



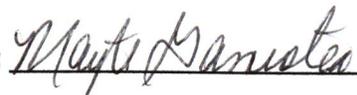
Budget Amendment Form

Department Utility Administration	Date 1/21/2026
Fund(s) to be changed: Engineering & Planning	

GL Account	GL Line Item	Transfer to:	Transfer from:
430-30-533-3110	Engineering & Planning	\$ 525,894.00	\$ -
430-00-389-3890	Appropriation of Fund Balance	\$ -	\$ 525,894.00
		\$ -	\$ -
		\$ -	\$ -
		\$ -	\$ -
TOTAL (Columns must be equal)		\$ 525,894.00	\$ 525,894.00

Description:

BUDGET AMENTMENT TO APPROPRIATE FUNDS FROM UTILITY ADMINISTRATION FUND BALANCE TO COVER THE ENGINNERING & PLANNING FOR THE WATER & SEWER MASTER PLAN AND THE REGULATORY COMPLIANCE REPORTING TO BE DONE BY ARDURRA, AS APPROVED IN THE COMMISSION MEETING ON JANUARY 20, 2026.

Department Director:  Date: 1-21-26
 Chief Financial Officer:  Date: 1/21/26
 Village Manager:  Date: 1/21/26

Mayte Gamiotea

From: Steven Buckland
Sent: Wednesday, January 21, 2026 9:24 AM
To: Mayte Gamiotea; Jane Feary
Cc: Paola Davalos; Hector Gomez; Roger Hogg; Jean Lilavois
Subject: BA & PO

Good morning Mayte,

Since both Ardurra items passed last night, please do the following BA:

FROM: 430.00.389.3890 Appropriation of Fund Balance

TO: 430.30.533.3110 Engineering & Planning

AMOUNT: \$525,894

Jane,

Once completed, please prepare two separate PO's and send them to all persons copied on this email. Roger will be the PM for the master plan, and Jean is the PM for the other.

TITLE: Water and Sewer Master Plan

Task 1 Project Management and Coordination Meetings \$53,574.00

Task 2 Existing Conditions and Baseline Analysis \$123,340.00

Task 3 Water System Assessment \$114,260.00

Task 4 Sewer System Assessment \$111,740.00

Task 5 Future Growth, Regulatory, Environmental, and Resiliency Planning \$ 23,300.00

Task 6 Capital Improvement Plan (CIP) \$32,720.00

Task 7 Operation and Maintenance (O&M) Recommendations \$20,060.00

Task 8 Implementation, Phasing, and Final WSMP Deliverables \$24,640.00

Grand Total \$502,634.00

TITLE: Regulatory Compliance Reporting

Task 1 – Water and Sewer Electronic Atlas Submittal (2025) \$11,280.00

Task 2 – SSES Annual Report \$3,710.00

Task 3 – Stormwater Illicit Discharge Semiannual Report \$1,820.00

Task 4 – Utility Reporting Structure Matrix and Active Agreement with Utility Downstream \$270.00

Task 5 – CMOM Annual Report \$2,630.00

Task 6 – Water Accounting Data Form \$1,550.00

Grand Total \$21,260.00

Steven P Buckland
Public Works Director, North Bay Village
Cell: 954-214-8530

RESOLUTION NO. 2026-005

A RESOLUTION OF THE MAYOR AND COMMISSION OF NORTH BAY VILLAGE, FLORIDA, AUTHORIZING THE VILLAGE MANAGER TO ISSUE WORK ORDER NO. 08 TO ARDURRA GROUP, INC. FOR THE WATER AND SEWER MASTER PLAN IN AN AMOUNT NOT TO EXCEED \$502,634.00; PROVIDING FOR IMPLEMENTATION; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, on December 12, 2023, the North Bay Village ("Village") Commission adopted Resolution No. 2023-155 selecting various consultants pursuant to Request for Qualifications No. 2023-005 (the "RFQ") for continuing professional general architectural and engineering services and authorizing the Village Manager to negotiate and execute agreements with the various consultants; and

WHEREAS, pursuant to the Resolution, the Village entered into an agreement on May 1, 2024, with Ardurra Group, Inc. (the "Consultant"), as one of the selected firms (the "Agreement"); and

WHEREAS, the Village owns, maintains, and operates a wastewater collection system and maintains and operates the water system which is supplied to the Village by Miami-Dade County Water and Sewer Department (WASD); and

WHEREAS, the Village desires to develop a Water and Sewer Master Plan (WSMP) that is strategically aligned with the implementation of the Village's Stormwater Master Plan (SMP); and

WHEREAS, in accordance with the terms of the Agreement, the Village solicited and the Consultant submitted a proposal to provide professional services for the development of the WSMP (the "Services"); and

WHEREAS, the Village Commission desires to authorize the Village Manager to issue work order to the Consultant for the Services in substantially the form attached hereto as Exhibit "A" in an amount not to exceed \$502,634.00 (the "Work Order"), consistent with the Agreement previously entered into between the Village and Consultant; and

WHEREAS, the Village Commission finds that this Resolution is in the best interest and welfare of the residents of the Village.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COMMISSION

OF NORTH BAY VILLAGE, FLORIDA, AS FOLLOWS:

Section 1. Recitals. That each of the above-stated recitals are hereby adopted, confirmed, and incorporated herein.

Section 2. Authorization. That the Village Commission hereby authorizes the Village Manager to issue the Work Order to the Consultant for the Services, consistent with the Work Order attached hereto as Exhibit "A" and the Agreement previously executed in an amount not to exceed \$502,634.00.

Section 3. Implementation. That the Village Manager and Village Attorney are hereby authorized to take such further action as may be necessary to implement the purpose and provisions of this Resolution.

Section 4. Effective Date. That this Resolution shall be effective immediately upon adoption.

