Proposal to Provide
Engineering Services for
Post Treatment and Process Upgrades - Train 1 Phase 1
Design & Permitting Phase Services

Services to be provided by: Kimley-Horn and Associates, Inc. (Kimley-Horn)

Services provided to: Village of Wellington (Village)

Proposal Date: March 6, 2025

This Work Authorization authorizes Kimley-Horn and Associates, Inc. to perform work set forth herein and is issued pursuant to the Agreement for Consulting Services, between the Village of Wellington ("Client" or "Village") and Kimley-Horn and Associates, Inc. ("Consultant" or "Kimley-Horn"). All terms and conditions of said Agreement are hereby incorporated and made part of this Work Authorization.

BACKGROUND

The VOW WTP consists of two membrane softening plants, Membrane Plant #1 (M1) and Membrane Plant #2 (M2), and the lime softening system. M1 consists of four nanofiltration trains #2, #3, #4 & #5 each with a rated capacity of 1 MGD. M2 consists of three nanofiltration trains, #6, #7 and #8, each with a rated capacity of 1.8 MGD. Product water from M1 flows to elevated set of degasifiers located on Ground Storage Tank #3 (GST #3) and flow via gravity through the chlorine reactor and into the GST. There is no post-treatment stabilization clearwell for M1. Product water from M2 flows to degasifiers located at Clearwell #4 and is post-treated and sent to storage. Lime softened water flows to the filters and Clearwell #3 prior to being transfer pumped to storage.

The Village intends to phase out the lime softening system while maximizing the M1 and M2 facilities to a total rated capacity of 13.2 MGD. A primary limiting factor in this shift in capacity is the post-treatment capacities, specifically M1 permeate. Furthermore, the lack of redundancy with the M1 post-treatment configuration and the accessibility for maintenance make the post-treatment problematic, especially with the increase in permeate production capacities. Recently, a technical memorandum was developed that outlined plans to maximize use of existing infrastructure to create a consolidated post-treatment area. This work included construction of a new permeate header, new degasifiers and odor control system located adjacent to Clearwell #4 and miscellaneous process piping and chemical system improvements. The Village has elected to proceed forward with design and permitting improvements to construct the improvements outlined in the evaluation. Accordingly, the following scope of services is provided for the design and permitting services associated with the post-treatment improvements.

SCOPE

Task 1 – Design

Consultant will attend a project kick-off meeting with the Village. Consultant will prepare notes from the kickoff meeting and distribute to the project team.

Sub-surface utility location will be performed in order to specifically locate known and existing utilities to support the design within the plant site. The task includes up to fifteen (15) subsurface investigations using soft-dig techniques. A report of findings will be prepared based on the results of the field work.

Consultant will design raw watermain extension from existing lime softener to the main header that supplies the two membrane facilities. The header will include a stub-out connection for future addition of Train #1. Consultant will design raw water pressure relief piping and valve to exhaust excess raw water pressure to the existing backwash recovery pond.

Consultant will design a second permeate main from Membrane Plant #1 (M1) to account for future expansion of the WTP through addition of Train #1. This second permeate pipe will not be connected to the system until Train #1 is constructed.

Consultant will coordinate with odor control treatment system Original Equipment Manufacturers (OEM's) to obtain information regarding their product and alternatives for hydrogen sulfide (H_2S) treatment for air streams. Consultant will review current operation of the existing two-stage caustic wet scrubber at the WTP. Client will provide information to Consultant regarding existing degasifier and scrubber performance, as well as chemical usage and maintenance history. Consultant will evaluate use of single-stage scrubber in lieu of 2-stage scrubber.

Consultant will design yard piping improvements to include addition of a NF permeate header which "loops" M1 and M2 permeate piping such that both facilities may feed any degasifier that is in service. Consultant will prepare hydraulic system evaluation package for the proposed improvements. Consultant will design system to be hydraulically balanced on the NF permeate and degasified NF permeate streams.

