Mobilization	5 days	2/17/27	2/23/27
Site Preparation	5 days	2/17/27	2/23/27
Excavation / Underground Tankage	30 days	2/24/27	4/6/27
Major Submittals	90 days	11/25/26	3/29/27
Foundations	30 days	4/7/27	5/18/27
Building / Structure	60 days	5/19/27	8/10/27
Process/Mechanical/Electrical/HVAC	120 days	5/19/27	11/2/27
Balance of WWTP Construction	60 days	11/3/27	1/25/28
Miscellaneous Site Work	270 days	2/24/27	3/7/28
Testing and startup	14 days	1/26/28	2/14/28
GO LIVE	1 day	2/15/28	2/15/28
Closeout (As-builts, Certs, O&Ms, Punch List)	15 days	2/15/28	3/6/28
DTE Evaluation or Exemption Application	120 days	3/29/28	9/12/28

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D. Fee Proposal

The following cost breakdown for Phase 1 services below represents a fixed price based on the scope described herein.

PHASE 1 FIXED FEE	
Project Kick-Off Meeting Scheduling and coordination and project start up	$4,140
Pre-Application Package / Meeting #1 Project outline, pre-application package, scheduling, coordination	$6,300
Membrane Alternatives Technical Report: life-cycle costs, functionaility, reliability	$5,160
Pre-Application Package / Meeting #2 Design and permit coordination / confirmation	$7,800
Engineering Design and Permitting Provide all technical components of CT DEEP application package	$139,320
Application Package Completion, compilation and submittal to CT DEEP (see also page	$30,000
Post Application Support And follow up with CT DEEP	$6,000
Coordination with Others Town, Regulators, Architect, Other Professionals	Included
Refine Construction Budget Technical memo, full cost estimate, schedule update	$11,520
Additional Services / Additional Meetings Available, *if requested*	at T&E Rates
TOTAL FIXED PRICE	**$210,240**

ALTERNATE #1	
The above includes <u>final</u> engineering design of the MBR, and leaves only architectural enhancements for Phase 2. If the Phase 1 design is instead limited to that required to obtain from CT DEEP a "Notice of Tentative Determination", Phase 1 savings would result and the difference would accrue to Phase 2.	
TOTAL FIXED PRICE	**$95,920**

A cost breakdown for Phase 2 follows (next page).

The Phase 2 breakdown is not intended to include all possible construction elements, nor is it intended to indicate that each of the elements shown below will be applicable and included on this project. It serves for general guidance purposes only and should be considered an AACE Class 3/4 estimate at this time.

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PHASE 2 ESTIMATE			
General Conditons	**$20,000**	**Electrical/Generator**	**$275,000**
Construction Phase Engineering Support	**$20,000**	Genset and ATS	
Contstruction Phase Operations Support	**$10,000**	Site Lighting	
Construction/Engineering Super	**$225,000**	Main Distribution Panel	
Long Lead / Deposits (TBD Portion of Below)		Subpanels/Control Panels	
General Site Work / Earthwork	**$75,000**	Transformer	
Site Excavation, Backfill, Compaction		VFDs	
Shoring/blasting/dewatering/etc (per Geotech)	**TBD**	HMI and communications	
Construction Fencing, SESC Elements		Low Voltage Control Panel	
Stone bedding slabs, piping		Programming	
Concrete Work	**$175,000**	Electrical labor and misc materials	
Forms and Steel		**Base Building**	**$100,000**
Foundations		Structure	
Headworks Tankage		Doors and Penetrations	
Process Tankage		Trusses and Roof	
Storage Tankage		Siding/insulation	
Slabs		Architectural Enhancements	**TBD**
Pads		Finishes / Balance	
Hatches & Safety Eqipment		HVAC	
Mechanical / Process Equipment	**$375,000**	Louvers	
EQ Pumps / Fine Screens / Screen Box		Plumbing	
Fine bubble diffusers		Effluent Discharge Station (Structural)	
Coarse bubble diffusers		Effluent Station (Mech/Elec/I&C/Safety)	
Aeration / Floats / Alarms		Electrical Connections	
Membranes, Frames, Rails, Lifts		**MSRs, Testing, Startup**	**$50,000**
Permeate Pumps, RAS Pumps		Leak Testing	
Mixing, Process, Membrane Blowers		Commissioning	
Instrumentation (meters, sensors, etc.)		Wet Testing / Functional Testing	
Mono Crane		Seeding	
UV System		Startup	
Odor Control System		As-Builts	
Chemical Systems / Safety		O&Ms	
Effluent Discharge System		Functional Description	
Mechanical / Balance	**$175,000**	Completion Certification	
Excavation (Trenching/Piping)		Operator Training	
Stone Bedding		**Below By Others**	
Exterior piping/valves/interconnects		Site Plan Approval (NSU Can Support)	
Supports, unistruts, brackets		DEIS/EIS (NSU Can Support)	
Davits and bases		Utilities to within 5' of WWTP	
Slide rails		Collection Sytem to within 5' of WWTP	
Grating		Treated effluent discharge line	
Hand and guard rails		Treated effluent outfall	
Sleeves, link seals, coring		Landscaping / Plantings	
Anchor bolts, skid mounts, misc. metals		Paving	
Painting		Sidewalks	
Labeling			
		TOTAL AACE CLASS 4/5 ESTIMATE	**$1,500,000**

*Phase 2 estimate assumes market rate labor and materials, and continuous work effort. Phase 2 estimate to be refined during Phase 1 design and permitting efforts.

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TERMS

- NSU typically operates under a standard DBIA (Design/Build Institute of America) form of contract.
- Invoices are issued monthly based upon agreed percent completion.
- Payment terms are net 15 days, subject to interest.
- Price assumes market rate wages (non-prevailing wage, non-union).
- Bonding (bid, maintenance, performance, or otherwise) is excluded.
- As a Capital Improvement, sales tax is not included in the price; Town's certification required.

NSU's Design/Build project delivery model functions as follows:

1. Town and NSU advance Phases 1 and 2 on a Progressive Design/Build basis.
2. Town has the right upon ten (10) days' written notice to NSU, for its convenience and without cause, to terminate this Agreement. In such event, Town shall pay NSU for all work executed up to the effective date of the termination.
3. Following permit approvals, adjustments to the Design/Build price will be made based on final engineering, actual market costs at the time, approved scope changes, and regulatory requirements.
4. Should NSU not provide Construction or Operations services, NSU warranties would become null & void.

PROJECT PHASE	COST
PHASE 1	$210,240
PHASE 2	$1,500,000

As requested, Phase 1 costs are further divided based on percent completion of design and permitting efforts. For example, at the 30% completion mark, the first four tasks (page 14) will be completed, plus 30% of the two design and permitting tasks.

PHASE 1 D&P	COST
30% Complete	$74,200
70% Complete	$67,800
90% Complete	$33,900

Pricing assumes that NSU will be authorized to proceed through to completion without interruption. Other services not specifically included herein, if required, can also be provided but are not included in the base fee. For extra services, if requested, current hourly rates are provided on the following page.

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natural systems utilities 2025 Rates

Engineering	2025 Rates
Chief Technical Officer (095)	$340.00
Principal (100)	$315.00
Principal Engineer (102)	$245.00
Senior Managing Engineer (105)	$225.00
Project Director (106)	$225.00
Managing Engineer I (110)	$210.00
Managing Engineer II (112)	$195.00
Project Manager (TBD)	$195.00
Senior Project Engineer I (115)	$180.00
Senior Project Engineer II (116)	$170.00
Associate Project Manager (118)	$160.00
Sr. Designer (207)	$160.00
Project Engineer I (120)	$155.00
Project Engineer II (125)	$145.00
Designer/CAD Tech I (210)	$140.00
Designer/CAD Tech II (212)	$130.00
Engineering Intern I (460)	$130.00
Engineering Intern II (465)	$110.00
Technical Assistant (200)	$105.00
Construction / Site Services	**2025 Rates**
Construction Manager (400)	$240.00
Construction Supervisor (405)	$179.00
Construction Foreman (410)	$155.00
Construction Coordinator (420)	$112.00
Chief Inspector (PE/CM) (450)	$180.00
Inspector (455)	$126.00
Administration	**2025 Rates**
Administrative Intern (645)	$82.00
Administrative Assistant (652)	$98.00

Operations	2025 Rates
Operations Officer (500)	$276.00
Operations Director (501)	$225.00
Field Services Director (503)	$225.00
Operations Managing Engineer (504)	$184.00
Site Services Supervisor (506)	$148.00
Operations Manager (510)	$199.00
Compliance Supervisor (514)	$165.00
Compliance Coordinator (515)	$110.00
Compliance Specialist(516)	$131.00
OPSLead Oper (518)	$139.00
Operations Supervisor (520)	$158.00
Operations Coordinator (521)	$108.00
Regional Operations Supervisor (522)	$173.00
Operations Lead Operator (523)	$145.00
W/WWTP Operator 4 (525)	$133.00
W/WWTP Operator 3 (526)	$125.00
W/WWTP Operator 2 (527)	$117.50
W/WWTP Operator 1 (528)	$104.00
Facility Maintenance Tech (529)	$124.00
Field Service Technician I (550)	$134.00
Field Services Lead Mechanical Tech (551)	$150.00
Field Svces Lead PLC& Controls Tech (552)	$150.00
Field Service Technician II (555)	$124.00
Field Service Technician III (556)	$112.00
Field Service PLC & Control Tech (557)	$144.00
Field Services Lead Fabricator (558)	$145.00
Field Services Fabricator I (559)	$128.00
Field Services Fabricator II (560)	$113.00
Field Services Laborer (565)	$95.00
Fld Svc Crew Two Man Trk & Tools (578)	$350.00

Other Services			
20 ton Crane with operator and tender	$ 3600.00/day	2 ton and under crane truck rental	$850/day
Emergency Response Fee (per incident)	$100.00	Materials billed at cost plus 20%	
Court appearances, depositions, or professional testimony before Government authorities Case By Case	$250/hr minimum	Emergency Hours - any hours worked not considered regular hours 1.5 X Hourly Rate	3 hr Min
Confined Space Entry - 2 person minimum with safety equipment	$400/hr		

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AUTHORIZATION

If this Design/Build proposal meets with your approval, it can be accepted by signing in the space provided below. As the design progresses, NSU can provide a formal contract for the construction phase in *DBIA format for your review and approval. Alternately, the Town may prefer to provide its own form of contract.

Accepted for:

Town of Cornwall

_____

_____

_____
Billing Address

_____

_____

_____
Authorized Representative (PRINT NAME, FULL TITLE, AND DATE)

_____
Authorized Representative (SIGNATURE)

*The Design Build Institute of America (DBIA) standard form contracts offer several advantages in Design/Build projects, including reduced risk of errors and omissions, streamlined negotiation, and increased certainty in project outcomes. These industry-standard forms reflect best practices in Design/Build and balance risk allocation among the parties involved.

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E. NSU Safety and Sustainability Awards (Selected for Relevance to this Project)

"Natural Systems Utilities has done a remarkable job of implementing a strong safety management system. In addition to keeping employees safe, safety performance of this caliber should reduce their insurance premiums," says Garrett Burke, CEO of ConstructSecure (from January 2021 press release)

1987 First Pharmaceutical Onsite Direct Water Reuse System (MBR-Based)
Bristol Myers Squibb

2002 First UV/Ozone System for Direct Water Reuse (MBR-Based)
Gillette Stadium

2003 First High-Rise In-Building Onsite Water Reuse System (MBR-Based)
The Solaire

2006 Governor's Environmental Excellence Award
Designed, permitted, and implemented first ever direct residential water reuse application

2008 First Onsite Application of Reuse Water for Laundry (MBR-Based)
The New School

2014 Project of the Year
NSU's Ridgewood Green renewable energy project awarded "PROJECT OF THE YEAR" by the American Biogas Council

2016 First Integrated Onsite Water Reuse with Thermal Energy Recovery (MBR-Based)
MacDonald Island

2018 B Corp Award
NSU Recognized by B Labs / B Corp as a "Best For the World" Company

2019 Real Leaders Award
NSU Recognized as one of the Top 100 Impact Companies in North America

2019 Safety Awards
NSU Recognized for tenth consecutive year by the Department of Labor and State Industrial Safety Committee, earning the Commissioner's Continued Excellence Award (Award Program subsequently discontinued)

2021 Gold Safety Award
ConstructSecure Safety Assessment Program

2022 First Thermal Energy Recovery Retrofit for Net Zero Energy Onsite Water Reuse System (MBR-Based)
The Solaire

2023 First Water Reuse System with Online Biological Monitoring (MBR-Based)
The Solaire

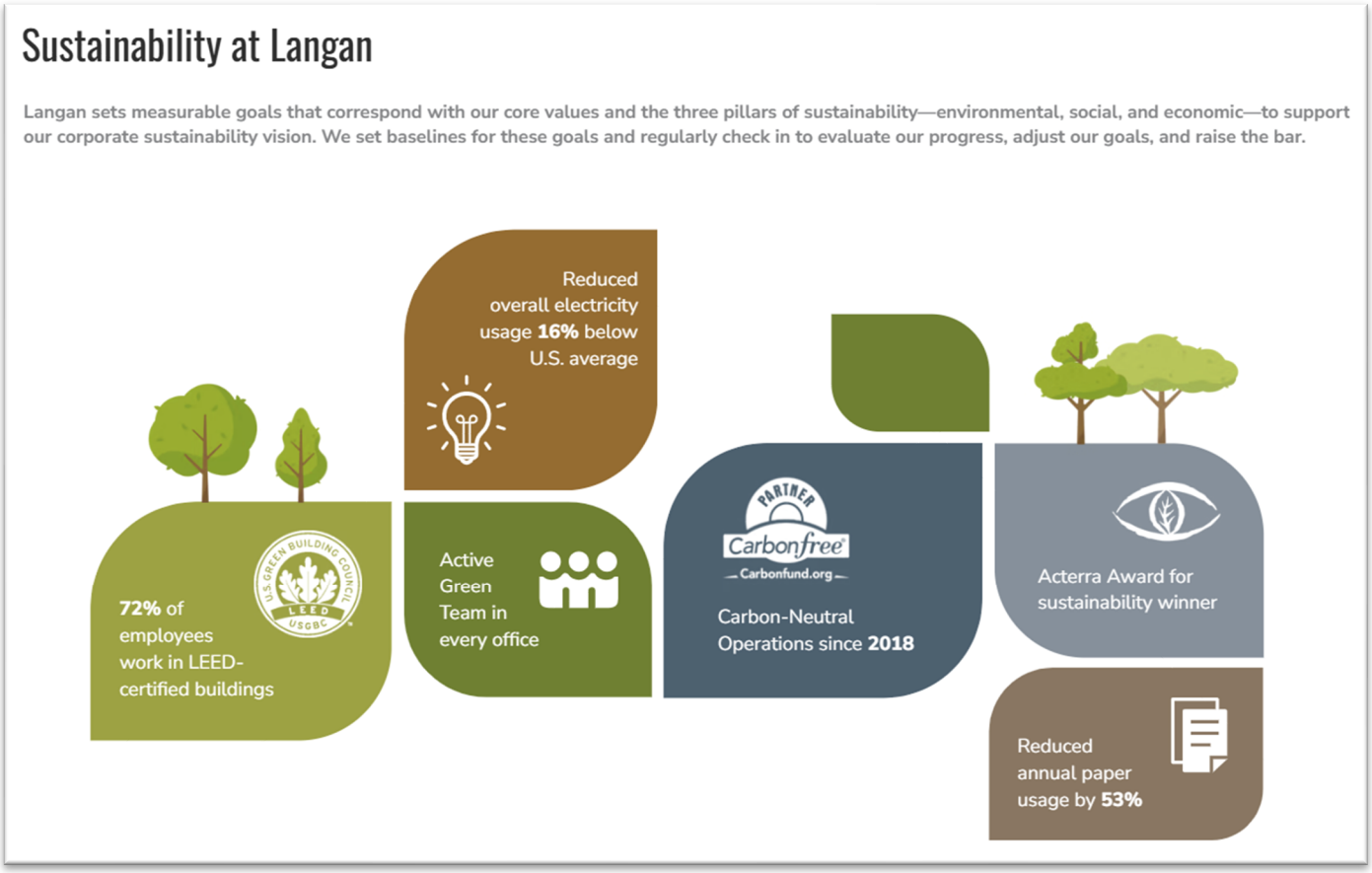
2024 First Permitted CSO Abatement with Wastewater Treatment (MBR-Based)
Domino Redevelopment District

2025 Venice Architecture Biennale's Golden Lion Award (membrane based)
Canal Café Project

NSU's partner in this and other endeavors, Lanagan, shares NSU's values.

Langan won the prestigious 2019 Acterra Award for Sustainability for being a role model for sustainability in the A/E/C industry and local community. Langan has also been listed as a Top 200 Environmental Firm by ENR and received the CIANJ Environmental Leadership Award.

In addition to a host of complementary environmental awards, sustainability is at the core of Langan's ideals:



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Thank you for the opportunity to provide this response to your RFP. We look forward to collaboration with the Town of Cornwall. If you have any questions, please call me at 908.675.0272.