The foregoing Resolution was offered by Mayor Streitfeld who moved its adoption. The motion was seconded by Commissioner Acosta and upon being put to a vote, the vote was as follows:

Mayor Rachel Streitfeld	<u>Yes</u>
Vice Mayor Goran Cuk	<u>Yes</u>
Commissioner Doris Acosta	<u>Yes</u>
Commissioner Richard Chervony	<u>Yes</u>
Commissioner Andy Rotondaro	<u>Absent</u>

PASSED AND ADOPTED on this 20th day of January 2026.



Rachel Streitfeld, Mayor

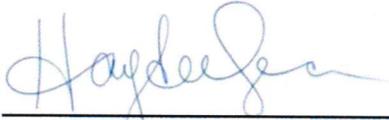
ATTEST:



Alba L. Chang, CMC
Village Clerk



APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

A handwritten signature in blue ink, appearing to read "Hayden".

Weiss Serota Helfman Cole & Bierman, PL
Village Attorney

WORK ORDER No. 08

Dated this day of , 20XX

NORTH BAY VILLAGE PUBLIC WORKS DEPARTMENT

WATER AND SEWER MASTER PLAN (WSMP)

PROFESSIONAL SERVICES

This Work Order between North Bay Village, a Florida municipal corporation ("VILLAGE"), and Ardurra Group, Inc. (Ardurra), a full service engineering firm authorized to transact business in Florida ("CONSULTANT"), is made pursuant to the RFQ 2023-005 Consultant Service Agreement (the "Agreement") dated May 1, 2024 and expiring on May 1, 2029.

PROJECT DESCRIPTION

The VILLAGE is located within the northeast section of Miami-Dade County, Florida. It consists of three (3) islands surrounded by Biscayne Bay. With approximately 8,200 residents living in 0.83 square miles, the VILLAGE is primarily residential with a mixture of commercial, industrial and educational facilities. The VILLAGE maintains and operates the water supplied to the islands by Miami-Dade County Water and Sewer Department (WASD) and owns and operates approximately 8 miles of Water Distribution Mains and 605 Wholesale Water Meters. Additionally, the VILLAGE also owns and operates a wastewater collection and conveyances system that consists of approximately 30,000 LF of gravity sewer mains, 143 manholes and four (4) pump stations/basins

The community includes a mix of residential, commercial, industrial, and institutional properties and faces increasing redevelopment pressure, climate change risks, aging infrastructure, and evolving regulatory requirements.

The purpose of the WSMP is to proactively address these challenges and guide long-term investments. This Master Plan will serve as a 25-year utility roadmap to evaluate the VILLAGE's water distribution and wastewater collection systems, focusing on condition, capacity, operational performance, public health protection, and system resiliency.

Phased Development to Support the Stormwater Master Plan

A critical component of the WSMP is its strategic alignment with the implementation of the VILLAGE's Stormwater Master Plan (SMP). Recognizing the interdependence of utility infrastructure projects and the need to minimize construction conflicts and disruptions, the WSMP will be developed and submitted in sequenced, phased deliverables.

These phased deliverables will be timed to directly support stormwater infrastructure upgrades, enabling the VILLAGE to make informed decisions about joint trenching, utility corridor coordination, and project timing. Each phase of the WSMP will focus on specific subareas or utility systems, allowing for targeted evaluations, prioritized recommendations, and synchronized capital planning in concert with the phased SMP rollout.

The coordination between the WSMP and SMP will be maintained throughout the planning process via joint milestone meetings, data sharing, and aligned modeling and risk assessments. This integrated approach will maximize cost-effectiveness, enhance community outreach efforts, and accelerate delivery of critical infrastructure improvements across all utility systems.

Purpose and Objectives

The WSMP is intended to:

- Provide a data-driven framework for evaluating system condition, capacity, and future demand
- Identify and prioritize water and sewer improvements to support redevelopment, fire protection, and resilience
- Incorporate SCADA and AMI data analytics & improvement recommendations to enhance operational decision-making
- Address regulatory requirements from the Florida Department of Environmental Protection (FDEP), Environmental Protection Agency (EPA), Miami Dade County (MDWASD and RER-DERM).
- Support flood risk mitigation, saltwater intrusion defense, and inflow/infiltration reduction
- Develop a phased Capital Improvement Plan (CIP) with planning-level cost estimates
- Identify grant funding opportunities and implementation strategies
- Align with sustainability and sea-level rise adaptation goals
- Synchronize water and sewer improvements with stormwater construction activities

The WSMP will serve as a vital planning and decision-support tool, enabling the VILLAGE to advance resilient, cost-effective, and community-conscious utility upgrades through a phased, coordinated implementation strategy.

At the request of the VILLAGE, the CONSULTANT is pleased to submit this proposal to assist with the WSMP.

The Work Order has been divided into the following tasks:

Task	Description
1	Project Management and Coordination Meetings
2	Existing Conditions and Baseline Analysis
3	Water System Assessment
4	Sewer System Assessment
5	Future Growth, Regulatory, Environmental, and Resiliency Planning
6	Capital Improvement Plan (CIP)
7	Operation and Maintenance (O&M) Recommendations
8	Implementation, Phasing, and Final WSMP Deliverables

GENERAL REQUIREMENTS

Design Standards

EXHIBIT "A"

Work Order No.: 08
Project No.: XXXXX
Project Name: Water and Sewer Master Plan
Consultant: Ardurra Group, Inc.
Contract No.: RFQ 2023-005

The CONSULTANT shall be solely responsible for determining the standards the work shall meet and obtain all the requisite regulatory approvals. The design shall include, but is not limited to, the plans and specifications, which describe all systems, elements, details, components, materials, equipment, and any other information necessary for construction. The design shall be accurate, coordinated between disciplines, and in all respects, adequate for construction, and shall be in conformity, and compliance, with all applicable laws, codes, permits, and regulations.