Consultant will design the post-treatment system for M1 and M2 which will consist of two (2) additional degasification units, caustic wet-scrubbers for odor control, and degasified permeate collector piping. Consultant will design modifications to the existing degasifier downcomers from Clearwell #4 to combine flows prior to entering the clearwell chamber. The new degasifiers will be designed to remove hydrogen sulfide and carbon dioxide from the blended NF permeate. Caustic wet-scrubbers will be utilized to treat the off-gas produced from the degasifiers and will be designed to remove hydrogen sulfide from the off-gas. Consultant will design blower system to promote removal of hydrogen sulfide (H_2S) gas. Consultant will design upgrades to the existing sanitary sewer system to handle waste blowdown from the odor control system.

Design of the degasification system will include vessel material selection, sizing and number of vessels, packing depth, ducting material selection and sizing design, piping header design, air and liquid design criteria, and vessel arrangement. Design of the scrubber system will include system design. Design will include air and liquid loading rates, recirculation pump sizing, and blower sizing. Design of the blowers including material selection, sizing, arrangement, and number will be provided. Consultant will design the degasifiers to be hydraulically equivalent to existing Degasifiers #3 and #4 located at Clearwell #4.

This scope assumes the existing 30-inch blend pipe will be re-purposed to serve as degasified permeate header that distributes post-treatment flows to Clearwell #3 and Clearwell #4. Consultant will design modifications to the existing 30-inch blend and transfer piping as needed to serve the post-treatment system expansion. Consultant will design the piping system to hydraulically balance between the two clearwells. Consultant will design reinforced concrete collars for piping penetrations through existing clearwell structures. This proposal assumes up to two (2) collars will be designed.

Consultant will design improvements to existing transfer piping as needed to interconnect Clearwell #4 with Clearwell #3 discharge which may include re-arrangement of existing piping headers.

Consultant will design improvements to the chlorine system to disinfect the NF product water. These improvements are assumed to be limited to relocation of chemical feed piping and injection locations.

Consultant will design improvements to the existing caustic system to deliver caustic to Clearwell #3 for pH/alkalinity adjustment. Consultant assumes the improvements to the caustic system will be limited to relocation of chemical feed piping and injection locations. Consultant assumes Caustic pumps #3 and #4 will be adequate for post-treatment improvements to be implemented.

No improvements are proposed to the carbon dioxide, fluoride, ammonia, polyphosphate (corrosion inhibitor), polymer or lime systems for post-treatment.

Consultant will prepare construction plans for the post-treatment improvements. It is estimated that approximately 56 - 60 drawings will be required. The construction drawings of the proposed improvements are estimated to consist of the following sheets:

- Cover with Site Location Map
- Site Plan and General Notes
- Legend and abbreviations
- WTP Process Flow Diagram
- Existing Conditions and Demolition Plan
- Site Piping Improvements Plan
- Yard Piping Details (x8 sheets)
    - Raw water main extension from Lime Softener
    - Pressure relief assembly to backwash recovery basin
    - Second M1 permeate header
    - Looped Permeate header
    - Degasified Permeate header
    - Small diameter piping (chemical – i.e. chlorine, caustic)
    - Transfer piping
    - Waste piping
- Clearwell #3 Connection Details
- Existing Clearwell #4 Enlarged Plan
- Clearwell #4 Degasified Permeate Piping Modifications
- Proposed Degasifier #5 and #6 and Odor Control Plan
- Degasifier Details
- Degasifier and Scrubber Sections and Details
- Scrubber Details

- Caustic Piping Modifications
- Chlorine Piping Modifications
- Construction Details (x3 sheets)
- Village of Wellington Standard Details (x2 sheets)
- Electrical and Instrumentation – Single Line Diagrams, Conduit/raceway schedule, plans, panel details, etc. – refer to Electrical scope included herein ~ 29 sheets

Consultant will prepare technical specifications for the proposed work. Consultant will prepare an Opinion of Probable Construction Costs (OPCC).