Best Regards,

Adam G. Stern, P.E.
G:\Site Services\Proposals\2025\Cornwall WWTP DB\RFP\2025 08 25 Cornwall WWTP RFP Response.docx

c: Nancy Choi, PE
Joe Caparoso
Danielle Sandella
Jill Terhune

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F. Team Resumes

Technical Expertise

- Design, Construction & Operations of onsite (decentralized) water treatment and reuse systems
- Water/Energy nexus & integrated infrastructure approaches
- Water resource management
- Wastewater management planning
- Sustainability initiatives
- Public speaking, Guest Lecturing & Training
- Special expertise with membrane bioreactor (MBR) systems

Education

- MS, Civil and Environmental Engineering, Rutgers University, New Brunswick, NJ, 2006
- BS, Bioresource Engineering, Rutgers University, New Brunswick, NJ, 2003

Professional Affiliations

- US Green Building Council (NJ Chapter Board of Directors, Past Vice Chair)
- Board of Directors, Past Vice Chair
- Speakers Bureau
- WateReuse Association
- Association for the Advancement of Sustainability in Higher Education (AASHE)

Licenses/Registrations

- Professional Engineer (NJ & NY)
- LEEDTM Accredited Professional Operations & Maintenance
- BPI Certified Professional

Years of Experience

- With Natural Systems Utilities: 15
- Industry: 18

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Zach F. Gallagher, P.E., LEED AP

PRESIDENT & CHIEF EXECUTIVE OFFICER

As President & Chief Executive Officer for Natural Systems Utilities (NSU) Mr. Gallagher focuses on complete, integrated infrastructure approaches that combine water and energy with a concentration on handling the systems integration aspects and overall functionality. He is tasked with the day-to-day management of business operations as well as client & project management; business development, technology development & design; and staff management & supervision.

With nearly 20 years of experience in the industry, Mr. Gallagher is seen as an expert in the field. He has had numerous articles/papers published and serves as a Guest Lecturer at Rutgers, Columbia, Cornell, and other major universities. He was the Principal Investigator for a two-year NYSERDA grant focused on the energy consumption and overall optimization for ONWS and directed the MacDonald Island ONWS project in Alberta, Canada including system training for the local operations staff.

Representative Projects

Gillette Stadium & Patriot Place

Project Executive

The largest membrane bioreactor (MBR) based water reuse facility in Massachusetts was established to meet water usage demands from the NFL Stadium and address limited local capacity. Mr. Gallagher, as the Project Executive, oversaw the final design and construction of the project. The system implemented returns high-quality treated wastewater to both the stadium and the adjacent Patriot Place. This recycled water serves various purposes, including toilets, facility cooling, and more.

Hallets Point

Project Lead

22 story mixed-use residential building that contains 400 residential units with a 25,000 square foot commercial space. Mr. Gallagher was the Project Executive for this contract that called for NSU to design, procure, furnish, manage construction, and operate a complete 50,000 gallon per day membrane bioreactor (MBR) based water treatment and reuse system.

Battery Park City

Project Lead

A series of green residential high-rise buildings located in Lower Manhattan's designated green zone. Gallagher managed this project which received a grant from NYSERDA to conduct research on the energy consumption and overall optimization of the onsite membrane bioreactor (MBR) based water reuse system.

MBR Treatment Systems Design & Start-Up

Project Manager

Design, permitting, submittal review and start-up for various membrane bioreactor (MBR) treatment systems (30,000 – 250,000 gallon per day systems) including the Solaire in Battery Park City, NY and upgrades to the New England Patriot's Gillette Stadium membrane bioreactor (MBR) treatment and recycling system in Foxboro, MA.

MacDonald Island

Project Manager

As Project Director for this integrated energy and water recovery project, Mr. Gallagher managed the design and construction of an onsite water reuse and heat recovery system which reduced water consumption on the island by 30%, reduced wastewater flow to centralized facilities by nearly 100% and reduced capital expenses by $3 million while recovering 240kW of energy from the reclaimed water.

Town of Phillipsburg

Project Manager

This facility serves approximately 28,000 residents in the Town of Phillipsburg, the Borough of Bloomsbury, and the Townships of Alpha, Greenwich, Lopatcong, and Pohatcong. In providing the facility's operations, NSU was challenged with adapting the facility's existing staff into the operations plan. Mr. Gallagher provided oversite to the project that has resulted in $200k annual savings for the town.

Environmental Disposal Corporation

Project Executive

This public utility located in Bedminster, providing sewage collection, treatment, and disposal services for the town needed a customized solution for an expansion to better serve the growing population of 30,000 residents, plus municipal and commercial properties.

Sonoma Raceway

Project Executive

Built in 1968, Sonoma Raceway is a self-contained facility with its own water production, water treatment, water storage, water booster pumps, and a water distribution pipeline system. Mr. Gallagher led this project focused on process optimization, operational improvements, system performance improvements.

Related Companies

Project Lead

Managed water audits on over 40 high-rise residential apartment buildings in New York City for Related Management to identify opportunities for water/ wastewater savings that will translate into financial savings. Initial opportunities identified resulted in a ROI of less than a few months.

Carvel Property Development

Sustainability Team Leader

Worked with the Durst Organization to implement measures that reduce the environmental impacts of existing site operations and enhance the ecological characteristics of the proposed second-home, golf-course community, which will serve as the base for the project's long-term sustainability vision.

Wastewater Management Planning

Primary Author

Lead the preparation of the first adopted comprehensive Wastewater Management Plan (WMP) under the NJ Highlands rules and managed various other WMP amendments and revisions.

Papers

(2021)

Systems and Methods for Recovering Energy from Wastewater
Patent # No US9719704B2

Author | Project Executive for NSU

(2021)

Online Biological Monitoring in Decentralized Non-potable Water Systems

Author | Inventor | Project Executive

Presentations

(2011-Present)

Water Reuse Systems & Integrated Water Resource Management
Columbia University, Rutgers, University, Cornell, NJIT & Other Major US Institutions

Annual Guest Lecturer

(2017)

Water Resource Management: Moving Toward Net Zero Energy Onsite Water Reuse & Decentralized Water Reuse Focused on the Water-Energy Nexus
Smart & Sustainable Campuses, AASHE, American Water Summit, Sustainable Silicon Valley & Other Conferences

Technical Speaker

(2016)

Disruptive Tech: Beyond Net Zero Energy Onsite Water Reuse
WateReuse Association Annual Symposium, AASHE & Other Conferences

Technical Speaker

(2014)

Integrated Water Resource Management in the Mid-Atlantic and North East
CWEA and CSAWWA Water Reuse Seminar, Edgewater MD

Technical Speaker

(2013)

Water Management 2: The Outside Drip
Somerset County Business Partnership: Green Tourism & Hospitality Conference, Somerset NJ, Session 3B,

Technical Speaker

(2013)

In-Building Decentralized Water Reuse & Cooling System Integration
WateReuse Association, On-Site Water Reuse Webinar

Technical Speaker | **Attendee**

(2011-2015)

Water Reuse Systems and Integrated Water Resource Management
USGBC Course ID 0090007414 - Multiple courses provided

Technical Speaker

(2012)

Water Reuse & Energy Optimization: A LEED Interactive Session
Greenbuild 2012, San Francisco

Technical Speaker

(2012)

Central Corridor EcoDistrict: Integrated Water Resource Management
San Francisco Planning/PUC, San Francisco

Guest Speaker

(2011)

Bridging Design, Implementation & Ownership: Blackwater Treatment at The Helena
AIA/ASHRAE Integration Series

Technical Speaker | **Panelist**

(2010)

Sustainability & Water: The Global & Local Picture
New Jersey Environment Federation 24th Annual Conference

Technical Speaker

Publications

(2017)
Design, Build, Operate: The Value of Being the 'All-In-One' Company.
Forbes publication

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Technical Expertise

- Business development and client relations management
- Business performance and operations management
- Water, Wastewater, and Stormwater treatment and infrastructure design
- Hydraulic and water quality modeling
- Design, Design/Bid/Build, Design/Build, Design/Build/Operate project delivery
- Water resource project development, execution, and management

Education

- M.S. Civil & Environmental Engineering, Rutgers University, New Brunswick, NJ, 1998
- B.S. Bio-Resource Engineering (High Honors), Rutgers University, New Brunswick, NJ, 1994
- B.S. Bio-Environmental Engineering (High Honors), Rutgers University, New Brunswick, NJ, 1994

Licenses / Registrations

- Professional Engineer in 14 states (AZ, CT, DE, IN, IL, KY, MA, MS, NJ, PA, NY, TN, TX, VA)

Years of Experience

- With Natural Systems Utilities: 30
- Industry: 30

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Adam G. Stern, P.E.

VICE PRESIDENT

During Mr. Stern's 30+ year tenure with NSU, he has managed a growing team of engineers, construction managers, and environmental specialists. His responsibilities include team and project management for water resource engineering and Design-Build-Operate projects with budgets up to $35M. In addition, he is responsible for managing the business units' comprehensive planning studies, feasibility studies, hydraulic and process modeling, engineering design, construction projects, compliance management, emergency event control, and provides professional testimony.

Under his direction, Mr. Stern's team has supported over 1,000 projects and procured permits and approvals for planning projects, wetlands and stream encroachments, water supply and production facilities, wastewater treatment facilities, water reuse and heat recovery facilities, main extensions, pump stations, and various other water resource infrastructure projects.

Representative Projects

Solebury School

Design/Build and permitting of a 20,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve existing private school. This facility replaced a failing facility. Facility incorporates large volume flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, recharge to groundwater via drip irrigation, and emergency power. Responsible for design management and project delivery.

Renaissance at Union

Design/Build and permitting of a 21,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve existing residential development. This facility replaced a failing facility. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, recharge to groundwater, and emergency power. Responsible for design management and project delivery.

Four Seasons at Chester Public Water System

VP of Engineering

Design, permitting, and construction of public water system including production wells, iron and manganese removal, VOC removal, disinfection, storage, distribution system, fire pumping system, and utility management consulting.

Comprehensive Planning Studies (CPSs)

VP of Engineering

Development and delivery of CPSs for various public water systems addressing demand projections, supply and treatment analyses, storage and distribution assessments, and capital program recommendations.

Delaware Township MUA

VP of Engineering

Permitting, engineering, construction, utility management, routine and emergency operations of water and wastewater systems.

Chester Shopping Center Wastewater Treatment Facility
VP of Engineering

Permitting, design, and construction of membrane bioreactor (MBR) facility for commercial establishment. Incorporated equalization, anoxic and aerobic process, ultra-filtration, and UV disinfection.

Holland And Anthem Mills Wastewater Treatment Facility
VP of Engineering

Design and permitting of a 50,000 GPD membrane bioreactor (MBR) wastewater treatment facility with direct recharge to groundwater. Facility included headworks, flow equalization, membrane bioreactor, UV disinfection, and recharge to groundwater via rapid infiltration basin discharge system.

Fairfield Wastewater Treatment Facility
VP of Engineering

Design, permitting, and construction of membrane bioreactor (MBR) wastewater treatment facility with direct recharge to groundwater. Facility included headworks, flow equalization, dual train membrane bioreactor, chemical feed systems, UV disinfection, and recharge to groundwater via existing leaching pool network.

Morris Chase Wastewater Treatment Facility
VP of Engineering

Design and permitting of an 80,000 GPD membrane bioreactor (MBR) wastewater treatment facility with direct recharge to groundwater. Facility included headworks, flow equalization, membrane bioreactor, UV disinfection, and recharge to groundwater via drip irrigation instead of rapid infiltration.

Hart's Landing Wastewater Treatment Facility
VP of Engineering

Design and permitting of a 40,000 GPD membrane bioreactor (MBR) wastewater treatment facility with direct recharge to groundwater. Facility included headworks, flow equalization, membrane bioreactor, UV disinfection, and recharge to groundwater via drip irrigation instead of rapid infiltration.

Wantage Public Community Water System
VP of Engineering

Design and permitting of public water system including, firm capacity analyzing, production well pumps, disinfection, distributed storage systems, and distribution network.

Morris Chase Water Public Water System
VP of Engineering

Development, design, permitting, and construction of water treatment facility and supply improvements including firm capacity evaluations, production wells and pumping systems, iron and manganese removal, radon removal, disinfection, plus distribution and storage systems.

Jefferson Township Water Systems
VP of Engineering

Design, permitting, and construction of corrosion control systems at four water separate public water systems.

Groundwater Resource Management Planning
VP of Engineering

Developed standard protocols to quickly map and assess hydraulic groundwater recharge capacity, as well as contamination risks. GIS based product considered hydrogeological conditions, land uses, land covers, etc.

Crossroads At Oldwick Public Water System
VP of Engineering

Development, design, permitting, and construction of water treatment facility and supply improvements including firm capacity evaluations, production wells, domestic and fire suppression pumping systems, radon removal, disinfection, plus distribution and storage systems.

Far Hills Borough
VP of Engineering

General utility management for community sanitary collection system including management of new and modified connections, I/I management, and routine and emergency maintenance and repairs.

Hydraulic Modeling For United States Military Installations (8)
CA, KS, LA, MO, NJ, OK, TX, VA | VP of Engineering

Development of distribution and collection system models including flow studies, review of SCADA records and other operational data, coarse and fine calibration.

Typical distribution system model included multiple pipe materials, diameters, ages, pressure gradients, storage systems, interconnections, fire hydrants and fire pumping systems, booster stations, control valves, etc., suitable for flow, pressure, supply, and demand prediction, as well as capital planning, water age analyses, scenario analyses, etc.

Homestead Water Reclamation
VP of Engineering

Design, permitting, and construction of innovative direct residential water reuse system. Reduced water stress on potable system, conserved water resources, and earned the 2006 Governor's Award for Clean and Plentiful Water.

Jefferson Water Systems
VP of Engineering

Design, permitting, and construction of corrosion control systems at four separate public water systems to bring finished water quality into compliance with regulatory limits.

Dorade Wastewater Treatment Facility
New York | VP of Engineering

Design, permitting, and construction of replacement wastewater treatment facility with direct recharge to groundwater. Facility included headworks, flow equalization, three train membrane bioreactor (MBR) chemical feed systems, UV disinfection, and recharge to groundwater via existing rapid infiltration basins.

Papers/Publications/Presentations

(2003)

Feasibility Assessment of Alternative Select Fill Material For Groundwater Recharge Beds
Hillsborough, New Jersey - Funded in part by Thames Water, Research and Technology

(2002)

Stormwater: From Nuisance to Resource
Princeton, New Jersey - Presented at Thames Water Americas Watershed Management Conference

(2001)

Stormwater Recharge and Aquifer Protection: A Demonstration Project, Franklin, MA
Albuquerque, New Mexico - Presented at American Water Resources Association Annual Conference

(1999)

Hydrologic Study of NJ Department of Transportation's Proposed Millstone Bypass
Hopewell, New Jersey - Volunteered expertise for Stony Brook-Millstone Watershed Association

Awards

(2019)

Real Leaders Award
NSU Recognized as one of the Top 100 Impact Companies in North America

(2018)

B Corp Award
NSU Recognized by B Labs / B Corp as a "Best For the World" Company

(2017)

Safety Awards
NSU Recognized for tenth consecutive year by the New Jersey Department of Labor and State Industrial Safety Committee, earning the Commissioner's Continued Excellence Award

(2014)

Project of the Year
NSU's Ridgewood Green renewable energy project awarded "PROJECT OF THE YEAR" by the American Biogas Council for Innovation, Technology, Collaboration, and Complexity.

(2006)

NJ Governor's Environmental Excellence Award
Burlington County, New Jersey

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Technical Expertise

- Engineering
- Project Management
- Water Reuse
- Design/Build/Construction Management
- Special expertise with membrane Bioreactor (MBR) systems

Education

- BS, Environmental Engineering, Massachusetts Institute of Technology, 2002
- MEng, Environmental Engineering, Massachusetts Institute of Technology, 2003

Professional Affiliations

- New York Water Environment Association, Asset Management Technical Committee Member
- Water Environment Federation
- Institute of Sustainable Infrastructure, Technical Committee Liaison Subcommittee Chair, 2013-2014

Licenses / Registrations

- PE, State of New York
- LEED Accredited Professional

Years of Experience

- Natural Systems Utilities: 5
- Industry: 23

Nancy Choi, PE, LEED AP

VICE PRESIDENT OF ENGINEERING

Nancy Choi is a Project Director with Natural Systems Utilities (NSU). She manages projects from the development of prospects through the completion of design and construction with a focus on water reuse projects involving Design, Build and/or Operations. She is a licensed Professional Engineer and a LEED Accredited Professional holding BS and MEng degrees from the Massachusetts Institute of Technology in Environmental Engineering.

Prior to joining NSU, Nancy worked on numerous multidisciplinary projects worldwide, focused on a holistic approach to integrating all aspects of the urban water cycle Nancy's commitment to a project's success includes strong communication and coordination skills both internally and externally to find the best solutions.

