CITY OF DELRAY BEACH
CONSULTING SERVICE AUTHORIZATION

DATE:_____

SERVICE AUTHORIZATION NO._____17-32_____ FOR CONSULTING SERVICES

CITY P.O. NO._____ CITY EXPENSE CODE: _____

CITY PROJECT NO. _____ BAXTER & WOODMAN PROJECT NO. 2500692.00

TITLE:_____George Bush Boulevard Drainage Improvements

This Service Authorization, when executed, shall be incorporated in and shall become an integral part of the Contract.

TITLE: _____Agreement for Consulting Services_____

A. BACKGROUND

The City of Delray Beach is requesting the services of Baxter & Woodman, Inc. (B&W) to perform a stormwater analysis to recommend and design (optional) drainage improvements on George Bush Boulevard where frequent flooding has occurred between Andrews Avenue and the bridge over the Intracoastal Waterway (see Figure 1). There is an outfall pipe on the south side of the road that discharges to the Intracoastal Waterway. However, this pipe does not connect to the culverts upstream at the intersection of Andrews Avenue. There is a ditch located on the north side of the road that also discharges to the Intracoastal Waterway. This ditch is heavily vegetated with mangroves which are protected by the State. A solution is needed that serves both sides of the road that does not cause adverse environmental impacts.

Figure 1

B. SCOPE OF SERVICES

The CEI Services shall include the following tasks:

- Task 1 – Preliminary Design
- Task 2 – Design Services (Optional)
- Task 3 – Permitting (Optional)

The specific scope of services to be provided by B&W in this Contract includes the following:

TASK 1 – PRELIMINARY DESIGN

Subtask 1.1 Meetings and Coordination

Consultant will attend up to two (2) project meetings with the City. Consultant shall prepare an agenda, attend, and run the meeting and provide meeting minutes of the items discussed.

Subtask 1.2 Data Collection and Review

Consultant will review all available information pertaining to the existing drainage and utility aspects of this project. This information includes:

- Existing permits
- As-built plans
- Inspection reports
- PBC LiDAR topography
- GIS datasets for stormwater and utility infrastructure, land use, and soils information

Subtask 1.3 Field Investigation

Consultant will conduct a field site visit of the project areas to perform a visual observation of the pipes and assess the conditions as well as site access for construction equipment. The site visit will also attempt to locate an outfall pipe on the north side of the bridge that was not apparent on previous site visits, but is indicated in the City's GIS as existing.

Subtask 1.4 Survey

Consultant will provide the services of a registered professional surveyor to provide services consisting of field topography, locating existing vertical and horizontal control (GPS Localization), baseline stationing and locating all above ground existing facilities and utilities within the right-of-way of the established project limits. Property lines and easements will be identified as shown on shown on plats.

Existing horizontal and vertical control will be recovered and/or set as needed. Control will be referenced to the NAD83/90 and NGVD88 datums. Benchmarks will be set at a maximum of 600-foot intervals and referenced to an existing established FDOT, CITY or County benchmark. Above-ground data will be obtained to create a surface of the existing conditions. Topography will include visible fixed improvements such as bank lines, natural ground, curbing, asphalt, above ground utilities, etc. Limits of vegetation and trees equal to or greater than 4-inch DBH (diameter at breast height) will be collected and shown. The bottom of the mangrove ditch will be surveyed. Existing drainage and gravity sanitary structures and pipes including invert elevations, top of structure elevations, bottom of structure elevations, pipe directions, pipe connectivity, pipe sizes and pipe materials will be surveyed. Upstream and downstream structures will be located. Cross-sections will be taken extending into the water at

locations corresponding to stormwater outfalls.

The survey will be provided in AutoCAD format at a scale of 1"=20' for preparation of the basis of the design plans.

Subtask 1.5 Geotechnical

Consultant shall furnish the services of a professional geotechnical engineer to provide subsurface investigations (data shall be incorporated into the design documents) of the project area that will include:

- Perform three (3) standard penetration test (SPT) borings to depths 15 feet. Soils will be characterized and depth to water table will be identified.
- Perform one (1) percolation tests to determine hydraulic conductivity of the soils
- MOT plan for work in travel lanes.
- Evaluate field data collected and provide signed and sealed geotechnical engineering evaluation report with recommendations regarding excavation, pipe bedding, and backfill/compaction.