Consultant will utilize the services of Hiller's Electrical Engineering to provide professional services related to electrical and instrumentation design.

Consultant will prepare a preliminary set of deliverables (~80% complete) consisting of design plans, specifications and OPCC. Consultant will attend one (1) review meeting for this initial set of deliverables. Consultant will incorporate Village staff review comments into design and submit deliverables to the Village as final.

Task 2 – Permitting Application Preparation and Submittal

Consultant will prepare a Preliminary Design Report (PDR) that outlines the proposed improvements to be included in the permit application submittal to the Palm Beach County Health Department (PBCHD). Consultant will submit signed and sealed (S&S) plans, PDR, and "Application for a specific Permit to Construct PWS Components" to PBCHD. Consultant will respond to a reasonable number of requests for additional information (RAI).

Permit application fees are assumed to be paid directly by the Village.

Task 3 – Bid Phase Services

Consultant will assemble bid documents including front-end documents, drawings, bid form and technical specifications for bidding of the water treatment plant components. Consultant will coordinate with Village staff for project front-end documentation development. The Village will advertise all bidding documents and addendums and pay all associated costs.

Consultant will attend a pre-bid meeting, respond to bidder questions and prepare addendum(s), if required, which will be distributed to all the contract document holders by Village's Purchasing Department. Consultant assumes up to three (3) addenda will be issued as part of this project.

Consultant will utilize Hillers Electrical Engineering (HEE) for professional services related to electrical engineering in supporting the bid process for this project. Refer to HEE proposal included herein.

Consultant will review the bids and bidder qualifications and provide a bid review which determines the lowest, most responsive and responsible bidder, and will provide a recommendation of award. Consultant will review bidder qualification package included in the bid package for completeness.

Consultant will update project design plan sheets and specifications in accordance with the responses to addendum questions presented during the bid phase. Consultant will assemble and issue "Conformed" plans and specifications in .pdf format.

ADDITIONAL SERVICES

Any services not specifically provided for in the above scope, as well as any changes in the scope requested by the Village, will be considered additional services to this Work Authorization and will be performed based on subsequent Work Authorizations approved prior to performance of the additional services.

SCHEDULE

Consultant will complete these tasks in a timely manner and mutually agreed upon schedule.

COMPENSATION

Kimley-Horn will perform the services described in the Scope of Services on a lump sum basis for $406,146.

Accepted by:

Village of Wellington

_____

Date: _____

Kimley-Horn and Associates, Inc.