Representative Projects

20–30 Halletts Point

Design/Build and permitting of a membrane bioreactor (MBR) wastewater treatment facility with direct non-potable reuse for a new residential high rise. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, ozone and UV disinfection. Responsible for permitting, design management, construction oversight and commissioning and startup.

Domino Redevelopment

Project Director

Design/Build and permitting of a first-of-its-kind district scale water reuse system with discharge to surface water in New York City. Facility to serve a new mixed use residential redevelopment. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, ozone and UV disinfection, and emergency power. Responsible for permitting, design management, construction oversight and commissioning and startup.

Clark Tract

Design/Build and permitting of community-scale membrane bioreactor (MBR) wastewater treatment. Facility to serve a new residential redevelopment. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, discharge to surface water, and emergency power. Responsible for permitting, design management and engineering transition to in-house build phase.

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Riverview Farms

Design/Build and permitting of a community-scale membrane bioreactor (MBR) wastewater treatment facility to serve a new residential development. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, non-discharge irrigation, and emergency power. Responsible for permitting, design management and engineering transition to in-house build phase.

Penn Place

Engineering of a membrane bioreactor (MBR) wastewater treatment facility to serve a new high profile commercial development. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, ozone and UV disinfection, and emergency power. Responsible for permitting, design management, construction oversight and commissioning and startup.

Bay View Blackwater System
Project Director

Project Director for the construction of an onsite wastewater treatment plant with a capacity of 85,000gpd to meet State standards for non-potable reuse. Wastewater will be treated through a moving bed bioreactor (MBBR) process followed by polishing through a horizontal flow subsurface treatment wetland.

Commercial Property

Green Earth Village
Lead Wastewater Technical Advisor

Lead wastewater technical advisor to support the development Green Earth Village Secondary Plan. Nancy was responsible for a waste water treatment technology solutions analysis for the proposed Lake Simcoe Water Reclamation Centre which is projected to treat up to 40 MLD. The Reclamation Centre is proposed to be sited close to residential areas and as such a best practice guide on design factors for proximity to residential areas was developed for the client.

South Water Front
Lead Wastewater Engineer

Lead wastewater engineer to develop concept sewerage and recycled water strategies for a feasibility assessment of the development, ownership and operation of district infrastructure systems. Included treatment plant technology assessment and water demand estimations incorporating various conservation, efficiency and reuse strategies.

St. Elizabeth's Campus East
Wastewater Engineering Consultant

Wastewater Engineering Consultant for a technical and financial feasibility study to determine the viability of options for stormwater management, water reuse and centralized district energy for the proposed St Elizabeths East Campus development. Determined the viability of reducing municipal water demand through rainwater harvesting, blackwater reuse and graywater reuse.

BMX Masterplan
Technical Review Consultant

Technical Review Consultant for Odebrecht on a 20- acre mixed-use redevelopment project of a former BMX industrial site adjacent to the Rio Pinheiros. The project aims to set the standard for sustainable developments in both Sao Paolo and Brazil. Nancy provided review of conceptual strategies for water supply and wastewater treatment.

Langfang IDP Master Plan
Project Engineer

Project Engineer supporting Kohn Pederson Fox (KPF) Associates in the development of Langfang IDP (International Intelligent Industry Demonstration Park) master plan which will serve as the business district and home to 325,000 people in the emerging metropolis situated between Beijing and Tianjin in the West Changsha Pioneer Zone in Hunan Province. Responsibilities included developing a responsible water management plan in a region undergoing both severe drought and unprecedented population growth. Strategies include selection of applicable water reuse strategies, stormwater infiltration basins and deep well injection to replenish the depleting aquifer.

Yongsan International Business District Masterplan
Project Engineer

Project Engineer for a 180-acre masterplan in the heart of Seoul teamed with Studio Daniel Libeskind. Responsibilities included analyzing three different strategies of wastewater treatment and reclaimed water: building systems, block-level systems and a central plant for the IBD.

Xochimilco Ecological Park
Design Engineer

Design engineer for a sustainable masterplan for an aquarium and park in the Xochimilco UNESCO World Heritage site. The project includes ecological restoration of a 300-acre functional floodplain of the Rio San Buenaventura as well as treatment of municipal wastewater and stormwater using a lagoon and wetland system integrated into the 100 year floodplain. Nancy assisted in the layout and design of the constructed wetlands system for waste water treatment.

Education

Vietnam German University
Lead Civil Engineer

Design of a new university campus in Vietnam covering a total land area of 505,000m2. The development consists of administration building, alumni centre, student dormitories, staff accommodation, library, food courts, science and exhibition park, laboratories, engineering, biotechnology, natural sciences, academic village, academic buildings and sports facilities. Nancy was the lead civil engineer in charge of schematic design of grading, earthworks, storm drainage, sanitary sewers, potable and non-potable water distribution, water storage and wastewater treatment. We included the use of multiple sustainable drainage systems including ponds, swales and storm water recycling.

University of Texas at Brownsville Master Plan
Lead Civil Engineer

Design in the development of a master plan for a new campus expansion for 20,000 students in Brownsville, TX. The university aspires to be an environmental laboratory for the local region. Nancy was responsible for developing a water management strategy that strives to achieve Net-Zero water or water neutrality which responds to the water scarcity issues the city may encounter in the future.

Lawrence Berkeley National Laboratories Future Scientific Facility
Lead Civil Engineer

Lead civil engineer for a pre-concept feasibility study of the Future Scientific Facility (FSF) for LBNL. Developed strategies for storm drainage, foundation and drainage design, earthworks, and required surveys and ground investigations. The FSF includes an underground structure to house scientific equipment, industrial support buildings, an experimental hall, and laboratory/office space.

Cornell University, New Physics Laboratory and Cryogenic Plant Feasibility Study
Project Engineer

Project Engineer of a project definition design study for a new proposed extension to the Wilson Physics Laboratory. Proposal seeks NSF Grant funding for new buildings and tunnel to be built for the new linear accelerator and for high level electron physics research work. Arup services include structural, MEP, civil engineering, acoustics & vibration, construction cost estimation, as well as sub consultants for geotechnics and architecture. Responsibilities include project management duties and design team management.

Government

Union Point Master Plan
Lead Water Engineer

Responsible for the development of an integrated water management plan which proposed conservation measures, efficient technologies and alternative supplies to reduce the potable water demand of the future development.

Developed a performance specification for an onsite wastewater treatment and reuse plant and led the selection of a Design-Build-Operator provider for the plant.

New York Rising Community Reconstruction Program
Lead Water Engineer

Nancy's responsibilities included discussing potential solutions with the Seaford-Wantagh Planning Committee, facilitating meetings with the Seaford-Wantagh community, collating, reporting and presenting technical analyses.

Nancy also oversaw the analysis of the potential infrastructure solutions for all five communities.

King Abdullah City of Science and Technology (KACST) Grand Technology Park
Lead Water Engineer

The new technology city in Taif that encompasses a study area of 100 km2 (including 10 km2 for the KACST Technology Park), a new international airport, rail station and dryport. The city is the first of 11 new technology parks as part of the KSA national science and technology program to adapt and shift their domestic economy.

Responsible for the design of water and wastewater infrastructure and oversaw the hydrology and flood risk assessment of wadi channels and flows through six catchments with a combined area of 5,300km2.

NYS 2100 Commission
Project Manager

Project Manager for the Land Use Sub-committee portion of the report where Arup received a grant from Rockefeller Foundation to assist them in supporting the work of the NYS 2100 Commission. The Commission report was produced in about one month from the input of 30 Commissioners, organized into five sub-committees.

The Commission was focused on providing long-term solutions to the State's infrastructure problems and used a decision-making framework that prioritized building resilience in all systems.

US Embassy
Project Engineer

Project Engineer for the design of the new US Embassy at Nine Elms in West London adjacent to the Thames River with Kieran Timberlake and Olin.

The design includes onsite reclamation, treatment and reuse of building wastewater. As part of the high performance sustainability objectives of the project, the system was designed to treat all wastewater generated in the building and reuse for toilet flushing and cooling.

New York City Department of Environmental Protection
Project Engineer

Engineer for the update to the NYC Demand Study. Developed preliminary estimates of total solid loadings for the City of New York based on new population projections and water demands.

Framework and Neighborhood Planning
Engineer

In June 2008, the Cedar River overflowed beyond the 500- year flood plain and damaged or destroyed more than 7,000 homes, hundreds of businesses, community facilities and infrastructure over 10-square-miles (14% of the city). A

rup developed a baseline of the City's sustainability performance pre-flood and implementation plan of practical, actionable strategies to guide integration of sustainability goals and target reinvestment and recovery effort in flood affected areas and city-wide. Nancy developed the baseline as related to water and stormwater

Residential

NYCHA Red Hook Houses
Project Engineer

Project Engineer for the civil/site design supporting Kohn Pederson Fox (KPF) Associates for the redevelopment of 33 public housing buildings in Red Hook, NY, which were severely impacted by Hurricane Sandy. Civil/site design includes evaluating multiple options for green infrastructure, assessing different types of flood protection strategies to be integrated with the site landscape and buildings, and developing a 3D model of existing and proposed on-site utilities to accommodate distribution from two new district energy plants.

New Stapleton Waterfront Phase 2 and 3
Prime Consultant

As Prime Consultant, is responsible to design supporting infrastructure such as roadways, water and sewer (trunk) mains and utility relocations, and resilient waterfront improvements along the Stapleton waterfront, including public space. Initial Phase 1 efforts are underway (by others) and Arup is responsible for the Phase 2 and 3 improvements. This is key to support affordable housing development in the area. Nancy is a Project Engineer for the water and sewer design in the roadways and the waterfront park.

Confidential Residential Resilience Project
Project Manager

Project Manager supporting the design and construction of various resilience measures for a private residence. Implementation measures include reconstruction of sea wall, installation of demountable flood logs and panels, construction of berm, foundation waterproofing, and conduit sealing.

Hunter's Point South Phase 2
Lead Civil Engineer

15-acre residential development and waterfront park at Hunters Point in Queens, NY. Nancy is the Lead Civil Engineer for the design of a 5-acre waterfront park as well as a technical reviewer of the design of the water and sewer infrastructure for the new development. Nancy is also providing technical support during the construction phase with submittal and shop drawing reviews.

BSD City Master Plan
Project Engineer

Project Engineer supporting Kohn Pederson Fox (KPF) Associates in the development of a 2,100ha mixed-use sustainable development, Bumi Serpong Damai (BSD) West. BSD City is Jakarta's largest exurban development – a total of 6,000 hectares. Responsibilities include developing a water and wastewater management plan for several districts within BSD West.

Resources And Waste

Rialto Water Public Private Partnership Due Diligence
Lead Wastewater Technical Advisor

Lead wastewater technical advisor on due diligence of the water and wastewater system for the City of Rialto, which services approximately 100,000 people in San Bernardino County. The City issued a competitive RFP for the right to finance/ implement facility upgrades and operate the system for 30 years, representing the first water business public private partnership in California. Table Rock Capital won the concession and provided fully integrated technical, commercial and financial support to provide critical information to bond investors. Nancy performed the technical analysis of the wastewater treatment system.

Oysters for Treating Wastewater and Stormwater Study
Lead Researcher

Lead researcher of an internal project to develop the concept of using oyster reefs to treat wastewater and combined sewer overflows.

Baltimore Herring Run Sewer Rehabilitation
Engineer

Engineer for a sewer rehabilitation project for Baltimore's Herring Run Sewer District. Verified field inspections for over 10,000ft of sewer mains in need of rehabilitation in Baltimore's Herring Run sewer shed. Provided quality control of database and made rehabilitation/replacement recommendations by specific prioritizations.

St. Louis MSD Disinfection Study
Project Engineer

Project Engineer for a disinfection pilot study for St Louis Metropolitan Sewer Distric. Performed collimated beam tests on effluents from both the Lemay WWTP and the Bissell Point WWTP. Set up and maintained a bench scale batch reactor for Bissell Point. Prepared disinfection models and analyzed test data and disinfection alternatives to provide a design recommendation report for the Lemay WWTP and the Bissell WWTP.

St. Joseph WPCP Disinfection Study
Project Engineer

Project Engineer for a disinfection pilot study for St. Joseph Water Pollution Control Plant. Performed fouling test on full scale UV disinfection pilot. Also performed collimated beam tests on primary and secondary effluent. Prepared disinfection models and analyzed test data to provide a design recommendation report.

Mamaroneck WWTP Pilot Study
Project Manager

Operated pilot study of MBBR technology at the Mamaroneck WWTP. Maintained and controlled process conditions based on observations in daily lab analyses. Managed, organized, and synthesized raw data and wrote final report. Study was presented at numerous conferences and included in trade journals.

Mamaroneck WWTP Conceptual Design
Engineer

Engineer for the conceptual design of the Mamaroneck WWTP upgrade. Developed conceptual design of upgrades necessary for implementation of IFAS treatment process.

Determined anticipated flows and loads and developed design criteria for facilities relevant to the first phase of the upgrade (fine screens, grit removal facilities, chemical feed systems, and aeration tanks). Prepared process flow diagrams, preliminary design drawings, and a conceptual design report.

Tuxedo Northridge Pump Station and Force Main
Engineer

Engineer for the design of a pump station and forcemain for Tuxedo. Designed wastewater pump station and force main. Determined design criteria for pump station components and force main. Prepared specifications and design drawings.

Retail

Confidential Shopping Mall

Project Engineer

Project Engineer for retail mall in Sao Paulo, Brazil. Total construction area of 77,000m², including 37,000m² above ground in five to six levels, and 40,000m² of underground parking in four to six levels. Responsibilities included technical oversight of water budget, design of wastewater reclamation system and integration of ecological wastewater treatment system

Papers/Publications

(2007)

A Pilot-Scale Comparison of IFAS and MBBR to Achieve Very Low Total Nitrogen Concentrations
N. Choi, T. Johnson, A. Shaw, H. Phillips, T. Lauro, R. Butler, L. Radko, Water Practice, Vol 1.1-No. 5

Co-author

(2007)

IFAS/MBBR Testing at Mamaroneck for Long Island Sound Nitrogen Limits
N. Choi, H. Phillips, T. Johnson, R. Butler, T. Lauro., Clearwaters, Vol 1.37, No. 3

co-author

Presentations

(2014)

Developing a Green Infrastructure Framework for NY Rising Communities on Long Island
N. Choi, V. Lee., 2014 Tri-Association Conference, Ocean City, MD

(2014)

Water Sensitive Urban Design for an Uncertain Future
N. Choi, V. Lee., Yale School of Architecture Coastal Adaptation Symposium, New Haven, CT

(2012)

Graywater and Rainwater Reuse for a Shopping Mall in Sao Paulo, Brazil"
N. Choi, E. Lohan., 27th Annual WateReuse Symposium, Hollywood, Florida

Presentations

(2007)

Pilot Testing of MBBR and IFAS Treatment Processes for Nitrification and Denitrification at the Mamaroneck WWTP
80th Annual Water Environment Federation Technical Exhibition and Conference, San Diego Convention Center, San Diego, CA

(2006)

Benefits and Experiences of a Pilot Study
Black & Veatch Chief Engineers Council's 2006 Technology Conference, Black & Veatch Headquarters, Kansas City, MO

(2005)

Actors and Strategies for Development: Digital Technology to fight Poverty

Infopoverty World Conference, United Nations Headquarters, NY, NY

Workshops

(2015)

Rain, Rain Go Away!
N. Choi, Women's Innovation Symposium in Engineering, Poly Prep Country Day School

Technical Expertise

- Extensive wastewater treatment and reclaimed water experience
- Decades of experience with design, construction, and operation of membrane bioreactors (MBR)
- Wastewater system design and permitting
- Project and construction management
- Functional description and control system design and management
- Wastewater system operations oversight and support
- Design/Build management
- Operations

Education

- Bachelor of Science in Mechanical Engineering (Mathematics Minor), Roger Williams University, Bristol, Rhode Island, 1993
- Goulds Pumps, Inc., Engineered Products Division, Basic Pump School, June 1993
- Goulds Pumps, Inc., Slurry Pump Division, Pump School, September 1993
- Durametallic Corporation (Mechanical Sealing Systems), Technical and Sales Training Program, March 1994
- Roger Williams University, ISO 9000 Internal Auditing, September 1996
- Wilden Pumps, Inc., Technical and Sales Product Training, February 1997

Professional Affiliations

- American Society of Mechanical Engineers (ASME)

Years of Experience

- With Natural Systems Utilities: 27
- Industry: 31

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Darrell John Molloy

DESIGN/BUILD MANAGER NEW ENGLAND

Mr. Molloy serves as the Design/Build Manager for the New England office at Natural Systems Utilities with over 27 years of professional experience. He oversees design services, project management, and construction management for engineering and construction groups in Massachusetts, Connecticut, and Rhode Island. He leads Construction Managers, Engineers, and project staff to ensure projects meet client and regulatory requirements.

His background includes the design and construction of community on-site wastewater treatment systems, ranging from 10,000 to 500,000 GPD, and experience in flow equalization, anoxic digestion, aeration, ultra-filtration, UV disinfection, and groundwater recharge. He is responsible for specifications, shop drawing reviews, managing field and construction personnel, inspections, plant commissioning, and related activities.