Quality Control

The CONSULTANT is responsible for the quality control (QC) of their work and of its sub-consultants. The CONSULTANT shall provide to the VILLAGE the list of sub-consultants which shall be used for this project. This list shall not be changed without prior approval of the VILLAGE. All sub-consultant documents and submittals shall be submitted directly to the CONSULTANT for their independent QC review. The VILLAGE shall only accept submittals for review and action from the CONSULTANT.

The CONSULTANT shall be responsible for the professional quality, technical accuracy, and coordination of all pre-design services, designs, drawings, specifications, and other services furnished by the CONSULTANT and their sub-consultant(s). It is the CONSULTANT's responsibility to independently and continually QC their plans, specifications, reports, electronic files, progress payment applications, schedules, and all project deliverables required by this task order. The CONSULTANT shall provide the VILLAGE with a marked up set of plans and/or specifications showing the CONSULTANT's QC review. Such mark-ups shall accompany the CONSULTANT's scheduled deliverables. The submittal shall include the names of the CONSULTANT's staff that performed the QC review for each component (structures, roadway, drainage, etc.).

Project Schedule

The CONSULTANT shall submit a preliminary project schedule as an exhibit to this Work Order. The schedule shall be prepared in Microsoft Project and shall include the Consultant's best estimate as to the project start date.

Within 10 business days after receiving the Notice to Proceed and prior to beginning work, the CONSULTANT shall submit a final project schedule to the VILLAGE for approval. No work shall commence without an approved schedule. The final schedule shall include design, permitting activities, submittal review timeframes, and other project activities as required to complete the work. The CONSULTANT shall submit updated project schedules as required in the specific scope of services.

Permitting

The CONSULTANT shall coordinate with the VILLAGE, regulatory agencies, and any other government entity having an interest or jurisdiction, which may require permits for this project. The CONSULTANT shall provide an estimate of fees and duration associated with the permitting process. Some of the regulatory or permitting agencies associated with this project may include, but are not limited to:

- South Florida Water Management District (SFWMD)

EXHIBIT "A"

Work Order No.: 08
Project No.: XXXXX
Project Name: Water and Sewer Master Plan
Consultant: Ardurra Group, Inc.
Contract No.: RFQ 2023-005

- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- Miami Dade County Department of Regulatory & Economic Resources (RER)
- North Bay Village Building Permit
- Florida Department of Health Miami Dade County

SPECIFIC SCOPE OF SERVICES

The Scope of Services to be provided by the CONSULTANT shall be as follows:

Task 1 – Project Management and Coordination Meetings

The CONSULTANT will provide project management services including stakeholder engagement, interagency collaboration, schedule tracking, and integration with the ongoing Stormwater Master Plan.

The WSMP will be delivered through a phased and sequenced approach, aligned with the implementation timeline of the Stormwater Master Plan. As such, a robust structure of coordination and communication will be established to maintain transparency, streamline decision-making, and facilitate alignment across planning, engineering, and public engagement functions.

Meeting Type	Purpose / Description	Planned Number of Meetings
Project Kickoff Meeting	Initiate the project; review scope, schedule, data needs, roles, and communication protocol.	1
Interdepartmental Coordination Meetings	Coordination with VILLAGE departments including Public Works, Building Department, Planning & Zoning, Finance, Grants & Funding, and Public Outreach, as needed, to gather data, validate findings, and align priorities. Additionally, coordination with SWMP team for phasing alignment.	6
Meetings with Miami-Dade WASD	Review interconnect capacity, regional system requirements, flow allocations, regulatory considerations, and coordination on future improvements & service plans.	Up to 2
Stakeholder Workshop	Present preliminary findings, water/sewer system needs, and early recommendations to internal/external stakeholders; gather input for refinement.	1
Community Engagement Meeting	Engage residents and community groups; present project purpose, findings, and proposed improvements; gather public feedback and address questions.	1

Presentation to VILLAGE Commission	Present the Draft and/or Final Water & Sewer Master Plan; request Commission feedback and direction for adoption.	1
Total		12

Deliverables:

- Monthly Progress Reports (Twelve (12) total)
- Meeting agendas and minutes (One (1) kick-off meeting and three (3) coordination meetings)
- Draft and Final Project Workshop Presentation
- Meeting agendas and sign-in sheets
- Presentation slides and summary notes for each meeting
- Meeting minutes with action items and follow-ups
- Integrated schedule showing alignment with the Stormwater Master Plan

Task 2 – Existing Conditions and Baseline Analysis

The CONSULTANT will gather existing VILLAGE files and data through Request for Information (RFI), field verifications and limited condition assessments. After the RFI response from the VILLAGE and field assessments have been complete, the CONSULTANT will perform a baseline review and analysis of the present water and sewer system to create a baseline of existing conditions and determine potential deficiencies. All existing records will be reviewed within this task.

Task 2 includes the following subtasks:

2.1 – Data Collection & Analysis

The CONSULTANT will prepare a Request for Information (RFI) to the VILLAGE for currently available data on record or furnished by other consultants. Data request may include, but is not limited to:

- Demand Studies
- Past Evaluations
- Regulatory Compliance submittals and documents
- Land use and Environmental designations
- Development Orders
- Customer Service calls and data
- Frequency, severity and duration of Sanitary Sewer Overflows (SSOs)
- Water consumption information
- Building department records
- Previous Water and Sewer Hydraulic Models (per latest RER-DERM Calibration in 2024)
- Billing information
- Water meter data
- SCADA information
- Existing computer models of the collection system

- Private-side sewer system data
- O&M Data
- Lidar Survey, models and data
- Surveys
- GIS Data
- Other data, as applicable and available

Deliverables:

- Request for Information (RFI)

2.2 – Field Data Collection and Condition Assessments

The CONSULTANT will perform limited condition assessments and provide a condition grading based on findings, as follows:

Water Assets

- Valve and hydrant location, condition, and operational status
- Visual identification of suspected material type (where visible or marked)
- Pressure and flow observations (selected four (4) hydrants for fire flow) - record pressure data over a 36-hour interval. The data will be evaluated in conjunction with consumption and system demands in other tasks as well as incorporated into the relevant models.
- Tagging and GPS coordinates collection for hydrants, valves, meters

Sewer Assets

- GPS Location of Force Main Valves
- Re-inspection of limited number of previously rehabilitated manholes to assess continued performance of liners installed

Pump Station Assessments (4 Stations)

- Field visits to assess:
 - Structural integrity, equipment condition, emergency backup provisions
 - SCADA connectivity, electrical panels, wet well conditions
 - Operational parameters (run times, starts, flows if available)

Deliverables:

- Pump Station Condition Assessment Reports
- Pressure Log Summary
- Updated valve inventory

2.3 – Updated GIS Utility Network and Spatial Data Integration

Due to the limited availability of historical as-builts and record drawings, the CONSULTANT will develop an updated best-available utility base map using a combination of existing GIS records, limited field-based verification, and operational data review to generate an actionable inventory with condition ratings, confidence levels, and prioritization inputs.

Where installation years or material types are unknown, estimates will be developed based on parcel age, utility permit trends, and field evidence. Asset data will include confidence ratings. This hybrid approach will inform a risk-based prioritization for capital improvements and support integration with the VILLAGE's ongoing Stormwater Master Plan implementation.

Deliverables:

- Spatially referenced water and sewer networks with attributes (diameter, material, condition, etc., for Sewer Collection System these will be integrated with CCTV data and PACP scoring)
- Updated GIS Data to include determination of pipe depth estimates for water and sewer mains, as well as all manhole locations and inverts for the sewer system.
- Attribute Tables with Confidence Ratings: Fields include material, install year (if known), condition, and data source, with confidence levels
- GIS Map Books/Atlases: Thematic system maps (e.g., by pipe material, diameter, condition) in PDF format
- Gap Analysis Summary: Identification of missing data, unknown assets, and recommendations for future verification
- Stormwater Coordination Layer: GIS overlay of sewer/water assets with SMP phasing and coordination flags
- ArcGIS Online Web Map: Interactive viewer for internal staff, showing asset data, condition, related data

Task 3 – Water System Assessment

The VILLAGE's water distribution system includes water mains, fire hydrants, valves, service lines, meter assemblies and meters. The VILLAGE does not own or operate any backflow preventers, but there is a network of backflow preventers as required only for commercial and multifamily properties. While no lead and copper has been identified within the VILLAGE through previous discovery efforts, most mains are composed of cast iron, ductile iron, or PVC. Some portions are of unknown composition, as their materials have not been confirmed through as-built documentation or excavation.

This effort will review and update current water system characteristic. A demand analysis will be conducted to evaluate present requirements for volume and flow. A hydraulic model will be developed using data collected from Task 2, and multiple scenarios will be analyzed to gain insight into both existing conditions and proposed enhancements. Non-revenue water will be assessed to determine justification of losses and potential causes. Lastly, the water system assessment will review existing metering practices and make recommendations for advanced metering infrastructure (AMI) upgrades.

The sub-tasks below outline the proposed water system assessment.

3.1– Summary of Water System Assets and Operating Characteristics

Based on Findings in Task 2, CONSULTANT will review the updated GIS data, field observations, AMI records, and operational inputs to develop a comprehensive summary of the VILLAGE's potable water system. This task will characterize the physical layout, infrastructure components, interconnect points with MDWASD, and system functionality based on known or inferred attributes. Where historical records are lacking, CONSULTANT will supplement with inferred

values based on development era, parcel data, and visible field indicators. This summary will serve as the foundation for hydraulic modeling and system evaluation tasks.

Deliverables:

- Narrative summary of water system layout and operating characteristics
- Tabular inventory of pipes, hydrants, valves, meters (with known or inferred diameters, materials, lengths)
- Map showing the layout of the water system with labeled asset features
- Pressure zone or system subarea delineation (if applicable)
- Description of known operational issues or pressure constraints

3.2 – Demand Analysis

The CONSULTANT will evaluate historical water consumption trends and analyze seasonal and peak usage profiles across the VILLAGE. Specifically, this review will include an assessment of historical demand data and identification of usage patterns during high-demand periods. An assessment of fire flow capacity and compliance with fire protection requirements will be made to understand current volume deficits. The analysis will be performed by service area that are concurrent with zoning districts. Additionally, the CONSULTANT will develop future demand projections based on anticipated population growth and planned developments.

Also, the CONSULTANT will work with the VILLAGE Planner to obtain future projected population and density growth and use the data obtained to project future water demands and stresses on the current system.

Deliverables:

- Baseline Water Demand Summary (Average Day, Maximum Day, Peak Hour)
- Projected Future Demand Tables by time horizon and land use category
- Fire Flow Demand Matrix
- Assumptions Memo summarizing population projections, per capita/unit demand factors, and growth phasing
- Input Table for Hydraulic Model Calibration (for Task 3.3)

3.3 – Water Transmission & Distribution Hydraulic Modeling

The CONSULTANT will perform a hydraulic modeling analysis of the existing water distribution system to evaluate system performance under various demand conditions. Specifically, the model will incorporate current system infrastructure, fire flow requirements, peak demand scenarios, and pressure zone performance. Additionally, the CONSULTANT will use the model to simulate future system conditions. The models will expose and anticipate system deficiencies and optimization opportunities. Model summaries will be incorporated into the WSMP.

The CONSULTANT will update and calibrate the VILLAGE's existing hydraulic model to be integrated with the GIS utility network developed under Task 2.3. The model will be used to simulate existing and future water demand conditions, evaluate pressure and flow performance, and identify system deficiencies such as dead-ends, undersized mains, or areas with inadequate fire flow.

