Title Page
Request for Qualifications
RFQ NO. CM 18-013

Professional Design Services for Citywide Vulnerability Assessment and Adaptation Plan

June 7, 2018

Prepared by:

Cummins Cederberg, Inc.

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South Miami, Florida 33143

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Contact Person: Mr. Jannek Cederberg

CUMMINS | CEDERBERG
Coastal & Marine Engineering

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Tab A: Letter of Transmittal

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June 7, 2018

City of Hollywood
Office of the City Clerk
2600 Hollywood Boulevard, Room 221
Hollywood, Fl 33022

Re: RFQ NO. CM 18-013 CITYWIDE VULNERABILITY ASSESSMENT AND ADAPTATION PLAN

Dear Sir/Madam:

Cummins Cederberg, Inc. as PRIME consultant is pleased to submit qualifications for consulting services as requested in the above referenced RFQ, for your review and consideration. Cummins Cederberg is excited for the opportunity to present our firm with the ambition of developing a long-term relationship as a trusted advisor.

Our team meet and exceed the qualifications required to handle the various tasks associated with conducting a citywide vulnerability assessment and develop an adaptation plan. We have more than 30 years of experience working in the field, and a clear understanding of what is required under this RFQ.

The member firms of our team are:

- **Cummins Cederberg** is a highly qualified engineering firm conveniently based in Miami, which specializes exclusively in the coastal and marine environment, sustainability and sea level rise. The firm has significant experience in coastal resiliency and waterfront projects in Florida and throughout the Caribbean and can lead projects from start to finish including fieldwork, design, environmental studies and adaptation plans. Experience ranges from beach restoration and management to marinas, ports, seawalls and natural and hard infrastructures where the use of advanced numerical models are often implemented to support or improve analyses and designs.
- **Bermello Ajamil & Partners** (B&A) is a Miami based A/E Firm that has planned and designed infrastructure projects for many coastal and maritime areas in the United States and throughout the world for the past 75 years. B&A's environmental engineering planning, public outreach and urban design team understand the underpinning and the impacts to urban areas of climate change and are intimately familiar with adaptation strategies resulting from major storm events and flooding in Broward County and Hollywood, in particular. B&A led the flooded neighborhood reconstruction effort of the City of New Orleans and dealt with the urban impact issues associated with rise in water levels and the impacts to urban areas. B&A is recognized worldwide for its work in coastal areas and its urban design and planning team has developed major local and national hurricane recovery reconstruction efforts, redevelopment plans, city master plans including City of Hollywood, and masterminded new state-of-the-art projects like The World, in Dubai, Ocean Cay in Bahamas and Terminal 27 in Port Everglades and Terminals A and B in Port of Miami. BA staff has also worked with the Broward County Climate Change Action Council and the Broward County Sea Level Rise Task Force
- The **Balmoral Group (TBG)** is a firm specializing in Florida's natural resource and infrastructure

issues. The firm focuses on three areas in which its principals and staff hold particular expertise, 1) Economic Consulting, particularly in the areas of policy guidance, spatial and environmental modeling, land use change, and resource supply and demand forecasting 2) Hydrology, including hydrologic and hydraulic modeling, flood studies, stormwater management design and permitting; and 3) Transportation design and plans production.

- **Counterpoint**, a Miami-based planning firm, specializes in strategic planning, climate resilience and disaster risk reduction. Counterpoint is actively engaged with the United Nations, World Bank and the Asian Development Bank on a wide range of adaptation and sustainability projects.
- **GIT Consulting,** is a Professional Engineering Company registered in the State of Florida. GIT Consulting offers civil and environmental engineering design and consulting services in support of the full engineering cycle of land development, regional watershed management and hydrology.

Mr. Jannek Cederberg, M.Sc., P.E, is the designated point of contact for the team. Mr. Cederberg has 15 years of experience in the Town of Hollywood on various waterfront projects in addition to extensive experience throughout Florida and the Caribbean.

Our team of highly skilled professionals were hand selected based upon their focused area of discipline and knowledge necessary to address the key elements in the RFQ including coastal engineering, modeling, civil;/environmental engineering, ecological survey, resiliency, vulnerability to climate change impacts and sea level rise, assessments and interpretation, pre- and post-project assessments, advice on protected sites and species, biodiversity and best management practice adaptation plans, finance, economic analysis, sustainability, strategic land use planning, water resources and utility impact, and public outreach, among other fields. We understand the needs of the Town of Hollywood, and the necessity for a highly skilled team of professionals that are committed to delivering projects on time and on budget.

Authorized Representations
The following persons will be authorized to make representations for the firm:

Jannek Cederberg, M. Sc., P.E., President, 305-741-6155
Jason Cummins, M. Sc., P.E., Vice President, 305-741-6155

Both are located at our main office at: 7550 Red Road, #217, South Miami, Fl 33143

We thank you for the opportunity to present our team qualifications, and are confident that our cross-functional experience, in-depth understanding of climate resilience and disaster risk reduction in a variety of challenging environments would be of value to the Town. We look forward to further discussing our approach and commitment to this project. If you have any questions, please feel free to contact me at (305) 741-6155, or via e-mail at jcederberg@cumminscederberg.com

Respectfully submitted,
Cummins Cederberg, Inc.