Representative NSU Projects

Riverbridge Wastewater Treatment Facility

Design Engineer & Construction Manager

Design/Build and permitting of a 67,000 GPD integrated biological membrane bioreactor (MBR) wastewater treatment facility to serve a mixed-use development. Facility incorporates flow equalization, anoxic digestion, aeration, ultra-filtration, UV disinfection, and distribution to groundwater. Responsible for design, project management, construction execution, startup, and commissioning.

Queset Commons Wastewater Treatment Facility

Design Engineer & Construction Manager

Design/Build and permitting of a 150,000 GPD membrane bioreactor membrane bioreactor (MBR) wastewater treatment facility to serve a mixed-use development. Facility incorporates flow equalization, pre- and post-anoxic digestion, aeration, sludge holding, ultra-filtration, ozone treatment, UV disinfection, and distribution to groundwater. Responsible for design, project management, construction execution, startup, and commissioning.

Beaver Brook Wastewater Treatment Facility

Design Engineer & Construction Manager

Design/Build and permitting of a 55,000 GPD membrane bioreactor membrane bioreactor (MBR) wastewater treatment facility to serve a mixed-use development. Facility incorporates flow equalization, anoxic digestion, aeration, sludge holding, ultra-filtration, ozone treatment, UV disinfection, and distribution to groundwater. Responsible for design, project management, construction execution, startup, and commissioning.

Sandwich Membrane Bioreactor Facility
Design Engineer & Construction Manager

Preliminary design of a 460,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve a mixed-use development. Design incorporates flow equalization, pre- and post-anoxic digestion, aeration, sludge holding, ultra-filtration, ozone treatment, UV disinfection, and distribution to groundwater. Responsible for all preliminary design aspects and project management.

Kensington Court Wastewater Treatment Facility
Design Engineer & Construction Manager

Design/Build and permitting of a 39,000 GPD membrane bioreactor (MBR) wastewater treatment facility serving a residential development. Facility incorporates flow equalization, anoxic digestion, aeration, sludge holding, ultra-filtration, UV disinfection, dosing, and open bed sand distribution to groundwater. Responsible for design, project management, construction execution, startup, and commissioning.

New England Patriots Gillette Stadium Wastewater Treatment and Recycling Facility
Engineer & Construction Manager

Design/Build and permitting for a major upgrade to the 250,000 GPD membrane bioreactor (MBR) wastewater treatment and recycling facility serving Gillette Stadium and Patriot Place Development. Facility incorporates high-flow pumping stations, flow equalization, pre- and post-anoxic digestion, aeration, sludge holding, ultra-filtration, ozone treatment, UV disinfection, reuse water storage and distribution, dosing, and distribution to groundwater. Responsible for design, project management, construction execution, startup, and commissioning. Also served as Project Engineer for the original design and construction of the facility in 2000.

Wrentham Village Premium Outlets Wastewater Treatment and Recycling Facility
Upgrade Design Engineer & Construction Manager

Design/Build and permitting for a major upgrade to the 100,000 GPD membrane bioreactor (MBR) wastewater treatment and recycling facility serving the premium shopping plaza and outparcel. Facility incorporates pumping stations, flow equalization, anoxic digestion, aeration, ultra-filtration, ozone treatment, UV disinfection, reuse water storage and distribution, dosing, and distribution to groundwater. Responsible for design, project management, construction execution, startup, and commissioning. Also served as Project Engineer/Manager for two previous upgrades.

Abbot Mill WWTP
Design Engineer & Construction Manager

membrane bioreactor (MBR), 21,560 GPD

Orchards at Holliston WWTP
Design Engineer & Construction Manager

membrane bioreactor (MBR), 18,000 GPD

Carnegie Abbey WWTP and Reuse Facility
Design Engineer & Construction Manager

membrane bioreactor (MBR), 90,000 GPD

Edgewater Apartments WWTP
Design Engineer & Construction Manager

membrane bioreactor (MBR), 11,000 GPD

Old Lyme School WWTP
Design Engineer & Construction Manager

membrane bioreactor (MBR), 12,000 GPD

Freedom Bay Development WWTP
Design Engineer & Construction Manager

membrane bioreactor (MBR), 67,000 GPD

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Andrew Lombard, P.E.

MANAGING ENGINEER

Mr. Lombard brings over 19 years of industry experience to his role as Managing Engineer at NSU. He has extensive expertise in wastewater treatment, industrial wastewater treatment, assisting in wastewater treatment plant operation and troubleshooting, air pollution control, landfill closure, and site remediation. His work includes developing design drawings, specifications, engineering construction inspection, permitting, value engineering, construction design, and construction management.

He has been responsible for the design and construction of municipal and industrial wastewater treatment plants; creating designs for residential, industrial, and commercial sewage treatment facilities ranging from 10,000 GPD to 12,000,000 GPD; formulating proposals, performing engineering calculations, preparing preliminary and final designs, reports, plans, and specifications; reviewing shop drawings; managing field and construction personnel; and conducting field inspections, plant commissioning, and startup activities.

Technical Expertise

- Computer Based Process Modeling of Wastewater Treatment
- Fixed Film Biological Retreatment System
- Industrial Wastewater Treatment for Food & Beverage
- Special expertise with membrane Bioreactor (MBR) systems
- Landfill Leachate, Chemical Production, and Electronics
- Landfill Design
- Air Pollution Computer Modeling
- Air Permitting
- Soil and Water Remediation
- Asbestos Abatement

Education

- B.S. Environmental Engineering, Rensselaer Polytechnic Institute, Troy, New York, 2001
- PSMJ Project Manager's Bootcamp CAD Training Course
- Pump Station Design Course
- OSHA Hazwoper 40-hour Course, Confined Space Entry

Professional Affiliations

- Water Environment Federation – Member
- Water Reuse Member

Licenses/Registrations

- Licensed Professional Engineer,

Years of Experience

- With Natural Systems Utilities: 7
- Industry: 25

Representative NSU Projects

Gillette Stadium & Patriot Place

Managing Engineer

Odor Capture – Participated in the conceptual development, design engineering, and construction of a system to capture raw wastewater storage tank headspace and discharge it back into the process aeration tanks to control odors and offset aeration needs for the treatment system. Duties included conceptual layout, design engineering for permitting with the MADEP, development of construction-level drawings, procurement of all construction materials, management of subcontractor workforce, construction oversight, wiring of electrical devices, and assisting with startup and commissioning.

Pilesgrove Wastewater Treatment Facility

Managing Engineer

Design/Build and permitting of a 70,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve light commercial application. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, recharge to groundwater, and emergency power. Responsible for process design, construction management assistance, startup, and commissioning.

Hurstmont Wastewater Treatment Facility

Managing Engineer

Design/Build and permitting of a 50,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve residential development. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, recharge to groundwater, and emergency power. Responsible for process design, construction management assistance, startup, and commissioning.

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Arizona Beverage

Managing Engineer

pH Adjustment System – Participated in the design, procurement, and construction of a fully automated pH neutralization system for wastewater from a food and beverage manufacturer with extreme pH swings (3 to 13) and highly variable flow volumes. The original design handled 15,000 gallons per hour (200,000 gallons per day), with actual flows reaching 50,000 gallons per hour (over 500,000 gallons per day). The system was fully automated for chemical addition (nitric acid and sodium hydroxide) and included remote communications. Duties included developing process design for system sizing, generating construction drawings, procuring all materials under NSU's scope, inspecting NSU-supplied equipment, commissioning, and conducting startup and training.

Newhall Demineralization Treatment Plant

Managing Engineer

Participated in the design and construction of a chloride reduction treatment system (demineralization) treating tertiary effluent from a local municipality. Duties included developing permitting and construction drawings for a 3-phase UF/RO treatment system, system configuration, coordination with mechanical, structural, plumbing, and electrical trades, and site inspection during construction.

Relevant Experience

Private Dairy Packaging Plant

Project Engineer

Project Manager/Engineer for the design of a fixed film (MBBR/Activated Sludge) biological treatment plant to treat up to 172,000 gallons per day of high-strength wastewater at a large dairy packaging and processing facility. Work included troubleshooting existing treatment facility design issues, replacing various equipment, providing construction inspection, managing subcontractors, designing layouts for permitting and construction, meeting with regulatory agencies, operator training and startup, and tracking performance data.

Davey Water Products

Project Engineer

Designed a fixed film (MBBR) biological plant to treat up to 20,000 gallons per day of high-strength wastewater at a large egg-laying and cleaning facility. Work included designing and laying out equipment for three facilities with holding tanks, screening, and a 5-stage MBBR with primary and secondary dissolved air flotation treatment. Responsible for construction inspection, payment application approvals, equipment inspection and testing, and facility startup.

Private Flavorings Manufacturer

Project Engineer

Responsible for designing and modifying industrial wastewater treatment facilities to replace and fully automate existing systems. The facility included an MBBR followed by activated sludge treatment. New equipment included a Salsnes Filter, odor capture system reinjection, online TOC and phosphorus sensors, additional ammonia, pH, ORP, DO, TSS, liquid and air flow meters, and seven PLC cabinets with remote communication capabilities.

Private Food and Beverage Packaging Plant

Project Engineer

Designed and constructed a new MBBR treatment system for an existing lagoon facility to reduce organic loadings. Design flow was 400,000 gallons per day with influent BOD greater than 5,000 mg/L. Work included process-specific equipment drawings, P&ID development, procurement and installation of glass-fused-to-steel storage tanks, process aeration system design, and new blower system design.

Confidential Food Manufacturing Facility

Project Engineer

Designed and built a two-stage MBBR treatment system. The process included screening, dissolved air flotation (DAF), two-stage MBBR, secondary DAF, and discharge to the town system. Design conditions were 150,000 GPD with an 8,757 lb/d COD load. Equipment included a Salsnes Filter, two glass-fused-to-steel tanks, biofilm carriers, secondary DAF, H_2S scrubbers, instruments, and PLC controls, along with yard piping and electrical. Managed subcontractor installations.

City of Bloomingdale

Project Engineer

Designed and implemented an MBBR process for BOD removal and nitrification at a WWTP with large lagoons. The system replaced lagoons with a smaller footprint to meet new nutrient limits. Design flow was 0.121 MGD and addressed increased loading from a significant industrial user. Responsibilities included purchasing MBBR components, inspecting equipment, and providing startup and operator training.

City of Charlevoix

Project Engineer

Designed and implemented an Integrated Fixed Film Activated Sludge (IFAS) process for BOD removal and nitrification at a WWTP with an existing activated sludge process. The IFAS process was installed as a retrofit to two existing treatment trains and included the construction of a new treatment train. Design flow was 2 MGD. Project included new process blowers, aeration grids, biofilm carrier retention sieves, and inertia pumps (large bubble) for IMLR pumping.

City of Olean

Project Engineer

Designed and implemented an IFAS process for BOD removal and nitrification at a WWTP with an existing activated sludge process. The IFAS process was installed as a retrofit to two existing treatment trains. Design flow was 14 MGD. Project included new air scour blowers, aeration grids, biofilm carrier retention sieves, biofilm carriers, instrumentation, and PLC controls.

City of Bloomingdale

Project Engineer

Provided process design for a 62 MGD stormwater medium-pressure, high-output UV disinfection system. Work included process design and integration of electrical, mechanical, controls, and instrumentation into construction documents for municipal bidding. Developed site-specific American Recovery and Reinvestment Act (ARRA) waiver documentation. During construction, responsibilities included processing applications for payment, site inspections, RFIs, change orders, and other construction oversight activities.

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Technical Expertise

- Wastewater treatment and water supply construction
- General construction, site work and building construction
- All phases of management, construction, heavy equipment operation
- Special expertise with membrane bioreactor (MBR) systems

Education

- West Virginia Institute of Technology, Assoc. Degree, Civil Engineering, Drafting & Design, 1971
- Uniform Construction Code Seminar, 2 courses per year since 1980
- Confined Space Training
- OSHA certification, Construction Industry Outreach, 2010
- Fundamentals of Finance, 2006
- Primavera/SureTrak Project Management, 2004

Professional Affiliations

- Municipal Construction Officials Association
- Member of the International Code Council (5164252)

Licenses / Registrations

- CDL-A Driver's License
- NJ State UCC Licenses held:
- Construction official
- Building sub-code official
- Building HHS inspector
- Certified Official for Noise Readings
- Certified Crane Operator – NCCO
- Class A Construction Projects (VA)

Years of Experience

- With Natural Systems Utilities: 25
- Industry: 40

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Edward P. Bennett, Jr.

SENIOR CONSTRUCTION PROJECT MANAGER

Having been with NSU for 25 years, Mr. Bennett is a core member of our Engineering, Construction and Operations Teams. He has over 30 years of construction and inspection experience and over 40 years of general construction and water/wastewater construction. Mr. Bennett also lends his time to important community leadership roles and has spent the past 35 years as both a part-time Zoning Officer and Construction Official for various communities (1996-2020).

Representative Projects

MacDonald Island

Assistant Project Manager

MacDonald Island hosts an existing sports complex with planned expansions of the facilities. NSU is constructing an membrane bioreactor (MBR) based distributed water reuse and heat recovery system for the facility, which will generate peak flows over 100,000 gpd once completed. The aim of this project is to provide the lowest impact design and construction within the existing budget, while supporting the municipality's intent for low energy and low emissions, to demonstrate world-leading sustainable operations in the region

Hawthorne Court

Design/Build and permitting of a 50,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve existing residential development. This facility replaced a failing facility. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, recharge to groundwater, and emergency power. Responsible for process design, project management, construction management assistance, startup, and commissioning.

Stratford Green

Design/Build and permitting of a 50,000 GPD membrane bioreactor (MBR) wastewater treatment facility to serve existing residential development. This facility replaced a failing facility. Facility incorporates flow equalization, screening, anoxic digestion, aeration, chemical feed systems, ultra-filtration, UV disinfection, recharge to groundwater, and emergency power. Responsible for all procurement, engineering and building permit coordination, construction management, startup, commissioning, and transition to licensed operations.

Ridgewood Renewable Energy Project

Project Manager

Manage all operational aspects of a 250-kW digester biogas CHP project (mesophilic CSTR) including operations team management, materials procurement and hauler relationship management, owner's representation to client, reporting to board, capital upgrades, project budget management. The success of this project depends on simultaneously fulfilling the needs of the multiple stakeholders within the Public-Private-Partnership (PPP), including the Village management, the Board of the private ownership entity. Operational responsibility includes material receiving and handling, CHP combustion, and biogas conditioning

and upgrading system.

Stony Brook Millstone Watershed Association
Project Manager

Project management, design and permitting services for the organization's new wetland treatment system, built specifically to showcase innovation in water conservation and treatment. The organization's new environmental education center highlights new technologies in green design and includes the wetland treatment system.

Monmouth County Landfill
Project Manager

Oversaw and coordinated maintenance assignments for the team. Responsibilities included installation, maintenance, and repair of wastewater treatment plant projects which entail evaluation and coordination of manpower, materials and equipment required.

Hillsborough Chase WWTP
Project Manager

Responsibilities included coordination of all construction activities for a 30,000 GPD membrane bioreactor (MBR) facility for residential and small commercial use.

Warren Township WWTP
Project Manager

Responsibilities included coordination of all construction activities for these small community wastewater water systems for residential and small commercial use.

Environmental Disposal Corporation
Project Manager

Responsibilities included coordination of all construction activities for these small community wastewater water systems for residential and small commercial use.

Relevant Experience

Natural Systems Utilities
Senior Project Manager

Responsible for project managers and for the construction of the water and wastewater treatment facilities, Estimating jobs, coordinating subcontractors, material and equipment procurement, tracking costs, and looking for value added alternatives.

The Vizzoni Group
Project Manager

Responsible for projects involving all Earth work, landscaping, Building excavation, and utility construction for the company. Began working with Applied when Vizzoni was a Partner in an NSU affiliated company.

Windy Hill Development, Inc.
President/Owner

Custom Home building and Development Company. Bought land, gained subdivision and site plan approvals, coordinated site improvements, managed building construction, and Marketing of homes.

Site Development and Custom Homes
Eastern Planned Communities

Handled site improvements for Builder and met with custom homeowners to sell extras and coordinate home design/ construction.

E. Palmer Bennett, Inc.
Foreman/Estimator

Ran Construction crews for general Construction Company, bid take offs and estimating.

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James Huntington

VICE PRESIDENT OF OPERATIONS

Mr. Huntington brings over 35 years of experience to serve in his role as NSU's Vice President of Operations. In his role, Mr. Huntington oversees more than 35 advanced membrane bioreactor (MBR) facilities that produce high-quality reclaimed water. He manages the Operations and Maintenance Group for NSU in New Jersey and New York and has direct responsibility for over 80 facilities. This includes all water, wastewater, and biogas plants. He provides continual oversight of plant staff (operations and maintenance), reviews WWTP data, directs process changes to ensure compliance with all applicable permits, assists in budget preparation, and prepares bid specifications.

As part of NSU's Leadership Team, Mr. Huntington manages capital planning and implementation for contracted facilities as well as numerous corporate owned facilities. He manages project pricing, proposal preparation, and contract negotiations.