The hydraulic model will be structured using available GIS data, pipe and node attributes, AMI demand data (where available), and SCADA or pressure log data to simulate system behavior.

CONSULTANT will allocate existing and projected demands from Task 3.2 across the model network using spatial demand allocation techniques. Model calibration will be performed based on available pressure data, hydrant flow test results, or pressure loggers placed at key locations.

Once calibrated, the model will be used to:

- Simulate existing (baseline) system performance under average day, maximum day, and peak hour demand conditions
- Evaluate pressure zones, identify low-pressure or high-pressure areas
- Simulate fire flow adequacy per ISO/NFPA criteria under worst-case demand
- Assess system performance under future projected demand conditions
- Identify system improvements (looping, upsizing, valve adjustments) to address deficiencies

The modeling results will feed directly into the Capital Improvement Plan (Task 6) and serve as a defensible tool for planning and development review.

Deliverables:

- Hydraulic Model data file
- Hydraulic Model Summary Report
- Fire Flow Simulation Results identifying any locations failing to meet required fire flows
- Future Condition Simulation Scenarios aligned with projected demand growth (0–5, 5–15, and 15–25 year horizons)
- List of Recommended System Improvements with capacity justification
- Technical Memo summarizing assumptions, model calibration approach, input data sources, and results interpretation

3.4 – Non-Revenue Water & AMI Review

The CONSULTANT will review VILLAGE data and analyze for water loss within the system. The water loss analysis will interpret water loss through systematic error and physical loss through unmetered sources. The review will quantify percentage loss from various sources. The CONSULTANT will perform a desktop study of meters deployed, review date of install and create a phasing plan for meter replacement. Finally, the CONSULTANT will review current metering capabilities and make recommendations for upgrades to AMI systems that are compatible with the VILLAGE infrastructure. A full meter inventory will be performed along with a phasing plan for new meters and Opinion of Probable Cost. Lastly, the CONSULTANT will review water meter assemblies within the VILLAGE and DRAFT details for meter assemblies and meter boxes.

Deliverables:

- Water Loss Report
- Metering Recommendation Plan
- Meter Assembly and Meter Box Detail

Task 4 – Sewer System Assessment

The VILLAGE sewer conveyance and transmission system consists of a series of gravity mains, force mains, laterals, manholes, and lift stations that operate in conjunction to serve all the property plats within the VILLAGE. All wastewater is transmitted via force mains that interconnect

with the regional sewer system owned by Miami-Dade County. All VILLAGE wastewater is treated at a Miami-Dade County facility.

Most of the gravity mains within the VILLAGE are made of clay pipe, with substantial rehabilitation having been performed over the years. This rehabilitation has primarily aimed to combat inflow and infiltration (I&I). Additionally, while some lift stations within the VILLAGE have been recently rehabilitated or newly constructed, others require attention due to their topographic location, aging infrastructure, obsolete technology, and vulnerability to I&I.

This sewer system assessment will include the following as part of the WSMP:

- Review wastewater regulatory compliance requirements and provide master planning criteria
- Perform a capacity and flow analysis of the wastewater system
- Provide an updated I&I assessment
- Conduct a comprehensive condition and asset evaluation assessment

4.1– Summary of Sewer System Assets and Operating Characteristics

The CONSULTANT will compile and summarize the physical and operational characteristics of the VILLAGE's wastewater collection system using GIS data, I&I and historical CCTV findings onward, and pump station operational records. The task includes characterizing gravity mains, manholes, force mains, and VILLAGE-owned pump stations. CONSULTANT will analyze SCADA trends, runtime data, and historical defect reports to describe flow patterns, known bottlenecks, and infiltration-prone areas. This task will inform capacity analysis and CIP prioritization in subsequent phases.

Deliverables:

- Narrative summary of sewer system configuration and operation
- Tabular inventory of gravity mains, manholes, and pump stations
- Pump station summaries with basic operational parameters and observations
- Condition summary derived from existing CCTV and I&I reports
- Updated map of sewer system layout showing infrastructure and service areas

4.2 – Capacity and Flow Analysis

The CONSULTANT will perform a dry and wet weather flow analysis to determine the impacts of seasonal and tidal water influences onto the wastewater system and develop a baseline current system capacity based on current operating conditions. Furthermore, the CONSULTANT will measure how the system handles peak flows during weather conditions and make an assessment for areas prone to sanitary sewer overflows (SSO's). Rain Induced I&I will be reviewed as well. Additionally, the CONSULTANT will review current and design pump station capacity and make projections for future load capacities that may be required.

Key elements of the capacity analysis will include:

- Estimation of average daily and peak dry weather flows using SCADA pump run-time data, historical metering records, and MDC Schedule of Daily Rated Gallonage
- Evaluation of wet weather performance by analyzing SCADA trends during storm events, incorporating pump station inflow spikes, run time anomalies, and rainfall data.

- Calculation of RDI/I volumes and peaking factors, by comparing baseline DWF to observed WWF during monitored rainfall events.
- Identification of SSO-prone areas, past overflow locations, and pipeline segments or basins at risk of hydraulic surcharge.
- Evaluation of pump station capacity versus peak flow inputs, including wet well detention time, pump run time capacity, and cycle frequency.

The results of this task will inform the sewer hydraulic model (Task 4.3) and support the development of I/I reduction strategies and capital improvements (Task 6), particularly in areas with known high peaking, capacity constraints, or overlapping stormwater impacts.

Deliverables:

- Dry Weather Flow (DWF) and Wet Weather Flow (WWF) hydrographs by basin and pump station
- Available Sewer Capacity Summary for new development (by basin or service area)

4.3 – Sewer Collection & Transmission System Hydraulic Model

The CONSULTANT will update the VILLAGE's existing sewer hydraulic model in order to analyze the existing sewer collection under various demand conditions. Specifically, the model will incorporate current system infrastructure, peak demand scenarios, I/I and RDI/I impacts.