Jannek Cederberg, M.Sc., P.E.
Principal

Tab B: Standard Forms 330

CUMMINS | CEDERBERG
Coastal & Marine Engineering

ARCHITECT - ENGINEER QUALIFICATIONS

PART I - CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION *(City and State)*
City of Hollywood, Florida - Department of Development Services

2. PUBLIC NOTICE DATE	3. SOLICITATION OR PROJECT NUMBER
May 7, 2018	CM 18-013

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE
Jannek Cederberg, President

5. NAME OF FIRM
Cummins Cederberg, Inc.

6. TELEPHONE NUMBER	7. FAX NUMBER	8. E-MAIL ADDRESS
(305) 741-6155	(305) 974-1969	jcederberg@cumminscederberg.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all key subcontractors.)

	(Check) PRIME	(Check) JV PARTNER	(Check) SUBCONTRACTOR	9. FIRM NAME	10. ADDRESS	11. ROLE IN THIS CONTRACT
a.	X			Cummins Cederberg, Inc. ☐ CHECK IF BRANCH OFFICE	7550 Red Road, Suite 217 South Miami, FL 33143	Coastal & Marine Engineering Design and Permitting
b.			X	Bermello Ajamil & Associates, Inc. ☒ CHECK IF BRANCH OFFICE	900 SE 3rd Avenue, Suite 203 Fort Lauderdale, FL 33316	Planning Environmental Engineering
c.			X	The Balmoral Group ☐ CHECK IF BRANCH OFFICE	165 Lincoln Avenue Winter Park, FL 32789	Economist
d.			X	GIT Consulting LLC ☐ CHECK IF BRANCH OFFICE	2665 S Bayshore Drive Suite 220 Coconut Grove, FL 33133	Environmental Engineer
e.			X	Counterpoint CS, LLC ☐ CHECK IF BRANCH OFFICE	12973 SW 112 Street Suite 351 Miami, FL 33186	Planning
f.				☐ CHECK IF BRANCH OFFICE		

D. ORGANIZATIONAL CHART OF PROPOSED TEAM ☒ *(Attached)*

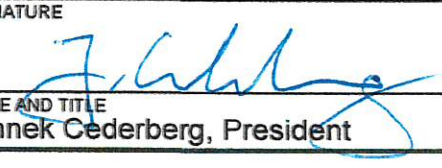
H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

I. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

31. SIGNATURE



32. DATE

June 7, 2018

33. NAME AND TITLE

Jannek Cederberg, President

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
annek Cederberg	Project Manager	17	8

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
M.Sc., Coastal Engineering	Professional Engineer, Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

PIANC Working Group 134 - "Design and Operational Guidelines for Super Yacht Facilities"
Urban Land Institute
South Florida Association of Environmental Professionals

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Sunny Isles Coastal Analysis, Sunny Isles

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2008 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Assessment of local sediment transport characteristics and the potential for shoreline stabilization along Sunny Isles Beach. An evaluation of nearshore coastal processes and sediment transport characteristics in the Project vicinity was completed. Based on the assessment, a beach management plan was prepared for long-term beach planning.

b.

(1) TITLE AND LOCATION *(City and State)*: Bay Harbor Islands Sea Level Rise Assessment, Bay Harbor Islands, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Inspection of 20,000 feet seawall to understand resiliency of shoreline perimeter for the Town of Bay Harbor. Analysis of water levels including seasonal high tides along with sea level rise. Analysis of coastal resiliency relative to storm surge and base flood elevation as well impact on flood insurance and building code.

c.

(1) TITLE AND LOCATION *(City and State)*: Hollywood/Hallandale Beach Restoration, Broward County

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2010 | CONSTRUCTION *(If applicable)*: 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Coastal engineering and environmental permit processing for 400k cubic yard beach fill project. Engineering design of beach fill template. Cross-shore sediment transport modeling. Geotechnical investigations. Coastal engineering analysis including extreme waves and storm surge.

d.

(1) TITLE AND LOCATION *(City and State)*: Crandon Park Marina Sedimentation Study, Key Biscayne

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Field investigations including bathymetric surveying, tide and current measurements, marine resource survey, and sediment sampling. Tidal hydrodynamic modeling along with wave and sediment transport analysis conducted to determine source and magnitude of marina sedimentation problem. Alternatives assessment of potential coastal structures to inhibit sedimentation and need for periodic dredging.

e.

(1) TITLE AND LOCATION *(City and State)*: Miami Beach Emergency Truck Haul, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 | CONSTRUCTION *(If applicable)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Performed surveying, data collection, volumetric and equilibrium toe of fill analysis based on available historical beach profiles for four segments of beach. This information was utilized in designing the expansion of beach segments for maintenance nourishment.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (continued)

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
nnek Cederberg	Project Manager	a. TOTAL 17	b. WITH CURRENT FIRM 8

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
M. Sc., Coastal Engineering	Professional Engineer, Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

19. RELEVANT PROJECTS

f.