_____

Jason R. Lee, P.E.
Vice President

Date: 3/10/2025

ESTIMATE FOR ENGINEERING SERVICES

PROJECT:	VOW Post-treatment Improvements										SHEET 1 of 1				
CLIENT:	Wellington										FILE NO.				
ESTIMATOR:	Nick Black										DATE:			03/10/25	
DESCRIPTION: See Scope of Services	DIRECT LABOR (MAN-HOURS)														
	Principal	Senior PM	PM (PE)	Senior Prof.	Prof. (PE)	PROF 3	PROF 2	PROF 1	SR		SUPP	SR FIELD	FIELD		LINE
	Principal	Senior PM	PM (PE)	Senior Prof.	Prof. (PE)	PROF 3	PROF 2	PROF 1	DESIGN	DESIGN	STAFF	REP	REP	SUB	TOTAL
	JP/MM	JRL/CL	NB	AC	BK	DC	CS	AH	SS	JR	TC	JF	BD		
Task 1 - Design															
Project Kickoff Meeting & Minutes			2.0		3.0			3.0			1.0				$1,455
Soft Digs (x15)			1.0		2.0									12750.0	$13,330
Vendor/OEM Coordination			2.0		4.0			8.0							$2,160
Design RWM Extension		2.0	3.0		6.0			20.0							$4,770
Design Second M1 Permeate Pipe		2.0	3.0		6.0			20.0							$4,770
Review wet scrubber operation		2.0	3.0		6.0			20.0							$4,770
Hydraulic Evaluation and Calculation Package		3.0	8.0		16.0			30.0							$9,185
Design Grading			6.0		12.0			20.0							$5,980
Design Blowdown		3.0	4.0		8.0			20.0							$5,615
Design Yard Piping improvements			4.0		8.0			20.0							$4,820
Degasifier System Design & Selection		2.0	4.0		8.0			20.0							$5,350
Odor Control System Design & Selection		1.0	4.0		8.0			20.0							$5,085
Blower design & Selection		1.0	4.0		8.0			20.0							$5,085
Degas Permeate Header Piping Design Mods		1.0	4.0		8.0			20.0							$5,085
Clearwell Structure Penetration Design		4.0	4.0		8.0			20.0							$5,880
Transfer Piping Mod Design		2.0	3.0		6.0			12.0							$3,770
Caustic System Mods		1.0	2.0		6.0			12.0							$3,285
Chlorine System Mods		1.0	2.0		6.0			12.0							$3,285
Plansheets (x24 KHA)															
Cover								2.0							$250
Site Plan								4.0							$500
Legend & Abbreviations					1.0			4.0							$680
WTP PFD			2.0		4.0			6.0							$1,910
Existing Conditions and Demo Plan			6.0		12.0			28.0							$6,980
Site Piping Improvements			6.0		12.0			28.0							$6,980
Yard Piping Details 1			6.0		12.0			28.0							$6,980
Yard Piping Details 2			6.0		12.0			28.0							$6,980
Yard Piping Details 3			6.0		12.0			28.0							$6,980
Yard Piping Details 4			6.0		12.0			28.0							$6,980
Yard Piping Details 5			6.0		12.0			28.0							$6,980
Yard Piping Details 6			6.0		12.0			28.0							$6,980
Yard Piping Details 7			6.0		12.0			28.0							$6,980
Yard Piping Details 8			6.0		12.0			28.0							$6,980
Clearwell #3 Connection Details		3.0	6.0		12.0			28.0							$7,775
Clearwell #4 Plan			4.0		12.0			28.0							$6,540
Clearwell #4 Degas Piping Mods			6.0		12.0			28.0							$6,980
Proposed Degas 5 & 6 and Odor Control Plan			6.0		12.0			28.0							$6,980
Degas Details			6.0		12.0			28.0							$6,980
Degas and Scrubber Details			6.0		12.0			28.0							$6,980
Scrubber Details			6.0		12.0			28.0							$6,980
Caustic Piping Mods			6.0		12.0			28.0							$6,980
Chlorine Piping Mods			6.0		12.0			28.0							$6,980
Construction Details (x3)			6.0		18.0			28.0							$8,060
VOW Std Details			1.0		3.0			6.0							$1,510
OPCC		2.0	8.0		16.0			30.0							$8,920
Technical Specifications		12.0	20.0		40.0			80.0							$24,780
Review Meeting			2.0		2.0			2.5							$1,113
Finalize Deliverables		4.0	6.0		12.0			24.0							$7,540
Electrical Services (HEE)			4.0		8.0									80610.0	$82,930
QA/QC	20.0														$5,700
Task 2 – Permitting Application Preparation and Submittal															
Preliminary Design Report		4.0	8.0		12.0			20.0							$7,480
Permit Application & Cover Letter			2.0		4.0			8.0			2.0				$2,360
Response to RAIs			3.0		6.0			8.0			2.0				$2,940
Electrical Services (HEE)			1.0											1836.0	$2,056
QA/QC	4.0														$1,140
Task 3 – Bid Phase Service															
Prebid Meeting			2.0		3.0			3.0							$1,355
Responses to Addenda			3.0		6.0			9.0							$2,865
Front End Contract Review			3.0		4.0										$1,380
Bid Review & Recommendation			2.0		4.0										$1,160
Conformed Documents			6.0		12.0			18.0							$5,730
HEE Additional			1.0											6057.0	$6,277
QA/QC	3.0														$855
	27	50	255	0	512	0	0	1082	0	0	5	0		101253	
	$285	$265	$220	$200	$180	$165	$145	$125	$185	$130	$100	$160	$135	1.00	
	$7,695	$13,250	$56,100	$0	$92,160	$0	$0	$135,188	$0	$0	$500	$0	$0	$101,253	$406,146