The model will be used to:

- Simulate flow conditions using Dry Weather Flow (DWF) and Wet Weather Flow (WWF) scenarios
- Estimate surcharge levels and identify capacity bottlenecks in gravity mains
- Evaluate system response during peak flow conditions (e.g., back-to-back storm events)
- Validate pump station performance, wet well cycling, and force main hydraulics
- Assess the impact of additional flow contributions from future development or redevelopment
- Support SSO risk mapping and I/I prioritization

Deliverables:

- Calibrated Sewer Hydraulic Model
- Dry and Wet Weather Simulation Results, including pipe capacity, flow velocities, and surcharge depth
- Future Development Scenario Simulations, showing system response to added flows
- Technical Memo summarizing model assumptions, calibration approach, validation process, and findings

Task 4.4 – SCADA and Asset Management System Review

The CONSULTANT will review the current asset management, SCADA remote access systems and current technology use to make recommendations on how to upgrade and optimize the utility for the benefit of the VILLAGE. This task will explore SCADA system coverage and capabilities assessments; expansion of meter technology and integration with other infrastructure needs such as regulatory compliance reporting and water use justifications; systems integration with GIS; risk-based prioritization of existing technologies; and lastly, sustainability and resilience considerations that will improve the overall system.

The CONSULTANT will review SCADA information from those pump stations with capabilities and analyze flow trends to interpret how the system is operation, influences of Inflow and Infiltration and track pump times for regulatory purposes to determine capacity conditions for the stations. Additionally, the CONSULTANT will review the current asset management system and make recommendations to improve. The CONSULTANT will review the VILLAGE's existing work order management system and if applicable propose an improved asset management system process.

Deliverables:

- SCADA Review Findings Summary
- Asset Management System Review Recommendation Summary

Task 5 – Future Growth, Regulatory, Environmental, and Resiliency Planning

The CONSULTANT will evaluate future growth scenarios and their impact on the Village's water and sewer infrastructure by reviewing population projections, planned developments, zoning, and redevelopment trends. This analysis will be conducted in coordination with the Village's Planning and Zoning Department and will assess the adequacy of existing systems to support growth through 2050.

The analysis will include the development of spatially distributed future water and wastewater demands, and will identify system upgrades needed to accommodate projected increases in flow and pressure/fire protection needs. CONSULTANT will also develop a standardized evaluation framework to assess the capacity impacts of new development or redevelopment proposals. This framework will serve as a practical tool for VILLAGE staff during development review and infrastructure planning.

In addition, CONSULTANT will conduct a review of current and emerging regulatory, environmental, and resiliency factors that may affect system planning. This includes evaluating the implications of climate change (e.g., sea level rise, saltwater intrusion), regulatory mandates (e.g., Lead and Copper Rule Revisions, FDOH standards, consent orders), and infrastructure material resiliency. These considerations will be integrated into long-term capital planning and decision-making to guide the Village toward regulatory compliance and system resilience.

Deliverables:

- Projected Water and Sewer Demand Tables (by time horizon and zoning/development type)
- Flow Allocation & Evaluation Tool to support utility availability & allocation decisions
- Summary of Regulatory and Environmental Risk Factors (combined water and sewer)
- Recommendations for Long-Term Infrastructure Adaptation and Resilience

Task 6 – Capital Improvement Plan

CONSULTANT will develop a phased and risk-informed Capital Improvement Plan (CIP) for water and sewer infrastructure upgrades, expansions, and rehabilitations. The CIP will reflect the findings from previous tasks, including system condition, capacity limitations, fire flow

deficiencies, I/I contributors, regulatory compliance needs, and future development-driven demands.

Task 6 includes:

- **Prioritization of Projects Based on Multi-Criteria Analysis**, including:
 - Asset condition and risk of failure
 - Capacity limitations (existing and projected)
 - Regulatory and environmental drivers
 - Community and operational impact
 - Coordination with other infrastructure programs (e.g., stormwater and roadway projects)
- **Evaluation of Project Alternatives**, including:
 - Rehabilitation vs. Replacement options based on lifecycle costs and condition
 - Phased vs. Full-System Upgrades, considering staging, operational continuity, and funding capacity
 - Cost-Benefit and Disruption Minimization Analysis
- **Development of a CIP Project Bank**, categorizing improvements by:
 - Project type (e.g., CIPP lining, upsizing, valve zone optimization, pump upgrades)
 - Priority tier (High, Medium, Low)
 - Implementation timeframe:
 - Short-Term (0–5 years)
 - Mid-Term (5–15 years)
 - Long-Term (15–25 years)
- **Planning-Level Cost Estimates**, using unit cost data from recent projects or regional cost curves (with allowances for inflation and contingency)
- **Coordinate CIP Phasing** with:
 - Stormwater Master Plan implementation
 - Known or planned roadway projects (State and Village)
 - Available or anticipated grant/funding cycles
- **Develop an Implementation Strategy** aligned with Village budgeting processes and funding pursuits (e.g., SRF, FEMA, BIL, FDEP Resiliency)

Deliverables:

- CIP Project Bank (Excel and PDF) with project descriptions, timing, prioritization, and cost
- Phased CIP Summary Tables by planning horizon (0–5, 5–15, 15–25 years)
- Project Summaries (for high-priority projects)
- Opinion of Probable Cost (OPC) for each proposed improvement
- CIP Implementation Schedule (Gantt-style or tabular)

Task 7– Operation and Maintenance (O&M) Recommendations

The CONSULTANT will review current Operation and Maintenance practices being used by the VILLAGE and create efficient processes for the VILLAGE to follow in order to meet O&M needs as well as regulatory requirements.