Technical Expertise

- NPX process development
- Water and wastewater treatment facility design, construction & optimization
- Special expertise with membrane bioreactor (MBR) systems
- Environmental Health & Safety compliance
- Expertise in optimizing treatment processes to reduce chemical and energy usage at all facilities

Education

- Water Environment Association
- Northeast Water Environment Association
- WateReuse Association

Licenses / Registrations

- DEP S4, C3, T2, W1

Years of Experience

- With Natural Systems Utilities: 25
- Industry: 35

Relevant Experience

Natural Systems Utilities

Vice President of Operations

Mr. Huntington serves on NSU's Senior Leadership Team and leads the organization's operational efforts worldwide. Mr. Huntington focuses on mitigating risk and created a preventative maintenance policy, implementing a company-wide maintenance management system, which led to a lost-time incident rate of < 1.

His leadership reflects his industry-leading knowledge, built on hands-on experience, being promoted from Construction Manager to Chief Inspector, to Mobile Operator, to Lead Operator, and ultimately to his current role as VP of Operations.

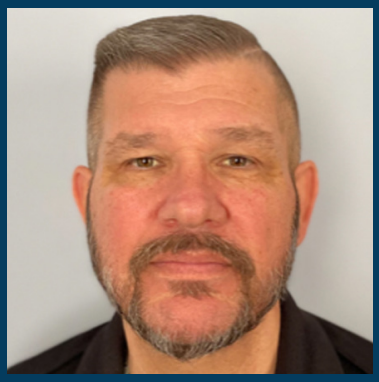
Awards

(2013)

NJ Merit Award & Commissioner's Continued Excellence Award

Presented by New Jersey Governor's Occupational Health & Safety Commission for "a yearly lost time incident rate of 3.0 or less", "for working throughout the 2013 calendar year without a lost time work related injury or illness", and for participation in "the program for four or more consecutive calendar years without a lost time work related injury or illness".

#missionwater



Technical Expertise

- Conventional, membrane bioreactor (MBR), and SBR wastewater treatment processes
- Biological and chemical nutrient removal
- Plant operations/maintenance

Education

- A.A, Middlesex County College, 1992
- Certification, Middlesex County Vo-Tech, 1989
- Certifications for Water and Wastewater
- Advanced Operations of Wastewater and Collection Systems
- OSHA 8-hour Hazwoper Refresher,
- Confined Space Entry, Laboratory Safety, Spill Prevention, Hazardous chemical storage, Lock-out/Tag-out, Arch Flash, Health & Safety

Licenses / Registrations

- Public Wastewater Treatment System (S-3)
- Public Wastewater Collection System (C-2)
- Wastewater Treatment Plant Operator (2A)
- Wastewater Operator (Grade B)

Professional Affiliations

- World Economic Forum

Years of Experience

- Natural Systems Utilities: 30
- Industry: 34

#missionwater

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John Tekula

DIRECTOR OF FIELD OPERATIONS

Mr. Tekula has been a vital member of the NSU family since 1995. Through hard work, technical skills, and a passion for the industry, he has worked his way up through the organization from entry-level to his current role as Director of Field Operations. In this role, he is responsible for overseeing the operation and maintenance of all NSU wastewater operations plants. Mr. Tekula has extensive experience in wastewater process troubleshooting and oversees the organizations' site inspections and collections. He is also responsible for the daily management of plant administration.

Representative Projects

Solaire
Battery Park, NY | Supervisor

First in building membrane bioreactor (MBR) based reuse system for high rise residential building in NY.

100+ Projects
USA/Canada | Director of Field Operations

Over-see multiple service areas through out the U.S. for NSU. Support project design and start up as well as train and support NSU staff during start up and commissioning.

200+ Projects
North East | Manager of North East Operations

Oversee multiple wastewater and reuse systems operations, as well as support field staff with process control for meeting permit standards, with a strong focus on membrane bioreactor (MBR).

West New York Municipal Utilities Authority, Operations Department
West New York | Plant Supervisor

Responsibilities included overseeing operational staff of 14. All operations of plant equipment including: auto samplers, roto strainers, trickling filters, chlorine system and dechlorination system.

Linden Roselle Sewerage Authority, Operations Department
West New York | Plant Supervisor

Supervisor with the responsibilities for overseeing all operations of a 2 stage Biological Treatment Plant with a 12 man operational staff.

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KRISTEN PANELLA, MS, CSP, CHO, CSC

ENVIRONMENTAL, HEALTH, AND SAFETY MANAGER

Kristen has 20+ years of professional experience in the environmental health and safety field. With a background in geology and environmental management, he has worked on numerous EPA Superfund sites as well as emergency hazardous material spill cleanup sites. He has worked hand in hand with OSHA regulators on situations from order on consent to training exercises. He has completed numerous Environmental Phase I and Phase II site assessments throughout the United States.

Kristen is accountable for any environmental health and safety issue that face our clients. He has extensive knowledge in OSHA/EPA regulations, ANSI standards, asbestos, lead and mold projects, hazardous waste disposal, and medical waste disposal. Furthermore, Kristen is consistently consulted on clients' safety and environmental issues relating to the general counsel, real estate, insurance, budgeting, and construction projects, in addition to normal operation and maintenance activities at a facility.

Kristen is also utilizing his real-world expertise to conduct classes as a professor in the Environmental Technology and Energy Management Masters Programs at NYIT. He is 2SAFE's Principal Trainer in EPA and OSHA regulations, is an OSHA Authorized Trainer, and has completed numerous HAZWOPER classes and OSHA safety training classes. He is a Certified Class A/B Operator under the NYSDEC Petroleum Bulk Storage Program and a Certified Safety Consultant under the NYSDOL Code Rule 59 and 60 Workplace Safety Program.

He is the Past President for the Long Island Chapter of the American Society of Safety Professionals and is an active member of BCSP and ASSP. He is a Certified Safety Professional (CSP) and Chemical Hygiene Officer. Kristen currently serves on Cold Spring Harbor Laboratory, Stony Brook University, and Sartorius Stedim North America Inc.'s International Biosafety Committees.

Technical Expertise

- Design, Construction & Operations of onsite (decentralized) water treatment and reuse systems
- Water/Energy nexus & integrated infrastructure approaches
- Water resource management
- Wastewater management planning
- Sustainability initiatives
- Public speaking, Guest Lecturing & Training
- Special expertise with membrane bioreactor (MBR) systems

Education

- MS, Civil and Environmental Engineering, Rutgers University, New Brunswick, NJ, 2006
- BS, Bioresource Engineering, Rutgers University, New Brunswick, NJ, 2003

Professional Affiliations

- US Green Building Council (NJ Chapter Board of Directors, Past Vice Chair)
- Board of Directors, Past Vice Chair
- Speakers Bureau
- WateReuse Association
- Association for the Advancement of Sustainability in Higher Education (AASHE)

Licenses/Registrations

- Professional Engineer (NJ & NY)
- LEEDTM Accredited Professional Operations & Maintenance
- BPI Certified Professional

Years of Experience

- With Natural Systems Utilities: 15
- Industry: 18

Representative Projects

2SAFE Consulting, Inc.

Owner

Provide professional OSHA training, EPA training, coordinate and maintain safety programs, and manage hazardous waste for numerous manufacturing, construction, and retail companies throughout Long Island, New York City, and New Jersey. Write safety policies and procedures. Provide industrial hygiene tests for clients. Write site-specific Health and Safety Plans. Consult clients on environmental issues relating to the general counsel, real estate, insurance, budgeting, and construction projects, in addition to normal operation and maintenance activities at a facility. Conduct NYSDOL Workplace Safety and Loss Prevention Program Industrial Code Rule 59 Audits. Conduct Workplace Safety and Loss Prevention Incentive Program ICR 60 Evaluation Reports.

DANIELLE SANDELLA, CHMM

PRINCIPAL

INDUSTRIAL WATER/WASTEWATER COMPLIANCE & ENGINEERING

Ms. Sandella is a Principal in Langan's New Haven, CT office with 20 years of experience in the environmental industry focused primarily on multimedia regulatory compliance. Throughout her career, she has established, managed, and audited regulatory compliance programs at numerous industrial, commercial, and institutional client sites across the US with varying degrees of process complexity, regulatory risk, and corporate requirements.

She specializes in supporting clients with complex environmental compliance needs, particularly those driven by stormwater and wastewater permitting/compliance issues and multimedia enforcement/litigation. Ms. Sandella leads clients through these matters, from the initial notice through investigation, development and implementation of corrective actions, negotiation of enforcement, settlement, and permit terms, and continued monitoring/maintaining compliance. By combining her deep understanding of environmental regulations, familiarity with heavy industrial facility operations, and experience leading multidisciplinary teams, Ms. Sandella advocates for clients during the permitting, enforcement or litigation process to identify sustainable, practical solutions for compliance issues.

Ms. Sandella's recent projects involve emerging contaminants (PFAS, microplastics), requiring in-depth fate and transport analysis and implementation of engineering controls to manage liability, while navigating the unique challenges of enforcement and litigation when regulatory limitations for the subject contaminants are not well established.

SELECTED PROJECTS

Wastewater/Stormwater Permitting, Compliance & Engineering

- Wastewater discharge permitting under NPDES, SPDES, and general permit programs to discharge to surface waters and sanitary sewer systems for wastewaters generated from industrial, institutional, domestic, and groundwater (remediation) sources;
- Investigated significant non-compliances with effluent limits, permit terms, and regulations, including management and implementation of corrective actions;
- Interfaced among clients, regulators, attorneys, citizen's groups, and other stakeholders during inspections, disclosures, enforcement actions, and litigation matters;
- Lead regulatory and engineering support efforts for enforcement actions related to the discharge of emerging contaminants through both stormwater and wastewater outfalls;
- Managed the design, permitting, and implementation of various wastewater treatment system and stormwater management system upgrades and modifications from minor upgrades and repairs to major improvements;

- Evaluated and permitted new facilities and changes to facility operations as a result of additions or changes to processes, implementation of water reuse/reduction measures, and changes required to meet lowered effluent limits or other permit terms;
- Prepared detailed technical investigations to verify enforcement conditions, and inform corrective action plans including review of monitoring equipment, treatment equipment, chemistry and variability in process inputs;
- Negotiated permit terms and limits and enforcement terms with agencies and other stakeholders;
- Supported treatability and pilot studies for a variety of effluent types including effluents with complex chemistry or characteristics, including those with impacts to aquatic toxicity;
- Lead multidisciplinary teams to design and implement treatment system upgrades, including engineering and regulatory/permitting aspects;
- Prepared wastewater treatment system operation and maintenance plans and developed and delivered site-specific wastewater treatment system operator training for various clients including a TSDF and multiple industrial facilities;
- Conducted stormwater and wastewater focused compliance audits according to regulatory and corporate program requirements at a wide variety of facilities throughout the US, including regulatory disclosures and subsequent corrective actions;
- Assessed industrial processes for water use, reuse, and reduction including detailed water balance development, reduction measure recommendations, and coordination with operations and facilities teams to identify impacts to process quality;
- Prepared conceptual design alternatives including closed-loop treatment systems for various industrial processes and support equipment;
- Operated and provided start-up/shake-down support for newly-installed pilot and full-scale wastewater treatment systems and components, and conducted assessments for treatment system functionality/troubleshooting and optimization;
- Designed, permitted, and operated mobile dewatering systems for construction projects on roadways and contaminated site redevelopment.
- Stormwater permitting under various state and regional stormwater permitting programs, including both individual and general permit programs (industrial, commercial, construction);
- Preparation of Stormwater Pollution Prevention Plans (SWPPP) and Best Management Practice (BMP) design and implementation;
- Supported enforcement and litigation associated with stormwater engineering and compliance matters for traditional and emerging contaminants;

RCRA & Regulated Waste Compliance

- Lead regulatory disclosures and enforcement actions associated with management of hazardous and regulated wastes and other federal and state waste requirements;
- Characterized and prepared determinations for hazardous and non-hazardous/state-regulated wastes generated at industrial facilities;
- Prepared hazardous waste contingency plans;

- Prepared and/or managed the preparation of RCRA Biennial Reports for numerous facilities;
- Lead RCRA closures of container storage areas and storage tanks/tank systems;
- Identified and audited generation sources of F006 and F019 wastes and precursors for numerous manufacturing and aerospace facilities;
- Conducted and managed investigations and long-term groundwater monitoring at a RCRA Corrective Action sites, including the associated annual and semi-annual reporting.

EPCRA

- Performed and/or managed the completion of Tier II inventory reports for over 100 facilities;
- Performed and/or managed the completion of Toxic Release Inventory (TRI) reports for numerous facilities;
- Lead regulatory disclosures associated with TRI reporting, including report revisions and retroactive reporting.

Air Compliance

- Assessed applicability to and compliance with NESHAP and NSPS requirements under 40 CFR 63 Subparts including N, T, 4Z, 6V, 6W, 7B, and under 40 CFR 60 Subparts including 4I and 4J.
- Prepared and modified Title V, synthetic minor, construction, and NSR permits;
- Prepared required emissions calculations and reporting under various air programs;
- Assessed applicability to and compliance with state-specific air regulations;
- Evaluated and documented facility-wide emissions inventories and prepared Potential to Emit (PTE) calculations.

On-Site/On-Call EHS Support

- Managed and implemented multimedia EHS support to numerous industrial, life science, institutional, and commercial facilities;
- Identification of multimedia regulatory requirements and development of plans and programs;
- Develop and provide multimedia EHS trainings prepared specifically for the subject facility;
- Support during regulator/agency inspections and third-party audits;
- Development of client-specific regulatory guidance including development of corporate governance documents for media specific compliance integrating local, state and federal requirements.

JILLIAN TERHUNE

SENIOR PROJECT MANAGER

WATER AND WASTEWATER PERMITTING AND COMPLIANCE

Jillian Terhune is a Senior Project Manager based in Langan's New Haven, CT office. Jillian has twelve years of experience in the environmental industry focused primarily on regulatory compliance, permitting, and emerging contaminants. Jillian has managed regulatory programs in the water industry from source to tap, including drinking water, municipal and industrial wastewater and pretreatment, as well as environmental laboratory accreditation and certification. Her experience includes multimedia environmental compliance and permitting support for water and wastewater treatment systems, as well as regulatory support for environmental reporting technology solutions.

Jillian has operated municipal wastewater and water treatment systems and developed industrial pretreatment programs up and down the East coast. Her experience in environmental permitting, managing compliance programs, and as a multimedia system operator spans municipal and industrial clients across the country. She has also co-chaired toxicology and policy subcommittee work on emerging contaminants such as PFAS as well as regional Lead and Copper response initiatives.

Her additional experience includes expertise as a QA/QC officer and Regulatory Official, having performed and led environmental and drinking water laboratory audits for certification and compliance. This extends to the oversight of multimedia system audits, NOV response and corrective actions, as well as permit writing and permit applications for multimedia systems.

EDUCATION

M.S., Water Resources and Environmental Science, College of Charleston

B.S., Environmental Science and Management, University of Rhode Island

SELECTED PROJECTS

Wastewater Permitting and Compliance

- Supported the implementation of treatment system upgrades with respect to regulations/permitting
- Treatability studies for various effluent types
- NOV and corrective action response for exceedance of effluent limits and land application permit violations
- Biological systems operator and regulatory official for industrial and municipal systems
- QA/QC officer and audit lead for environmental laboratory compliance
- Permitting under NPDES and general permit programs to discharge to surface waters and sanitary sewer systems for wastewaters generated from industrial and domestic sources
- Regulatory Official responsible for interfacing between clients, states, federal, and stakeholder entities during legal enforcement meetings and corrective action review
- Interpret and design aquatic toxicity studies for NPDES permit applications and reductions

- Optimize and assess treatment system functionality and feasibility for start-up, retrofitting, and upgrade
- Conduct on-site facility compliance audits for corporate, local, state, and federal regulatory requirements
- Managed remediation of a TCSA-regulated PCB contaminated system and assisted with litigation and investigation involving illicit discharge
- Microplastics removal efficiency studies and treatment evaluation
- Wastewater treatment plant operation and maintenance plan development and training
- Compliance lead during emergency operations for 1000-year flood and other emergency operating conditions (effluent control and response)
- Support negotiations for water reclamation/aquifer injection of treated wastewater effluent

Drinking Water Compliance

- Method development, sample plan assembly, and monitoring and reporting oversight for Safe Drinking Water Act compliance (SWTR, Phase II/V, UCMR, etc)
- Optimize and assess treatment system functionality and feasibility for start-up, retrofitting, and upgrade
- Conduct on-site facility compliance audits for corporate, local, state, and federal regulatory requirements
- Laboratory certification and auditing for compliance
- System operation and optimization for plant upgrades (UV, deep bed filter media, RO, mixed media)
- QA/QC officer and audit lead for drinking water laboratory certification and compliance
- Evaluation of novel treatment technologies for taste and odor and emerging contaminants
- Consumer Confidence Report (CCR) development
- Support permit negotiations for wholesale and metered water agreements

Source Water Protection and Withdrawal Permitting

- Withdrawal permit applications and renewals for surface and groundwater sources
- Preparation and review of Stormwater Prevention Plans (SWPPPs) and Source Water Protection Plans
- Harmful Algal Bloom (HAB) Treatment and Response Plans

Emerging Contaminants

- PFAS Toxicology and Policy Subcommittees co-chair leading federal, state, private, and local stakeholder discussions surrounding feasibility study development and implementation
- State level MCLG toxicological and method support for PFAS
- PFAS and GenX method development and sample planning
- Regional Lead and Copper lead for utility response to revisions
- Support for microplastics removal efficacy studies in municipal and industrial waste streams

DAVID THIBAULT

PROJECT ENGINEER

ENVIRONMENTAL ENGINEERING

Mr. Thibault is a project engineer in Langan's Boston, Massachusetts office with over 7 years of experience in multi-media regulatory environmental compliance, focusing primarily on industrial wastewater operations and permitting.