Subtask 1.6 Drainage Assessment

A design storm event will be used to size a pipe interconnect between Andrews Avenue and the existing outfall pipe to improve drainage on the south side of the road. The north side will be evaluated to determine how much flow the existing mangrove ditch can handle and how much will need to be connected across the road the improved drainage system on the south side. The model will also be used to confirm the proposed stormwater discharge rate to the Intracoastal Waterway will not exceed the existing rate per South Florida Water Management District (SFWMD) requirements. A basic model will be created for the purpose of estimating the flows and flood stages within the total drainage area. The overall basin will be delineated and subdivided into subbasins based on existing permits, stormwater piping and LiDAR topography. The delineation will be designed to estimate the contributing areas to the pipes.

Model Input: ICPR4 will be used for hydrologic and hydraulic modeling to assess the existing conditions for a 3-year, 1-day; 10-year, 1-day; and 25-year, 3-day design storm.

- Hydrologic Model Input
  Basin and subbasin hydrologic information will be entered including areas, times of concentration, curve numbers, rainfall, and imperviousness. Times of concentration will be calculated based on travel lengths and roughness coefficients. Curve numbers will be calculated based soils and land use.
- Hydraulic Model Input
  Model links and nodes will be added to the model to define stormwater network. Links will consist primarily of broad crested weirs to represent sheet flow between the subbasins and to the River. LiDAR data will be used to create stage-area curves for each storage node in the system using GIS algorithms.

Subtask 1.7 Technical Memorandum

A description of the data and procedures taken to develop, test and run the model will be documented. Alternative designs will be discussed with a summary of the model results. The recommended alternative will be described, and the associated proposed improvements will be illustrated. A Preliminary Design Engineer's Opinion of Probable Construction Cost will be generated. Drainage design calculations will be included. A draft of the Technical Memorandum will be provided to the City for review and a meeting will be held with the City to review any comments. The comments will

be incorporated into the final Technical Memorandum. Three (3) hard copies and copy in .pdf format will be provided of the Draft Memorandum. Four (4) hard copies and a copy in .pdf format will be provided of the Final Technical Memorandum.

TASK 2 – DESIGN SERVICES (Optional)

Subtask 2.1 Utility Coordination

Coordination with utility agencies (electric, phone, gas, cable TV, and fiber optics, etc.) will be performed to collect record information and provide conflict resolution in case any such utilities cross the recommended improvements.

Subtask 2.2 Design Documents

Drawings will be submitted for the City's review at 75% and 100% stages per the City's Design Standards. Consultant will meet with the City to discuss final comments after the 75% submittal, and incorporate comments into final documents. An opinion of probable construction cost will be prepared for the 75% and 100% drawing submittals based on recent project bid tabulations for projects of similar size and scope. Consultant will furnish the City with two (2) sets hard copy and .pdf formats for each submittal. After the 75% plans are completed and accepted, up to ten (10) test holes will be performed to assess and correct potential utility conflicts.

TASK 3 – PERMITTING (Optional)

It is anticipated that an Environmental Resource Permit (ERP) will be required from SFWMD. A pre-application meeting will be held with SFWMD permitting staff to verify SFWMD's requirements which are anticipated to include per vs. post compliance in regard to design discharge rates and flood stages. A Dewatering Permit application is not included because it is anticipated that the City's Contractor will be able to obtain such a permit for a project of this magnitude. Since it may be necessary to modify one or both of the stormwater outfalls into the Intracoastal Waterway, a permit from the USACOE may be required which would require benthic surveys to determine if protected seagrasses exist, and how their protection will need to be factored into the design and construction. It should be noted that benthic surveys must be performed between June 1st and September 30th to be considered valid by regulatory agencies. The benthic survey will be optional depending on the design recommendations.

The Consultant will prepare application(s) and supporting information for submission for an Environmental Resource Permit to SFWMD and a Nationwide Permit to USACOE (optional). Supporting information includes calculations, exhibits, diagrams, and a pollution prevention plan. The consultant will respond to Requests for Additional Information (RAIs) from SFWMD or USACOE.

C. ASSUMPTIONS

Work described herein is based upon the assumptions listed below. If conditions differ from those assumed in a manner that will affect the Scope of Work, Consultant will advise City in writing of the magnitude of the required adjustments. Changes in completion schedule or compensation to Consultant will be negotiated with the City. Services to be provided by the City and other related key assumptions include:

1. City shall provide Consultant record drawings of all available existing facilities.

2. Field work and final design will not require environmental mitigation or permitting.

3. The design is to be based on the federal, state, and local codes and standards in effect at the beginning of the project. Revisions required for compliance with any subsequent changes to those regulations is considered an Additional Services Item and is not currently included in this Scope of Work.