Deliverables:

- Water Valve Exercise Plan and Schedule
- Force Main Air Release Valve Maintenance Standard Operation Procedure
- Fire Hydrant Flushing and Exercise Plan

Task 8 – Implementation, Phasing, and Final WSMP Deliverables

CONSULTANT will outline a high-level strategy for how the Village can implement the WSMP over time, including:

- Suggested implementation frameworks and project staging logistics
- Funding alignment strategies (e.g., SRF, FEMA, FDEP, Miami-Dade grants)
- Key milestones and triggers for initiating phases (e.g., development applications, asset condition thresholds, compliance deadlines)
- Recommendations for long-term monitoring of system performance, I&I improvements, regulatory compliance, and asset condition

The WSMP phasing plan will be synchronized with the implementation of the Stormwater Master Plan, to:

- Minimize community disruption and redundant construction
- Prioritize corridors where multiple infrastructure improvements overlap
- Support integrated design and permitting schedules
- Provide a basis for coordinated grant/funding applications

The CONSULTANT will prepare and submit the following:

- Draft WSMP for internal review and stakeholder feedback
- Revised WSMP based on comments from Village staff, WASD (if applicable), and stakeholders
- Final WSMP including all figures, appendices, and digital submittals

Deliverables:

- WSMP Implementation Strategy Memo
- Draft WSMP (Full Report: PDF + Word)
- Final WSMP (Incorporating comments)
- Appendices: GIS data, hydraulic models, cost tables, project bank, etc.

PROJECT ASSUMPTIONS

- All requested information will be made available by the VILLAGE
- Survey services will not be performed. If surveys are determined to be required during the project execution, they will be additional services and will require a scope revision.
- The VILLAGE's staff will be available to attend meetings and assist with site visits and provide access to the lift stations

EXHIBIT "A"

Work Order No.: 08
Project No.: XXXXX
Project Name: Water and Sewer Master Plan
Consultant: Ardurra Group, Inc.
Contract No.: RFQ 2023-005

- All materials & deliverables shall be submitted electronically to the VILLAGE
- No design or permitting services are included in this Scope of Work
- No surveying, Subsurface Utility Engineering services, geotechnical investigations, water sampling, are included
- The VILLAGE to provide the latest water and sewer calibrated models (performed by previous VILLAGE Consultant)
- The scope of work is limited to water distribution and sewer collection/conveyance infrastructure owned and/or maintained by North Bay Village within the municipal boundaries of North Bay Village and within the municipal boundaries of the City of Miami (specifically on Pelican Island)
- CONSULTANT will coordinate with the Village and relevant agencies (e.g., WASD) to obtain available data and plans; no responsibility is assumed for data accuracy from external sources
- The Village will designate a single point of contact to coordinate feedback and schedule meetings
- Field visits, meetings, and deliverables are based on the estimated number of hours provided; additional services may require scope and fee amendments
- Deliverables will be provided in both digital PDF and editable formats (e.g., Word, Excel, GIS, model files)
- CONSULTANT will compile and integrate all available CCTV and SCADA data into the GIS environment; no new CCTV is included
- GIS layers will be updated based on available data and reasonable assumptions where data is incomplete or absent (e.g., pipe installation year, material)
- No new smoke testing, dye testing, or other testing is included in this scope
- The VILLAGE will conduct submittal reviews and provide comments within five (5) working days of submittal
- In consideration of this task authorization, access to data and information sources is made available to the CONSULTANT. The CONSULTANT shall comply fully with all security procedures and shall not divulge to third parties all confidential data information obtained from the VILLAGE while performing consulting engineering work, including, but not limited to, security procedures, business operations information or proprietary information in the possession of the VILLAGE. The CONSULTANT shall not be required to keep confidential information or material that is publicly available through no fault of the CONSULTANT, material that the CONSULTANT developed independently without relying on the state's or customer's confidential information, or material that is otherwise obtainable under state law as a public record

ADDITIONAL SERVICES

If authorized in writing by the VILLAGE, as an amendment to this Work Order, the CONSULTANT shall furnish, or obtain, Additional Services of the types listed in the AGREEMENT. The VILLAGE, as indicated in the AGREEMENT, will pay for these services.

PERFORMANCE SCHEDULE

The CONSULTANT shall perform the services identified in Tasks 1 – 10 within 365 days of the written Notice to Proceed.

EXHIBIT "A"

Work Order No.: 08
Project No.: XXXXX
Project Name: Water and Sewer Master Plan
Consultant: Ardurra Group, Inc.
Contract No.: RFQ 2023-005

PROJECT FUNDING

Performance of this project is at the VILLAGE's discretion and may be contingent upon the VILLAGE receiving funding and work shall not begin until the VILLAGE provides a Notice to Proceed to CONSULTANT.

METHOD OF COMPENSATION

The services performed will be accomplished using the Lump Sum method of compensation. The total hourly rates payable by the VILLAGE for each of CONSULTANT's employee categories, reimbursable expenses, if any, and sub-consultant fees, if any, are shown on **Exhibit A** attached hereto and made a part hereof. Pay application requests shall be prepared on the VILLAGE's approved pay application request form. The CONSULTANT shall submit the pay application request to the VILLAGE's Project Manager for review and approval. Pay application requests shall be submitted monthly.