Mr. Thibault has worked on projects throughout the United States and assisted clients with navigating wastewater treatment technologies necessary to achieve local standards and federal categorical pretreatment standards, as well as associated permitting support. Mr. Thibault has specific expertise in permitting and compliance at heavy industrial facilities such as food and beverage, machining, and electroplating.

In addition, he has prior experience in hazardous waste management and permitting, air quality compliance and permitting, oil spill and contingency plan writing, EPCRA reporting, stormwater, and site investigation and remediation.

EDUCATION

B.S., Environmental Engineering – Municipal Processes
University of New Hampshire

CERTIFICATIONS

OSHA – 40 Hour HAZWOPER

OSHA – 10 Hour CONSTRUCTION

SELECTED PROJECTS

Industrial Wastewater Compliance and Permitting

- Trumpf, Inc., Farmington, CT
- Confidential Client, North Kingstown, RI
- Kenvue Brands LLC, Summit, NJ
- Welch's Foods Inc., Concord, MA
- Canik Firearms USA, West Palm Beach, FL
- Confidential Manufacturer, Hanover, PA
- Confidential Client, McGregor, TX
- Stimpson Co. Inc., Pompano Beach, FL
- Vetio Animal Health, Jupiter, FL

Other Environmental Compliance & Permitting

- Dartmouth College, Hanover, NH
- Miami International Airport, Miami, FL
- Long Island Sterilization, Hauppauge, NY
- Lycoming Engines, Williamsport, PA
- Willis Custom Yacht, Stuart, FL
- Singletree Land Company, LLC, Henderson, CO
- Whyco Finishing Technologies, Thomaston, CT
- NYCOA, Manchester, NH*
- Rhode Island Resource Recovery Corp, Johnston, RI*
- Waste Management of NH, Rochester, NH*
- BB&S Treated Lumber, North Kingstown, RI*
- Watts Regulator Co., Franklin, NH*
- Longroad Energy, LLC, Boston, MA*
- Sprague Terminal, Newington, NH*

*Mr. Thibault's work occurred while he was with Previous Employer.

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G. RFQ Response (For Reference)

NSU's May 14, 2025 response to the Town's Request for Qualifications is attached to this document for ease of reference. Highlights include:

- **Experience** — NSU has four decades of experience in designing, building, and operating MBRs.
- **Scale** — NSU operates over 350 community-scale wastewater treatment facilities.
- **Core Business** — NSU's core business is turnkey delivery of community-scale treatment facilities.
- **Safety** — NSU's Total Recordable Incident Rate Average for the past 3 years is now 2.76. NSU's Experience Modification Rate is 0.88 (2023), 0.76 (2024), and 0.73 (2025), showing continued excellence and easily outpacing our peers.

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RESPONSE TO:

TOWN OF CORNWALL
REQUEST FOR QUALIFICATIONS
DESIGN, PERMITTING and CONSTRUCTION OF A WASTEWATER TREATMENT FACILITY

May 14, 2025

Natural Systems Utilities, 21 Father DeValles Boulevard Suite 107, Fall River, MA 02723
T: 908.675.0272, E: astern@nsuwater.com, www.nsuwater.com

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May 14, 2025

ATTN: Gordon Ridgway, First Selectman
Selectmen's Office
Town of Cornwall
24 Pine Street, Cornwall, CT 06753
O: 860.672.4959
E: selectmen@cornwallct.gov

Re: Response to RFQ
Design, Permitting, and Construction
Of a Wastewater Treatment Facility

Dear Selectman Ridgway:

Thank you for the opportunity to present our qualifications for this exciting project. Natural Systems Utilities (NSU) has been providing design build services for community-scale membrane bioreactors (MBRs) for over three decades. An MBR will not only meet the stringent permit limits of a discharge to the Housatonic River for years to come, but it will also position the Town for future water reuse applications.

NSU's strong qualifications will be augmented via partnership with Langan, CT, Inc (Langan) of New Haven, Connecticut. NSU has also collaborated with WMC Consulting Engineers of Newington, Connecticut on several projects. WMC is expected to be designing the associated collection system under separate contract. Roles and responsibilities for this effort would be as follows:

PROJECT LEAD AND DESIGN/BUILDER
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DSW PERMIT & SITE / CIVL WORKS
LANGAN

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This document generally follows the sequence outlined in the town's Request for Qualifications (RFQ):

A. **Introduction and Purpose**
B. **Scope of Work**
C. **Qualifications and Requirements**
D. **Submission Requirements**
E. **Evaluation Criteria**

A. Introduction and Purpose

The Town of Cornwall is seeking qualifications from experienced and qualified firms to design, permit, engineer, construct, and commission a 15,000 gallon per day (GPD) Membrane Bioreactor (MBR) system for the treatment of wastewater collected from the Village of West Cornwall located in the Town of Cornwall. The goal of the project is to produce high-quality effluent that meets all regulatory discharge requirements while ensuring system reliability and long-term performance. The proposed treatment system will be located on a parcel of land to be obtained by the Town with ultimate discharge of treated effluent to the Housatonic River.

The selected firm will be responsible for providing a complete MBR system, including design, permitting, engineering, procurement, construction, testing, and commissioning of the system. The firm may also be considered for licensed operations services.

B. Scope of Work

The scope of work is presented in more detail in the RFQ, and is summarized herein as follows:

Design and Engineering
Permitting and Regulatory Compliance
Procurement and Fabrication
Construction and Installation
Commissioning and Startup

C. Qualifications Requirements

Respondents must meet the following minimum qualifications to be considered. Minimum qualification requirements are presented, followed by NSU's responses.

1. **Location & License**
    - Must have office(s) located within 1 day's drivetime (or less)
      CONFIRMED. NSU offices are located in Hillsborough, New Jersey and Fall River, Massachusetts. Langan's office is located in New Haven, Connecticut. These are the offices that would provide services for this project. Both offices are located within ½ day's drivetime of Cornwall, Connecticut.

- Must be registered/licensed to do business in Connecticut.
  CONFIRMED. All work will be conducted under the appropriated licenses and registrations. NSU has worked in Connecticut for over 25 years.

2. **Experience**
   - Must have licensed professional engineers and licensed wastewater operators on staff.
     CONFIRMED. NSU employs approximately a dozen professional engineers and over fifty licensed wastewater operators.
   - Must have minimum of 10 years of experience in design/building, commissioning, and operating membrane bioreactor systems.
     CONFIRMED. NSU has over thirty years of experiences in design/building, commissioning, and operating membrane bioreactor systems.
   - Must have completed at least 3 projects of similar size and complexity (10,000 GPD to 20,000 GPD capacity) within the last 15 years.
     CONFIRMED. NSU has completed at least 3 projects of similar size and complexity within the last 15 years. See section C4 for details.
   - Must have experience in obtaining environmental permits and compliance with local, state, and federal regulations.
     CONFIRMED. As a Design/Builder/Operator, NSU has obtained and maintained hundreds of environmental permits related to wastewater treatment and discharge, as well as local building permits. NSU can support, though does not lead, the pursuit of other environmental permits such as those related to wetlands, stormwater, soil erosion, endangered species, or surface water discharge permits. For these, NSU partners with firms with such specialized expertise.
   - Must be technology agnostic, i.e., not a manufacturer, vendor, supplier of proprietary technology or equipment.
     CONFIRMED. NSU is not obligated to design, recommend, or sell, any particular proprietary technology. Part of our success is due to the fact that we remain technology agnostic and free to select the best technology for each project.

3. **Personnel and Resources**
   - Provide the qualifications and professional credentials of key project personnel, including engineers, designers, project managers, construction managers, and licensed operators.
     PROVIDED. See Section D2.
   - Demonstrate the capability to mobilize sufficient personnel and resources to complete the project on time and within budget.
     CONFIRMED. NSU currently operates nearly 300 community-scale wastewater treatment facilities and has designed and built several dozens of them. This is our core business and we deliver with engineering teams and construction managers based in New Jersey, New York, and Massachusetts.

4. **References**
    - Provide at least three references from recent projects involving MBR Design/Build projects.

See Following Pages

The Village at Hawk Pointe, NJ

DESCRIPTION AND ROLE

NSU designed and built this MBR and placed it into operation about 15 years ago years ago. Under NSU operations, it has remained in compliance for that duration. Due to the success of this northern New Jersey project and growth in the tributary village, the NSU engineering and construction teams are once again engaged, and currently design/building an expansion to this MBR. Actual flows, starting in the 1000s of gallons per day, are eventually expected to exceed 150,000 GPD.

REFERENCE

Richard C Cotton
Managing Partner
Asbury Farms Real Estate Development
The Village at Hawk Pointe
President - Musconetcong Watershed Association
C: 732.558.7555
Richard.cotton@asburyfarms.com

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The Enclave at Hillandale, NJ

DESCRIPTION AND ROLE

NSU designed and built this MBBR serving a secluded new community nestled into the forested hills of Mendham, New Jersey, and placed it into operation late last year. Startup and transition to operations went smoothly as this new development continues to add occupancy. The design flow is 14,400 GPD.

REFERENCE

Joseph J Palka, Jr. P.E., P.P.
President
Short Dog Land Development, LLC
C: 215.806.0955
E: shortdoglanddevelopment@gmail.com

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The Solebury School, PA

DESCRIPTION AND ROLE

Solebury School is a private institution in eastern Pennsylvania. NSU designed and built a 22,000 GPD containerized MBR to replace their antiquated treatment system and finished in time for the school's 100th anniversary.

REFERENCE

Vince D'Ambrosio, Senior Vice President
CASTLE & ASSOCIATES
C: 215.356.7749
E: vdambrosio@teamwithcastle.com

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Hallets Point, NY

DESCRIPTION AND ROLE

NSU also deploys in-building MBRs that directly recycle treated wastewater. Hallets Point is just one of many examples. Located in Queens, NY and Commissioned in 2015, this facility returns treated effluent for use in the cooling tower system and to the residences for use as flush water. Safe, dependable, and compliant operation continues.

REFERENCE

Philp Skalaski, PE
Senior Vice President of Engineering
The Durst Organization
1155 Avenue of the Americas
New York, New Your 10036
C: 917.684.8024
E: PSkalaski@durst.org

Salisbury School, CT

DESCRIPTION AND ROLE

NSU designed and built a 27,000 GPD membrane bioreactor based wastewater treatment system (MBR) for the school nearly 25 years ago in collaboration with WMC Engineers. The facility included a trash trap, dual equalization tankage, anoxic and aerobic treatment, as well as UV disinfection. NSU also provided licensed operations for the facility. Safe, dependable, and compliant operation continues today.

REFERENCE

William Boyer, Director of Facilities
Salisbury School
251 Canaan Road
Salisbury, CT 06068
P: 860.435.5752
E: wboyer@salisburyschool.org

American Water Group, NJ

NSU MBRs have demonstrated longevity and optimal life-cycle costs. All of the below facilities, designed and built by NSU over twenty years ago, continue to operate within all permitted limits.

Village Square -	community scale MBR (1997)
Country Oaks –	community scale MBR (1998)
Four Seasons at Chester –	community scale MBR (1999)
Mapleton -	community scale MBR (2000)
Jefferson Peaks -	community scale MBR (2001)
Brass Castle -	community scale MBR (2002)
Morris Chase –	community scale MBR (2003)

REFERENCE
Donald C. Shields
Vice President and Director of Engineering
New Jersey American Water Co. Inc.
One Water Street
Camden, NJ 08102
C: 908,239,3479
E: donald.shields@amwater.com

5. **Safety and Environmental Compliance**
    - Maintain in-house full-time Environmental Health and Safety Director, or similar positions.
      CONFIRMED. NSU employs an in-house Health and Safety Director.
    - Demonstrate a commitment to maintaining a safe work environment and adhering to all environmental and safety regulations.
      CONFIRMED. See section D8.
    - Provide evidence of a safety record with no major incidents on past projects.
      CONFIRMED. See section D8.

D. Submission Requirements

1. Firm Overview

Natural Systems Utilities, LLC (NSU) is an innovative infrastructure development and investment company integrating an efficient turn-key design, build, own, and operate (DBOO) approach to sustainable water infrastructure. NSU has over 40 years' experience and innovative leadership in water resource management with the long-term asset management perspective and capital resources of a utility company. NSU has a proud history of providing turnkey DBO solutions to a range of municipal, commercial, residential, institutional, and industrial customers across North America. NSU currently operates over 200 wastewater DBO projects – believed to be more than any other firm in the U.S. NSU leadership has led the development of the largest DB, DBO, DBOO turnkey projects in North America.

With offices across the United States, providing these services is a staff of over 140 employees, including licensed professional engineers, construction professionals and certified water and wastewater treatment facility operators. Additional information may be found on the NSU website at: (www.nsuwater.com).

Natural Systems Utilities, LLC (NSU) was founded to invest in and promote sustainable water and wastewater infrastructure projects. Natural Systems Utilities (NSU) has become a premier provider of water and wastewater design, build, operation, and maintenance services. NSU is a rapidly growing company focused on bringing together a world-class group of water and wastewater professionals. NSU's deep experience with MBRs, RO, and Disinfection Equipment reflects a comprehensive approach encompassing design, construction, operation, and optimization to deliver effective and sustainable wastewater treatment solutions for various applications.

Langan CT, Inc. (Langan) provides an integrated mix of engineering and environmental consulting services having over fifty years of experience in the industry. Clients include developers, property owners, public agencies, corporations, institutions, and energy companies around the world. Langan's New Haven, Connecticut office has expertise in NPDES permit development and support, surface water quality studies, and watershed management planning that have led to a reputation of excellence in working with regulators and communities alike. Langan will lead the application for and procurement of the required surface water discharge for this project.

Langan's New Haven office team has extensive experience permitting wastewater discharges and providing compliance support to facilities in Connecticut and across the country. Langan has worked to negotiate permit terms and limits, navigate complex compliance and enforcement issues, and obtain permits for

discharge to surface waters under the Connecticut Department of Energy and Environmental Protection (CT DEEP) individual and general permit programs.

Langan provides ongoing permitting and compliance support to an industrial client with facilities that discharge to surface waters located throughout the US. Our work for this client has included permit applications/modification, permit limit negotiations, consent order negotiations, as well as environmental engineering support. With Langan's support each of these locations have come into compliance with their respective NPDES permits.

Langan currently provides long-term compliance support to a confidential facility in Rhode Island. This has included permit compliance (enforcement order negotiations), permit modifications, and operation and maintenance support. In addition to regulatory support, Langan has supported the client with projecting flow and influent loading based on future production levels, and running a pilot study on MBBR performance during peak and valley production seasons. Positive pilot study results led to Langan collaborating with wastewater equipment vendors and designers to propose alternative capital expenditure projects to maintain long-term compliance and minimal operational disruption to support the facility's future operations. Langan will lead the final permitting, design, scheduling, commissioning, and startup of the selected capital project.

Langan team members have also supported clients in CT obtain and maintain compliance with permits for discharge of various types of effluent to both surface waters and sanitary. One confidential example includes the permitting of an industrial facility under the individual NPDES permit program for discharge to a surface water with a TMDL for parameters prominent in the facility's discharge. Team members also supported this client through an enforcement action associated with aquatic toxicity, which included a toxicity identification evaluation and toxicity reduction evaluation (TIE/TRE), and subsequent corrective actions associated with treatment system design upgrades.

2. Key personnel and qualifications.

NAME, TITLE, EXPERIENCE	ROLE
NATURAL SYSTEM UTILITIES	
Adam G. Stern, P.E. Vice President Experience 30+	Mr. Stern is Vice President of Business Development for NSU. He holds two BS degrees and an MS degree, all in Civil and Environmental Engineering from Rutgers University. He is a licensed professional engineering in 15 states and has a diverse 30-year career spanning engineering design, project management, construction management, and most recently business development. He will act in the capacity of Project Executive.
Nancy Choi, P.E. LEED AP Project Manager Experience 20+	Ms. Choi is a licensed Professional Engineer, and a LEED Accredited Professional holding BS and MEng degrees from MIT in Environmental Engineering. Nancy will draw from her extensive project history to serve as the project manager for engineering, permitting, and design services, general pre-construction services, and transition into a supporting role during the construction phase. Nancy manages a team of about a dozen engineers.
Jim Huntington VP, Site Services	Mr. Huntington has been with Natural Systems Utilities (NSU) since 1999. His service began as the Chief Inspector for the firm's engineering group. As Vice President of Operations, Mr.