HILLERS ELECTRICAL ENGINEERING, INC.

March 7, 2025

Mr. Nick Black, PE
Kimley-Horn and Associates, Inc.
1920 Wekiva Way, Suite 200
West Palm Beach, FL 33411

Subject: Village of Wellington Utilities– Water Treatment Plant Post Treatment Improvements Design Phase Services

Dear Nick:

Hillers Electrical Engineering, Inc. (HEE) is pleased to provide Kimley-Horn and Associates, Inc. (KHA) this proposal for electrical and instrumentation and control engineering design services for the above-referenced project. The Village of Wellington (Village) is expanding the treatment capacity of Membrane Building 1 (M1) that will exceed the capacity of the existing associated post treatment degasifier and scrubber system; therefore, a new scrubber and degasifier system is required to accommodate the increased treatment capacity. The new scrubber system will require modifications to the existing caustic system to support operation. Modifications to the existing sodium hypochlorite system will be performed under as separate task order.

This proposal is for design, permitting, and bidding phase services only. Construction phase services are not included as part of this scope of work and will be proposed under a separate work order.

Project elements include:

- Addition of a new degasifier and odor control system, including blowers and single stage caustic wet scrubbers, for M1 located adjacent to the existing Membrane Building 2 (M2) Degasifier System; power will be derived from M1 electrical power distribution system for reliability; monitoring and control will be interfaced with M1 process control system for reliability
- New degasifier system effluent will flow by gravity to Clearwells 3 and 4; no additional transfer pumping is required
- Addition of two (2) new caustic metering pumps and interface with the new scrubber system instrumentation for pH control. The existing Caustic system will be expanded to include the new metering pumps
- Modifications to the chlorine system are limited to relocation of injection points only.
- The existing M1 elevated degasifier/scrubber will remain as a back-up system

Project milestones will be a preliminary (approximately eighty (80) percent completion) design deliverable; preliminary design review meeting; and a final (one hundred (100) percent completion) design deliverable. HEE will prepare opinions of probable construction cost for the preliminary design and the final design submittals. This proposal does not include construction phase services; it is anticipated that these services will be rendered under future task orders.

Task 1: Design

- HEE will attend a project kickoff meeting with KHA and the Village

- HEE will prepare draft design documents for electrical, instrumentation and control systems pertinent to the project elements
- HEE will prepare input to the draft opinion of probable construction cost
- HEE will attend a draft document review meeting with KHA and the Village
- HEE will incorporate comments received during the draft document review and meeting and prepare final design documents for electrical, instrumentation and control systems pertinent to the project elements

Task 2: Permit Application Preparation and Submittal

HEE will prepare signed and sealed drawings for building department permit application.

Task 3: Bidding Phase Services

- HEE will attend the pre-bid conference.
- HEE will assist KHA in responding to any technical questions related to the electrical, instrumentation, control, and telemetry design presented in the bid documents.
- HEE will prepare up to three (3) addenda related to electrical, instrumentation, control and telemetry design technical questions or clarifications.
- HEE will assist KHA review bids for electrical systems and provide input to a recommendation of award. Actual recommendation of award letter will be prepared by Hazen.
- HEE will assist KHA in preparing Conformed Drawings for the electrical design based on addenda issued.