TERMS OF COMPENSATION

Services will be provided for the following Lump Sum amounts:

Task 1	Project Management and Coordination Meetings	\$53,574.00
Task 2	Existing Conditions and Baseline Analysis	\$123,340.00
Task 3	Water System Assessment	\$114,260.00
Task 4	Sewer System Assessment	\$111,740.00
Task 5	Future Growth, Regulatory, Environmental, and Resiliency Planning	\$ 23,300.00
Task 6	Capital Improvement Plan (CIP)	\$32,720.00
Task 7	Operation and Maintenance (O&M) Recommendations	\$20,060.00
Task 8	Implementation, Phasing, and Final WSMP Deliverables	\$24,640.00
	Grand Total	\$502,634.00

VILLAGE CONTACTS

Requests for payments should be directed to North Bay Village Accounts Payable via e-mail to Pwdocuments@nbvillage.com after getting approval from the VILLAGE's Project Manager. All other correspondence and submittals should be directed to the attention of Roger Hogg, Capital Improvements Director, at the address shown below. **Please be sure that all correspondence refers to the VILLAGE project number and title as stated above.**

Steven Buckland

Director of Public Works
Public Works
North Bay Village
Village Hall, Suite 208
1666 Kennedy Causeway
North Bay Village, FL 33141 (305)
756-7171 ext. 66
sbuckland@nbvillage.com

Roger Hogg

Capital Improvements Director
Public Works
North Bay Village
Village Hall, Suite 608
1666 Kennedy Causeway
North Bay Village, FL 33141
(305) 756-7171
RHogg@nbvillage.com

CONSULTANT CONTACTS

Consultant POC

Paola Davalos, PE
Ardurra Group, Inc
1000 NW 57th Ct, Suite 800
Miami, FL 33126
padavalos@ardurra.com
786-873-5200

SIGNATURE PAGE
NORTH BAY VILLAGE

IN WITNESS OF THE FOREGOING, the parties have set their hands and seals the day and year first written above.

By: Steven P Buckland
Steven Buckland
Village Public Works Director

This Work Order approved pursuant to [check one and initial]:

- ___ Manager Purchasing Authority (§36.25 Village Code)
- ___ Resolution No. _____

By: _____
Frank Rollason
Village Manager

Attest:

By: _____
Alba L. Chang, CMC
Village Clerk

Approved as to form and legal sufficiency:

By: _____
Weiss Serota Helfman Cole & Bierman, P.L.
Village Attorney

SIGNATURE PAGE
CONSULTANT/CONTRACTOR

WITNESSES:



Rodolfo Remon

[Witness print/type name]



Cristina Harper

[Witness print/type name]

(CORPORATE SEAL)



ARDURRA GROUP, INC



Christopher Kuzler

[Print Name, check title]

- President Vice President
- Authorized Signatory (Please provide corporate authorization)

ATTEST:



Secretary

Brent Walters

[Print Name]

EXHIBIT "A"

Work Order No.: 08
Project No.: XXXXX
Project Name: Water and Sewer Master Plan
Consultant: Ardurra Group, Inc.
Contract No.: RFQ 2023-005

Exhibit A – Work Break Down Fee Schedule

EXHIBIT "A"



North Bay Village
 RFQ 2023-005 - Work Order No. 08
 Water and Sewer Master Plan
 PROPOSED FEE SCHEDULE
 Appendix A



Task	Rate, \$/Hr	Budget	
		Labor	Subtotal
1 Project Management and Coordination Meetings		\$53,574.00	\$53,574.00
<i>Kick-off Meeting</i>		\$3,364.00	
<i>Coordination Meetings (6)</i>		\$10,090.00	
<i>Meeting with Miami Dade WASD (2)</i>		\$4,210.00	
<i>Stakeholder Workshop</i>		\$5,250.00	
<i>Community Engagement Meeting</i>		\$5,250.00	
<i>Presentation to Village Council</i>		\$4,290.00	
<i>Program Management</i>		\$21,120.00	
2 Existing Conditions and Baseline Analysis		\$123,340.00	\$123,340.00
<i>2.1 Data Collection and Analysis</i>		\$29,460.00	
<i>2.2 Field Data Collection and Condition Assessments</i>		\$60,600.00	
<i>2.3 GIS Utility Network Development and Spatial Data Integration</i>		\$33,280.00	
3 Water System Assessment		\$114,260.00	\$114,260.00
<i>3.1 Summary of Water System Assets and Operating Characteristics</i>		\$27,100.00	
<i>3.2 Demand Analysis</i>		\$35,540.00	
<i>3.3 Water Transmission and Distribution Hydraulic Modeling</i>		\$33,460.00	
<i>3.4 Non-Revenue Water and AMI Review</i>		\$18,160.00	
4 Sewer System Assessment		\$111,740.00	\$111,740.00
<i>4.1 Summary of Sewer System Assets and Operation Characteristics</i>		\$31,980.00	
<i>4.2 Capacity and Flow Analysis</i>		\$24,190.00	
<i>4.3 Sewer Collection & Transmission System Hydraulic Model</i>		\$37,450.00	
<i>4.4 SCADA and Asset Management System Evaluation</i>		\$18,120.00	
5 Future Growth, Regulatory, Environmental, and Resiliency Planning		\$22,300.00	\$22,300.00
<i>Future Growth, Regulatory, Environmental, and Resiliency Planning</i>		\$22,300.00	
6 Capital Improvement Plan		\$32,720.00	\$32,720.00
<i>Capital Improvement Plan</i>		\$32,720.00	
7 Operation and Maintenance (O&M) Recommendations		\$20,060.00	\$20,060.00
<i>Operation and Maintenance (O&M) Recommendations</i>		\$20,060.00	
8 Implementation, Phasing, and Final WSMP Deliverables		\$24,640.00	\$24,640.00
<i>Implementation, Phasing, and Final WSMP Deliverables</i>		\$24,640.00	
	Sub-Total Labor Fee	\$502,634.00	\$502,634.00
	ODC's (Mileage, Reproduction & Reimbursable) (See Appendix B)		\$0.00
	Sub-Total Labor Fee/ODC		\$502,634.00
	Total Project Cost (Labor/ODC)		\$502,634.00
	% Utilization		
	Total (\$)		\$502,634.00

* Labor Multiplier 3.0

EXHIBIT "A"

Work Order No.: 08
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Exhibit B – Location Map

EXHIBIT "A"

Work Order No.: 08
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Consultant: Ardurra Group, Inc.
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Exhibit C – Project Tentative Schedule