NAME, TITLE, EXPERIENCE	ROLE
Experience 25+	Huntington oversees more than 35 advanced MBRs that produce high-quality reclaimed water and is also responsible for the performance, compliance, and efficiency of over 300 water and wastewater treatment facilities across the country.
Kristen Panella, MS, CSP, CHO, CSC Environmental, Health & Safety Manager Experience 20+	Mr. Panella has 20+ years of professional experience in the environmental health and safety field. With a background in geology and environmental management he has worked on numerous EPA Superfund sites as well as emergency hazardous material spill cleanup sites. He has worked closely with OSHA regulators on Orders on Consent and Administrative Consent Orders, to routine training and development exercises.
Ed Bennett Senior Construction Manager Experience 40+	Mr. Bennett is a core member of NSU's Engineering, Construction and Operations Teams. He has been with NSU for 25+ years, brings over 40 years of construction experience to the project team, and has been involved with every MBR facility that NSU has designed and built this century. He will serve as the lead estimator and scheduler, and a senior resource to the NSU construction team.
John Tekula Director of Field Operations Experience 30+	Mr. Tekula is a highly experienced licensed operator with over 30 years of experience. He began work with NSU in 1995 and became an integral part of the operations team. As a Director of Field Operations, he is now responsible for assisting operations staff with the process control and maintenance of wastewater treatment plants, including MBRs, SBRs, Extended Aeration systems and new system start-ups.
LANGAN	
Danielle Sandella, CHMM Principal Experience 20+	Ms. Sandella is Principal in Langan's New Haven, CT office with twenty years of experience in the environmental industry focused primarily on multimedia regulatory compliance. Ms. Sandella specializes in wastewater permitting, compliance, and engineering at highly regulated facilities. Her experience includes permitting of complex sites and systems, navigating significant and chronic non-compliance scenarios, enforcement and litigation matters, and engineering support, e.g.: wastewater alternatives analysis, treatability and pilot testing, treatment system troubleshooting and optimization, operation and maintenance plans, and sustainability-focused industrial wastewater reuse and reduction solutions. Her CT experience includes permitting under the individual NPDES and pre-treatment programs, as well as under various CT DEEP general permit programs, covering discharges of industrial, sanitary, and remediation wastewaters.
Jill Terhune Senior Project Manager Experience 15+	Ms. Terhune is experienced in multimedia environmental compliance and permitting for drinking water and wastewater treatment systems. This extends to oversight of multimedia system audits, NOV response and corrective actions, and permit writing and permitting applications for multimedia systems. Ms. Terhune has operated municipal wastewater and water treatment systems and developed industrial pretreatment programs. Her experience in environmental permitting, managing compliance programs, and as a multimedia system operator spans municipal and industrial clients across the country.
David Thibault Project Manager Experience 7+	Mr. Thibault has over 7 years of experience in multi-media regulatory environmental compliance, focusing primarily on industrial wastewater operations and permitting. Mr. Thibault has worked on projects throughout the United States and assisted clients with navigating wastewater treatment technologies necessary to achieve local standards and federal categorical pretreatment standards, as well as associated permitting support. Mr. Thibault has specific expertise in permitting and compliance at heavy industrial facilities such as food and beverage, machining, and electroplating.

3. **Project Approach**
    a. Brief narrative describing how the firm plans to approach the project.
    NSU approaches projects collaboratively, both on an internal and external basis. Internally, NSU's standard protocol is that construction managers, licensed operators and professional engineers work together on each phase of the project. This not only ensures smooth handoffs from project phase to project phase, but also ensures delivery of a robust solution for the owner. Externally, NSU engages stakeholders early in the process, and regularly during the project. Initially this will involve the Town representatives, other consultants, and regulatory bodies. During the construction phase of the project weekly or biweekly meeting will be scheduled to keep stakeholders apprised of progress and to proactively manage through the inevitable project challenges. One of the earliest steps in the process is to schedule a pre-application meeting to ensure that NSU, regulators, and the Town are aligned and in agreement on the objectives and schedule of the project.

    b. Outline of the design, construction, commissioning, and operations processes.
    NSU design, construction management, and commissioning processes occur primarily in-house. NSU will subcontract work associated with procuring a National Pollutant Discharge Elimination System (NPDES) discharge permit, and may subcontract specific construction activities, such as concrete and steel. The commissioning process typically invoices NSU engineering, construction, as well as operations – as all three disciplines are critical to an efficient startup. Following wet testing, wherein all processes, alarms, controls, are testing with clean water, the system is ready for live operations and receipt of raw wastewater.

    c. Timeline of key project milestones:

Contract Award and NTP:	Q2 2025
Secure Discharge Permit:	Q3 2026
Secure Treatment Permit:	Q4 2026
Complete Final Design:	Q4 2026
Secure Local Bldg. Permits:	Q1 2027
Construction Start:	Q1 2027
Substantial Completion:	Q4 2027
Final Completion:	Q1 2028

4. **Experience and References**
    a. Detailed descriptions of previous projects of similar size and scope, including project goals, outcomes, and your firm's role.
    See section C4.
    b. Three (3) client references for past projects.
    See section C4.

5. Safety and Environmental Compliance

a. NSU maintains a comprehensive suite of written safety programs aligned with OSHA standards (29 CFR 1910 and 1926). These programs are routinely updated and actively implemented across operations, covering topics such as confined space entry, chemical handling, fall protection, and emergency response. All employees receive training.

b. NSU has a strong record of regulatory compliance with no outstanding violations. Our proactive safety culture, regular internal audits, and continual improvement approach reflect our commitment to environmental sustainability and employee well-being. NSU's average Total Recordable Incident Rate for the past 3 years = 3.1. NSU's Experience Modification Rate is 0.881 (2023), 0.7600 (2024), and 0.730 (2025), showing continued excellence and outpacing our peers.

natural systems utilities

Thank you for the opportunity to provide this response to your RFQ. We look forward to collaboration with the Town of Cornwall. If you have any questions, please call me at 908.675.0272.

Best Regards,

Adam G. Stern, P.E.
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c: Ed Bennett
Nancy Choi, PE

NSU SELECTED PROJECTS (EAST)

Project	W	WW	DB	O&M	Type
Abbot Mills		✓	✓	✓	MBR
Aboretrum Farmingville		✓	✓	✓	MBR
Andover		✓	✓	✓	MBR
Apple Ridge	✓	✓	✓		MBR
Aramis		✓	✓	✓	MBR
Arboretum at Farmingville		✓		✓	SBR
Arrow Mills Plaza		✓	✓	✓	SBR
Aspenwood		✓	✓	✓	CS
Avalon		✓	✓	✓	CMAS
Baldwin Cove		✓	✓	✓	PF
Bay Front		✓	✓	✓	MBR
Beacon Hill Upper Freehold		✓	✓	✓	SBR
Blomkest Svea Sanitary District		✓	✓	✓	SP
Brass Castle		✓	✓	✓	MBR
Cable Vision		✓	✓	✓	MBR
Cambridge Isanti Middle School		✓	✓	✓	CW
Carnegie Abbey		✓	✓	✓	MBR
Carriage Station		✓	✓	✓	VFW
Cherry Valley (Design)		✓	✓	✓	CMAS
City of Prinsburg		✓	✓	✓	CW
City of Seaforth		✓	✓	✓	AT
City of Tamarack		✓	✓	✓	CW
Clearwater Forest		✓	✓	✓	CW
Clinton Crossing Premium Outlets	✓	✓	✓	✓	MBR
Colts Neck		✓	✓	✓	Amph
Computer Associates		✓	✓	✓	SBR
Concern at Middle Island		✓		✓	SBR
Copper Hill School		✓	✓	✓	MBR
Country Meadows		✓	✓	✓	RSF
Country Oaks		✓	✓	✓	MBR
Crossroads at Oldwick		✓	✓	✓	CMAS
Deep Run		✓	✓	✓	SBR
Delaware Township MUA + Engineering	✓	✓	✓	✓	CMAS
Diamond Lake Woods		✓	✓	✓	VFW
Domino Redevelopment		✓	✓	✓	MBR
Dorade Whispering Pine		✓	✓	✓	MBR
Edgewater Apartments		✓	✓	✓	MBR
Environmental Disposal Corp.		✓	✓	✓	BarP
Fairfield - Groton		✓	✓	✓	MBR
Farms of Lake Elmo		✓	✓	✓	FAST
Fawn Run		✓	✓	✓	SBR
Fiddlers Elbow CC		✓	✓	✓	SBR
Fields of St. Croix Phase I		✓	✓	✓	CW
Fields of St. Croix Phase II		✓	✓	✓	VFW

NSU SELECTED PROJECTS (EAST)

Project	W	WW	DB	O&M	Type
Forest Lake School District		✓	✓	✓	SPSF
Forest Lake School District - Scandia		✓	✓	✓	SPSF
Four Seasons @ Chester	✓	✓	✓	✓	MBR
Franklin Mutual Insurance		✓	✓	✓	MBR
Franklin Twp Board of Ed		✓	✓	✓	Septic
Gardens at Harriman	✓	✓	✓		MBR
Gillette Stadium	✓	✓	✓	✓	MBR
Gurwin Health Care		✓		✓	MBR
Hallets Point		✓	✓	✓	MBR
Hamlet on Sunfish Lake		✓	✓	✓	CW
Hart's Landing		✓	✓	✓	MBR
Hawthorne Court		✓	✓	✓	MBR
Hearth at Southbury		✓	✓	✓	MBR
Hearth at Tuxis Pond		✓	✓	✓	MBR
Heritage at Lutsen		✓	✓	✓	VFW
Highland Farms		✓	✓	✓	AT
Hillsborough Chase		✓	✓	✓	CMAS
Homestead at Mansfield		✓	✓	✓	Lagoon
Horizon Franklin Lakes		✓	✓	✓	MBR
Hunterdon Commons		✓	✓	✓	MBR
Jackson Meadow North		✓	✓	✓	CW
Jackson Meadow South		✓	✓	✓	CW
Jefferson Peaks		✓	✓	✓	MBR
Jefferson Village Square		✓	✓	✓	MBR
Johanna Foods, Inc. Design		✓	✓	✓	Lagoon
Kensington Court		✓	✓	✓	MBR
Knowlton Township		✓	✓	✓	MBR
Lake Grove		✓	✓	✓	SBR
Lake Shore Resort		✓	✓	✓	MBR
Lansing		✓	✓	✓	FAST
Lebaron Hills		✓	✓	✓	Amph
Liberty Ponds - Phase I	✓	✓	✓	✓	VFW
Linwood Elementary School		✓	✓	✓	SPSF
Lookout Point		✓	✓	✓	CMAS
Lutsen East Flank		✓	✓	✓	CW
Lutsen Employee Housing		✓	✓	✓	VFW
Lutsen Resort		✓	✓	✓	VFW
Lutsen Sea Villas		✓	✓	✓	CW
Mapleton		✓	✓	✓	MBR
McKinley Elementary School		✓	✓	✓	SPSF
Meadows at Mansfield	✓	✓	✓	✓	MBR
Meadowwoods Village		✓	✓	✓	CW
Millennium Battery Park	✓	✓	✓	✓	MBR

NSU SELECTED PROJECTS (EAST)

Project	W	WW	DB	O&M	Type
Monmouth County		✓	✓	✓	MBR
Monterey Heights		✓	✓	✓	RSF
Morris Chase	✓	✓	✓	✓	MBR
Morton Farm Preserve		✓	✓	✓	CW
Mountaintop		✓	✓	✓	MBR
Nashoba High School		✓	✓	✓	CMAS
Oakwood Village		✓	✓	✓	MBR
Old Lyme School		✓	✓	✓	MBR
One Bryant Park	✓	✓			MBR
Orchards at Holliston		✓	✓	✓	MBR
Outdoor World (Sturbridge)		✓	✓	✓	MBR
Phillipsburg		✓	✓	✓	CMAS
Pine Point		✓	✓	✓	CS
Ponaganset School		✓	✓	✓	BioCL
Port Jefferson PS		✓		✓	PS
Pottersville		✓	✓	✓	CMAS
Prescott Point		✓	✓	✓	MBR
Preserve at Birch Lake	✓	✓	✓	✓	VFW
Princeton Montessori Academy		✓	✓	✓	MBR
Queens Plaza Park	✓	✓	✓	✓	MBR
Queset Commons		✓	✓	✓	MBR
Ramapo River Reserve		✓	✓	✓	SBR
Resorts USA (Sturbridge)		✓	✓	✓	MBR
Ridges at Rice Lake	✓	✓	✓	✓	PF
River Crest Farms		✓	✓	✓	CS
River House	✓	✓	✓	✓	MBR
Rock Point Church		✓	✓	✓	VFW
Rosegill Development	✓	✓	✓	✓	MBR
Rum River Elementary School		✓	✓	✓	SPSF
Salisbury School		✓	✓	✓	MBR
Sanctuary		✓	✓	✓	VFW
Sand Hill		✓	✓	✓	CS
Savannah Meadows		✓	✓	✓	CS
Shadowwoods		✓	✓	✓	AT
Shark River Design		✓	✓	✓	MBR
Silver Maple Bay Estates		✓	✓	✓	AT
Skylands Park		✓	✓	✓	MBR
Solaire - Battery Park	✓	✓	✓	✓	MBR
Solebury School		✓	✓	✓	MBR
South Passage		✓	✓	✓	RSF
Spruce Hills Condo		✓	✓	✓	SBR
Station Rd WWTP,WTP	✓	✓	✓	✓	CAS
Stonebridge Estates		✓	✓	✓	AT

NSU SELECTED PROJECTS (EAST)

Project	W	WW	DB	O&M	Type
Stony Brook Millstone Watershed		✓	✓	✓	CW
Stratford Greens (Devonshire)	✓	✓	✓	✓	MBR
Sunrise Trails		✓	✓	✓	VFW
Super America - Wym		✓	✓	✓	CW
Super America - HL		✓	✓	✓	CW
SVEN	✓	✓	✓	✓	MBR
Sylvester Manor		✓	✓	✓	CW
Tamarack Farm Estates		✓	✓	✓	CW
Territory 1C (#8)		✓	✓	✓	AT
Territory Phase IA		✓	✓	✓	AT
Territory Phase IB		✓	✓	✓	AT
The Helena	✓	✓	✓	✓	MBR
The New School University	✓	✓	✓	✓	MBR
The New York Institute of Technology	✓	✓	✓	✓	CAS
The Point	✓	✓	✓	✓	MBR
The Retreat		✓	✓	✓	SBR
Thumper Ponds		✓	✓	✓	VFW
Traprock		✓	✓	✓	MBR
Tribeca Green	✓	✓	✓	✓	MBR
Trump National	✓	✓	✓	✓	MBR
Trump National Colts Neck		✓	✓	✓	MBR
Turtle Run South Phase I		✓	✓	✓	VFW
Turtle Run South Phase II		✓	✓	✓	VFW
Village at Hawk Pointe		✓	✓	✓	MBR
Village of Opole		✓	✓	✓	CW
Village Square		✓	✓	✓	MBR
Visionaire	✓	✓	✓	✓	MBR
Warren Township		✓	✓	✓	CMAS
Westbrook Factory Stores	✓	✓	✓	✓	MBR
Whispering Ridge Phase I		✓	✓	✓	AT
Whispering Ridge Phase II		✓	✓	✓	AT
Whistling Valley Phase I		✓	✓	✓	VFW
Whistling Valley Phase II		✓	✓	✓	VFW
Whitby School		✓	✓	✓	MBR
Wildflower Shores		✓	✓	✓	CW
Windsor Oaks		✓	✓	✓	CS
Windsor Park III		✓	✓	✓	RSF
Woods at Eagle Lake		✓	✓	✓	VFW
Wrentham Outlet Mall	✓	✓	✓	✓	MBR
Wychmere		✓	✓	✓	Amph
Wyldewood Acres	✓	✓	✓	✓	CW
Yale Medical Ctr		✓	✓	✓	MBR
Young's Grove		✓	✓		PS

natural systems utilities

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Battery Park

New York City

BLACK | GREY | RAIN | STORM | DESIGN | BUILD | OPERATE | OWN

Natural Systems Utilities (NSU) designed, built, and currently operates the wastewater and rainwater recycling systems within six Battery Park City Buildings. These systems have consistently achieved greater than 50% water consumption reduction and a greater than 60% reduction in wastewater discharge (compared to similar residential buildings in NYC). These water and wastewater savings are the direct result of wastewater reuse and water conservation. Battery Park City has been developed as a model for scaling water conservation and reuse projects in urban redevelopment and campus-scale settings.

Challenge

Battery Park City (New York) is a 92-acre redevelopment under the Battery Park City Authority (BPCA) of New York City. To achieve sustainability goals, they required innovative water system solutions. BPCA's mission included advanced water reuse objectives, exceeding LEED requirements. Together, we sought creative solutions, updated regulations, and met groundbreaking environmental impact goals.