HEE anticipates the following design drawings:

Electrical:

- Electrical Legend and Symbols – 1 Sheet
- Electrical General Notes – 1 Sheet
- Overall Electrical Site Plan-1 Sheet
- New Degasifier System Electrical Plan – 1 Sheet
- Membrane Building 1 Electrical Plan – 1 Sheet
- Membrane Building 1 Enlarged Electrical Room Plan – 1 Sheet
- Caustic Building and Bulk Storage Area Electrical Plan - 1 Sheet
- Membrane Building No.1 Modified One Line Diagrams – 2 Sheets
- Schematics -1 Sheet
- Power Riser Diagrams – 1 Sheet
- Instrumentation and Control Riser Diagrams - 1 Sheet
- Schedules – 2 Sheet
- Electrical Details– 3 Sheets

Instrumentation and Control:

- Instrumentation Legend and Symbols – 1 Sheet
- Degasifier System P&ID – 1 Sheet
- Scrubber System P&ID -1 Sheet
- Existing Caustic Feed System Modifications P&ID- 1 Sheet
- PLC RO1 Details – 2 Sheets
- PLC 2 Details -2 Sheets

- Instrumentation Details – 2 Sheets

Assumptions:

1. KHA will provide all background (base) AutoCAD files to HEE for use in creating the design drawings.
2. Project does not include short circuit, device coordination or Arc Flash Study; this will be specified to be provided by the installing contractor if necessary.
3. It is assumed that the 2017 Water Treatment Plant Renewal and Rehabilitation Design will be used as the basis for creating the design documents for this project.
4. There are adequate inputs and outputs available in M1 (PLC-RO1) for control and monitoring of the additional Train 1 signals, additional scale inhibitor signals, and additional raw water-feed system instrument signals.
5. There is adequate power and points of connection in M1 to power the project elements requiring power.

Our proposed lump-sum engineering services fee is: $88,503.00

HEE thanks Kimley-Horn and Associates, Inc. for the opportunity to assist with this project. Please do not hesitate to call me if you have any questions regarding this proposal or any other matter.

Sincerely,

Mark E. Luther, PE

MEL/mel

Attachment

E:\Business Development\Proposal\Kimley-Horn\Village of Wellington\WTP\Post Treatment Improvements\KH-Village of Wellington WTP Post Treatment Improvements Design 03072025.docx

Village of Wellington Utilities Water Treatment Post Treatment Improvements Design
Kimley-Horn & Associates
HILLERS ELECTRICAL ENGINEERING, INC.
Scope Fee Breakdown -Design, Permitting and Bidding Phase Services
Date: 3/07/2025

Rate	**$225.00**	**$192.00**	**$153.00**	**$147.00**	**$129.00**	**$90.00**	**$81.00**	**$138.00**	**$78.00**				
	Principal	Chief Engineer	Project Manager	Professional Engineer	Lead Engineer	Designer	CADD/ Technician	Construction Coordinator	Secretarial	Total Task	Expenses	SUBTOTAL	TASK TOTAL
PHASE OF WORK	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Cost	Cost	Cost
Design Phase													
Task 1: Design													**$80,610.00**
Preliminary Design	34			180			150		4	364		**$46,572.00**	
Preliminary Design Review Meeting	3			3						6		**$1,116.00**	
Final Design	24			130			100		4	254		**$32,922.00**	
Task 2: Permitting													**$1,836.00**
Engineering Support	2			4			6		4	12		**$1,836.00**	
Task 3: Bidding Phase Services													**$6,057.00**
Attend Pre-Bid Meeting				2						2		**$294.00**	
Prepare Addenda (up to 3)	3			12			12		2	27		**$3,567.00**	
Prepare Conformed Documents				10			8		1	18		**$2,196.00**	
Lump Sum Totals	**66**			**341**			**276**		**15**	**683**		**$88,503.00**	
Cost by Labor Rate	$14,850.00			$50,127.00			$22,356.00		$1,170.00				**$88,503.00**