4. Consultant assumes that there are no contaminated soils or groundwater in the project area.

5. The Consultant will pay for the SFWMD ERP application fee as a project expense. A fee of $3,500 is assumed but may be reduced when the appropriate type of permit is verified by SFWMD.

6. Survey will include property lines and easements as available from recorded plats. A title search is not included.

7. Scope of work does not include bidding or construction management services.

D. COMPENSATION

Compensation by the CITY to B&W for all tasks will be on a Lump Sum basis, with the exception of expenses, in accordance with the above mentioned Agreement. The estimated compensation for the services described in this Contract is **$98,311.27** for the services as shown in Table 1.

TABLE 1: LABOR AND EXPENSE SUMMARY

	Total Cost
Task 1 – Preliminary Design	$39,245.05
Task 2 – Design Services (Optional)	$40,933.56
Task 3 – Permitting (Optional)	$14,132.66
Reimbursables	$4,000.00
Total Services	***$98,311.27***

E. PROJECT SCHEDULE

The schedule for this work is as follows:

Deliverable	**Total Days From NTP**
Draft Technical Memorandum	90 days
Final Technical Memorandum	120 days
75% Submittal	210 days
Permit Submittal	240 days
100% Submittal	280 days

This Service Authorization is approved contingent upon the City's acceptance of and satisfaction of the completion of the services rendered in the previous phase whereas encompassed by the previous Service Authorization. If the City in its sole discretion is unsatisfied with the services provided in the previous phase or Service Authorization, the City may terminate the contract without incurring any further liability. The Consultant shall commence work upon City Commission approval and this Service Authorization to be included as part of the contract without any further notice to proceed.

BAXTER & WOODMAN, INC.

Date: 5-21-2025

Jeffrey G. Hiscock, P.E.
Associate Vice President

Witness

STATE OF FLORIDA
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this 21 day of May, 2025 by Rebecca Travis, Executive Vice President of Baxter & Woodman, an Illinois corporation, on behalf of the corporation. He/She is (personally known to me) or (has produced identification), Florida Driver's License _____ and (did/did not) take an oath.

Signature of person taking Acknowledgement

Notary Public State of Florida
Lisa Alonso
My Commission HH 451811
Expires 10/5/2027

EXHIBIT A

City of Delray Beach - George Bush Boulevard Drainage Improvements

Budget Summary

Task	Task Description	Labor Classification and Hourly Rates							
		Principal Engineer $180.26	Project Manager $111.54	Senior Engineer $116.78	Sr. Engineer Tech $85.08	Sr. CADD Tech $73.39	Clerical I/II $63.04	Total Labor	Sub-Consultant Services
1	**Preliminary Design**								
1.1	Meetings and Coordination	2	5	8				$1,852	
1.2	Data Collection and Review		1	6	6			$1,323	
1.3	Field Investigation		5	10	10			$2,576	
1.4	Survey	1	4	2				$860	$10,975
1.5	Geotechnical	1	4	2				$860	$11,560
1.6	Drainage Assessment		12	20	10			$4,525	
1.7	Technical Memorandum	2	8	12	8		4	$3,587	
	Subtotal	**6**	**39**	**60**	**34**	**0**	**4**	**$15,583**	**$22,535**
2	**Design Services (Optional)**								
2.1	Utility Coordination		2	4	8			$1,371	$11,000
2.2	Design Documents							$0	
	75% Construction Drawings	5	26	40	40	50		$15,545	
	100% Construction Drawings	2	12	20	16	24		$7,157	
	75% and 100% Specifications	2	4	10	8			$2,655	
	75% and 100% Cost Estimates	2	4	10	8			$2,655	
	Subtotal	**11**	**48**	**84**	**80**	**74**	**0**	**$29,384**	**$11,000**
3	**Permitting (Optional)**	**4**	**8**	**42**	**12**	**6**	**6**	$8,358	$5,500
	Labor Subtotal Hours	21	95	186	126	80	10	$53,325	$39,035
	Labor Subtotal Costs	$3,785	$10,596	$21,721	$10,720	$5,871	$630		
	Labor Total Costs	**$53,325**							
	Subconsultant Costs Total	$39,035							
	Subconsultant Multiplier	1.05							
	Subconsultant Total	**$40,987**							
	Reimbursable Expenses	**$4,000**							
	Project Total	**$98,311.27**							