☒ POTABLE WATER CONSTRAINTS	☒ SEWAGE TREATMENT CONSTRAINTS
☒ REGULATORY MANDATES	☒ COMBINED SEWER OVERFLOW (CSO)

1ST IN-BUILDING RESIDENTIAL HIGH-RISE WATER REUSE SYSTEM IN US

The Solution

NSU and BPCA worked together to develop six residential water reuse systems in Battery Park City which service eight buildings: The Solaire, Tribeca Green, Millennium Tower, The Visionaire, Riverhouse, Liberty Luxe, Liberty View, and The Verdesian.

Systems include treatment with hollow fiber micro-filtration membranes, ultraviolet light disinfection, and biological nitrogen removal to comply with New York City Department of Buildings' direct water reuse standards. The total design flow for these systems is 165,000 gallons per day.

The first project in NYC to incorporate wastewater reuse was the Solaire Building, which began operation in 2003 The treated water is reused for flushing toilets in the 293- unit apartment building, cooling tower make-up, and green roof irrigation.

Toilet Flushing | Laundry | Cooling Tower

Spray Irrigation | Drip Irrigation | Sidewalk Maintenance

55%
Potable Water Reduction

65%
Reduction in Wastewater Discharge

165,000
Gallons Per Day Produced

Battery Park

New York City

BLACK | GREY | RAIN | STORM | DESIGN | BUILD | OPERATE | OWN

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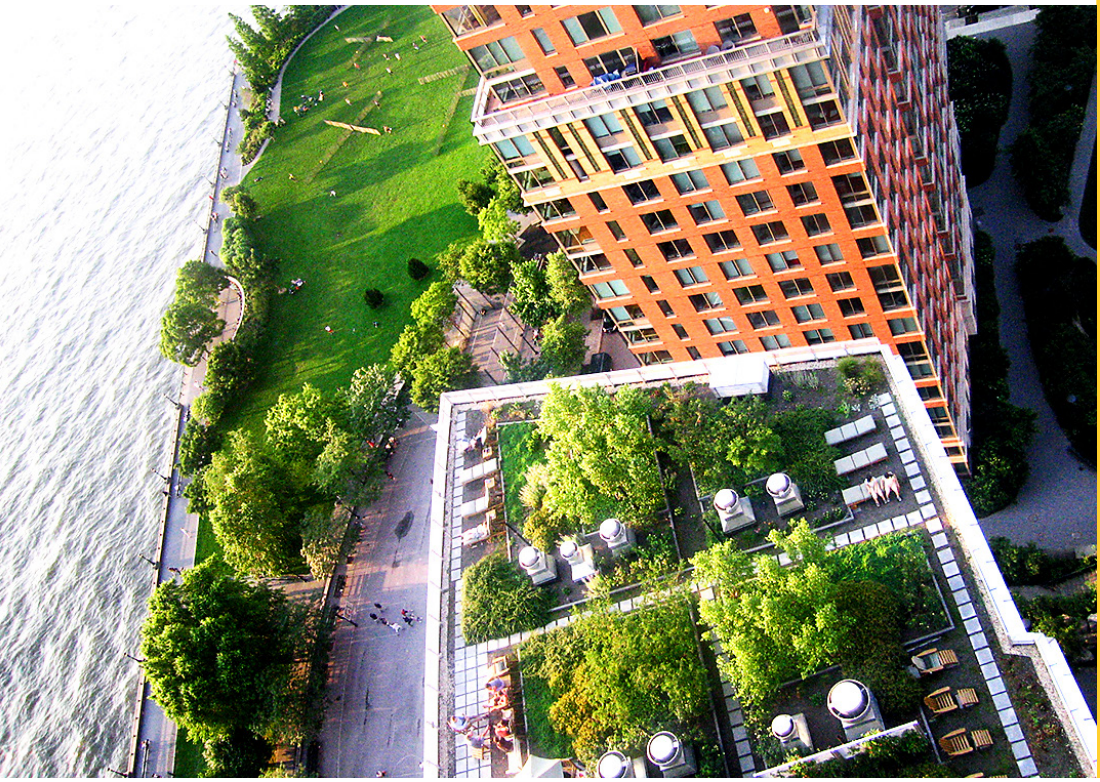
Highlights

- Combined Sewer Overflow Mitigation
- All buildings receive comprehensive water reuse program rates from NYCDEP
- Membrane Bioreactors
- Ultraviolet and Ozone Disinfection



Achievements

These systems have consistently achieved greater than 55% water consumption reduction and a greater than 65% reduction in wastewater discharge (compared to similar base residential buildings in NYC).

These water and wastewater savings are the direct result of wastewater reuse and water conservation. Battery Park City has been developed as a model for scaling water conservation and reuse projects in urban redevelopment and campus-scale settings.

scan for more

> **"This was a very important partnership for us. They not only implemented the plant for us but they maintained it, they monitored the water and made sure it was ran efficiently."**
> — Miroslav Salon, Building Manager, Albanese Organization

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Domino Sugar Factory Redevelopment

Brooklyn, NY

BLACK | GREY | DESIGN | BUILD | OPERATE

The Domino District Non-Potable Water Reuse Project located in Brooklyn, NY, this project includes the installation of a district-scale non-potable water reuse system that treats over 400,000 gallons per day (gpd) of wastewater. The initiative reduces demand on NYC's potable water supply by up to 200,000 gallons daily and minimizes combined sewer overflows (CSOs) by sending highly treated excess water to the East River.

Challenge

The New York City Department of Environmental Protection (DEP) faces growing challenges due to population increases, climate change, and aging infrastructure. Key issues include maintaining a resilient potable water supply, mitigating the impacts of CSOs, and balancing competing water use needs such as recreation, fisheries, and flood mitigation. Combined sewer systems, which serve 60% of NYC, exacerbate waterway pollution during wet weather events.

☒ POTABLE WATER CONSTRAINTS | ☒ COMBINED SEWER OVERFLOW (CSO)

Highlights

- Wastewater will be treated and reused for toilet flushing, cooling towers, and irrigation.
- Excess treated water will be sent to the East River to reduce CSOs.
- 99% of wastewater will be diverted from the combined sewer system.
- Membrane bioreactors and ultraviolet disinfection will ensure high-quality treated water.
- The system will optimize sewer capacity, save potable water, and reduce emissions.

The Solution

The Domino District Non-Potable Water Reuse Project incorporates innovative technology to address potable water constraints and reduce CSOs.

Water Treatment:
Wastewater is collected across the 11-acre site and treated with membrane bioreactors, ultraviolet disinfection, and ozone purification to meet high-quality reuse standards.

Non-Potable Applications:
Treated water is reused for toilet flushing, cooling towers, and irrigation, significantly reducing potable water demand.

Stormwater and Excess Water Management:
The project utilizes the existing stormwater outfall to put highly treated water into the East River for streamflow improvement when this water is not directly reused within the project site. All wastewater is diverted from the stormwater system for CSO mitigation.

Regulatory Support:
The DEP supports the project with financial incentives, including grants and rate discounts, making it both environmentally and economically viable.

Toilet Flushing | Cooling Tower | Spray Irrigation | Sidewalk Maintenance | Surface Water Discharge | Drip Irrigation

5 Buildings Served

400,000 GPD Treated

200,000 GPD Reused

99% REDUCTION Wastewater Discharge to Combined Sewers

#missionwater

www.nsuwater.com

Domino Sugar Factory Redevelopment

Brooklyn, NY

BLACK | GREY | DESIGN | BUILD | OPERATE

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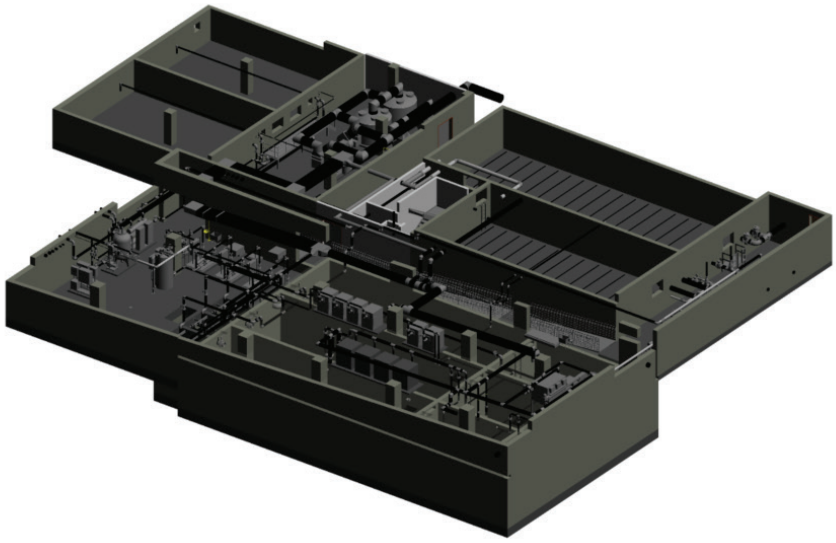

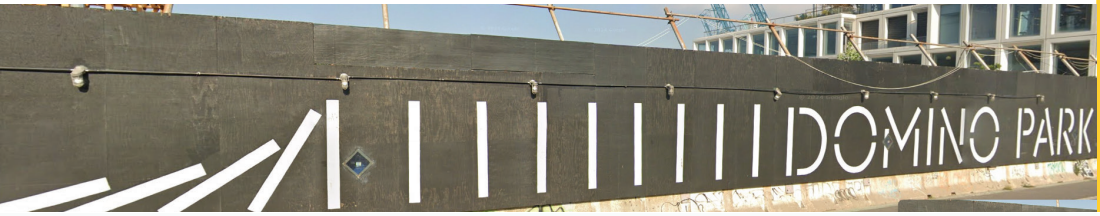

Achievements

Significant Potable Water Savings: Reduces potable water demand by up to 200,000 gallons per day, alleviating pressure on NYC's drinking water supply.

Optimized Sewer Infrastructure: Decreases combined sewer overflows (CSOs) during wet weather events, improving waterway quality.

Compact Design: Utilizes less than 10,000 square feet of below-ground space to house the treatment facility and associated tankage, maximizing land use effi ciency.

Regulatory Milestone: Set a precedent as the first district-scale on-site water reuse system to receive both city and state approvals for direct reuse within the buildings and a SPDES permit for excess supply to the river.

GREEN

SUSTAINABILITY

scan for more

> **"Innovative thinking, collaboration, and perseverance between the developer and various levels of government have been critical to making projects like Domino a reality."**

#missionwater

www.nsuwater.com

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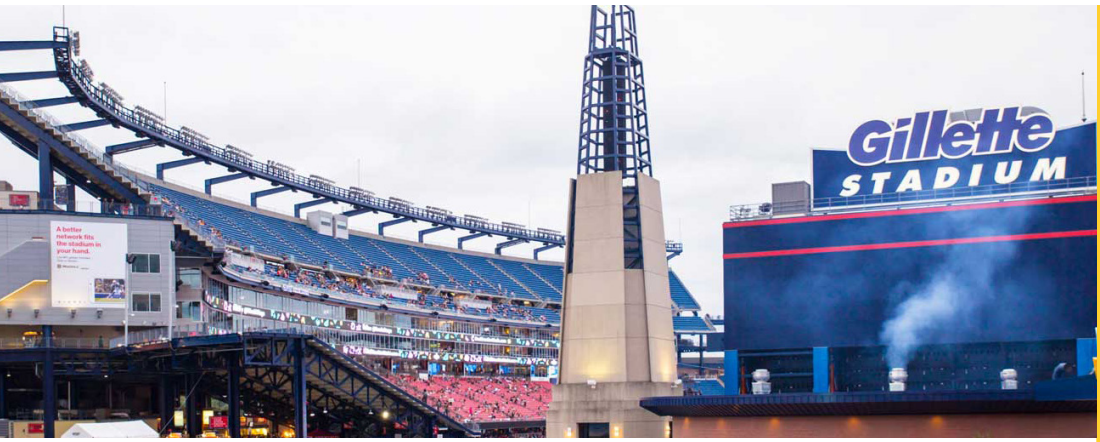

Gillette Stadium & Patriot Place

Massachusetts

BLACK | GREY | DESIGN | BUILD | OPERATE

NSU worked closely with the town of Foxborough, the New England Patriots, and partners to ensure that the facility exceeded the Town's requirements and was constructed within budget and on schedule. The municipality and the client cooperated in the construction of a water reuse system that resolved both problems. The system includes almost 1,000,000 gallons of tank volume to capture the wastewater flows generated by fans: a 250,000 gallons per day membrane bioreactor (MBR) treatment plant that generates water suitable for reuse; and a 500,000 gallon elevated storage tank for reclaimed water use.

Challenge

During the construction phase of the new stadium, it was discovered that the volume of water required during game day/concert usage exceeded the capabilities of the Town of Foxborough. Also, the municipal wastewater treatment facility in place would not be able to handle the excess wastewater flow. As the town and team went through the process it was clear they needed a partner to assist with managing the water reuse system, repair and maintenance, customer service, and capital planning.

☒ POTABLE WATER CONSTRAINTS	☒ SEWAGE TREATMENT CONSTRAINTS
☒ REGULATORY MANDATES	☒ COMBINED SEWER OVERFLOW (CSO)

The Solution

NSU designed, built, and currently operates the water reuse system for Gillette Stadium and Patriot Place; home of the New England Patriots Football Team. The goal was to create a sustainable and environmentally-friendly system to produce high-quality reuse water for the stadium's 68,000 fans during peak halftime flush periods without creating additional demands on the community's existing systems.

The implemented system returns high-quality treated wastewater both to the stadium and the adjacent Patriot Place. The recycled water is used for toilets, facilities cooling as well as other purposes. The system currently has the capacity to treat an average of 250,000 gallons of wastewater per day, with the potential for future expansion.

Toilet Flushing

Cooling Tower

Drip Irrigation

Spray Irrigation

SQ. FT.

20,000
Sq. Ft.

50%
Potable Water Reduction

100%
Reduction in Wastewater Discharge

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Gillette Stadium & Patriot Place

Massachusetts

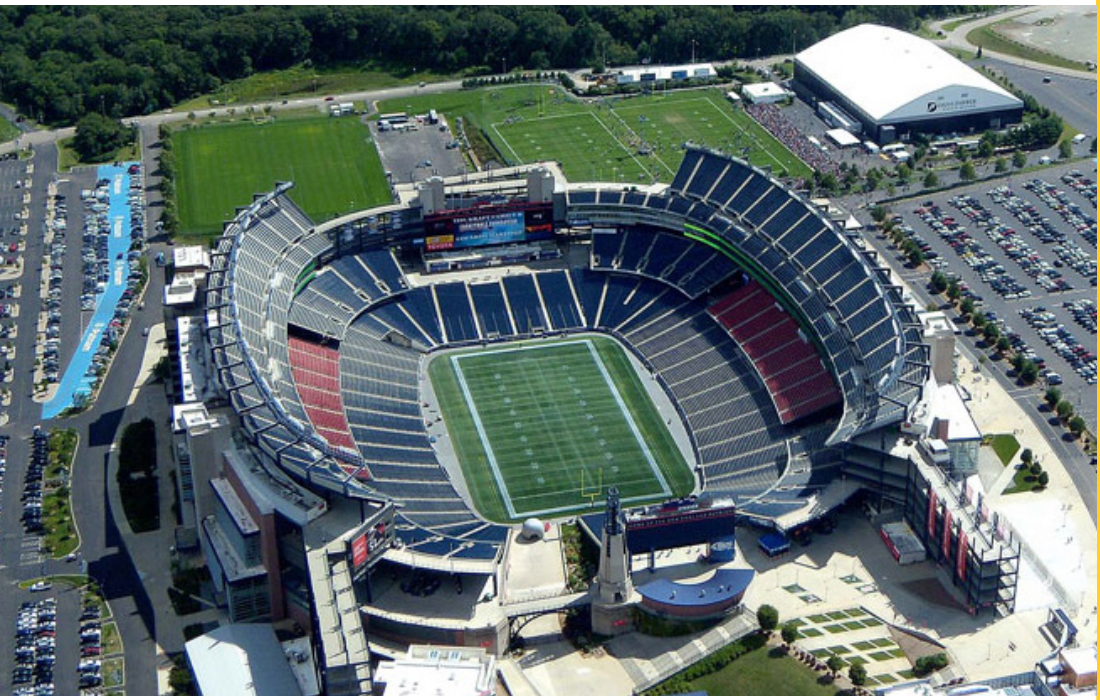
BLACK | GREY | DESIGN | BUILD | OPERATE

natural systems utilities

part of saur mission water

Highlights

- Combined Sewer Overflow Mitigation
- All buildings receive comprehensive water reuse program rates from NYCDEP
- Membrane Bioreactors
- Ultraviolet and Ozone Disinfection

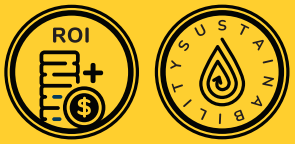


Achievements

Working with an amazing team, NSU was able to fulfill all local, client, and regulatory mandates.

The stadium has been operational for two decades and not put a water strain on the local community.

The system has become a sustainable icon for the region as it has generated a 50% reduction in potable water usage and a 50% reduction in wastewater discharge.



scan for more

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