(1) TITLE AND LOCATION *(City and State)*: Ocean Cay Private Island Destination, Bahamas

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017; CONSTRUCTION *(If applicable)*: 2018

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Topographic and bathymetric surveying, rectified aerial photography and mapping for proposed out-island cruise destination. Detailed coastal engineering analysis, including numerical modeling of hurricane impacts and flood mapping utilizing MIKE21 model. Engineering design of beach improvements and shoreline stabilization of reshaped island perimeter. Processing of EIA through government regulatory agencies.

g.

(1) TITLE AND LOCATION *(City and State)*: North District Wastewater Treatment Plant, Miami-Dade County

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Assessment of coastal resiliency of important infrastructure components relative to flooding and sea level rise. Analyzed storm surge impacts from historical hurricane eventsas well assessed potential and magnitude of future impacts. Evaluated risk and probabilityof various events.

h.

(1) TITLE AND LOCATION *(City and State)*: Tides Condominiums FEMA Map Revision, Hollywood, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(If applicable)*: NA

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Coastal engineering analysis as part of a FEMA Letter of Map Revision Application of the Flood Insurance Rate Map. The study included analysis of offshore and nearshore waves during storm conditions for various water levels. Erosion and scour impacts were determined along with numerical wave modeling.

i.

(1) TITLE AND LOCATION *(City and State)*: Winston Tower 700, Sunny Isles Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016; CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Construction of 240 feet of seawall and repair of 800 feet of seawall for shoreline stabilization at large condominium. Above/below water condition inspection, seawall replacement and repair design, permit application and processing (DERM/USACE/DEP), construction administration.

j.

(1) TITLE AND LOCATION *(City and State)*: Matheson Hammock Sea Level Rise Flood Mitigation Study, Miami

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Technical assessment of the conditions at Matheson Hammock Park relative to developing flood mitigation concepts limit impacts of sea level rise. compiling and processing of topographic LiDAR data to develop a detailed topographic map. Conditions inspection of all significant infrastructure components. Mapping of environmental resources. Typical and extreme tidal water levels was evaluated to understand peak tidal levels and exceedance probability. Published sea level rise projections were reviewed and adopted for the study. A flood inundation model was developed to analyze areas of flooding and timeframes relative to sea level rise. Flood mitigation concepts were developed and evaluated relative to urgency, construction costs, impacts to Park guests, permit feasibility and environmental impacts. An implementation schedule reaching the year 2100 was developed, outlining estimated infrastructure replacement dates, anticipated service life and required elevations based on the adopted sea level rise projection.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jason R. Cummins	Senior Coastal & Marine Engineer	14	8

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
M.Sc., Coastal Engineering B.Sc., Civil Engineering	Professional Engineer, Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Member of Urban Land Institute, Member of Florida Association of Environmental Professionals
Member of American Society of Civil Engineers

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Brickell Key Coastal Resiliency Study, Miami

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 — CONSTRUCTION *(If applicable)*: 2018

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Assessment of condition of the existing shoreline and infrastructure in order to understand the effects of sea level rise on normal and extreme conditions (i.e. hurricanes). An inspection of existing coastal infrastructure was conducted to identify vulnerable areas along the entire shoreline perimeter. Analysis of sea level rise and extreme tide events were conducted to understand water level design conditions. The potential for increased storm impacts was assessed. Recommendations for long term planning was provided along with mitigation options. Construction documents and environmental permitting was conducted for the design. The design focused on adapting existing infrastructure to provide a cost effective solution.

b.

(1) TITLE AND LOCATION *(City and State)*: 14th Street End Seawall and Outfall Project, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 — CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Marine engineering for new seawall in association with street-end and storm water pump station improvements. Seawall constructed at increased design elevation from concrete piles and panels with reinforced concrete cap, as well as opening for outfall. Construction inspection performed for concrete pours and pile/panel installation.

c.

(1) TITLE AND LOCATION *(City and State)*: Hallandale / Hollywood Beach Nourishment

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2010 — CONSTRUCTION *(If applicable)*: 2012

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted pre-construction transect installation and biological monitoring including hardbottom mapping. *Acropora cervicornis* health tracking, and assessment of the nearshore reef using BEAMR, and conducted post construction hardbottom and epifaunal edge surveys. Monitoring reports were prepared per the project specific permit conditions.

d.

(1) TITLE AND LOCATION *(City and State)*: Hillsboro / Deerfield Beach Restoration, Broward County

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2010 — CONSTRUCTION *(If applicable)*: 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Coastal engineering and environmental permit processing for 400k cubic yard beach fill project. Engineering design of beach fill template. Cross-shore sediment transport modeling. Geotechnical investigations and dredge plan for offshore borrow source. Construction drawings and technical specifications.

e.

(1) TITLE AND LOCATION *(City and State)*: Dade Boulevard Seawall Replacement, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 — CONSTRUCTION *(If applicable)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Marine engineering and construction drawings for 2,670 linear feet of shoreline stabilization associated with a linear park and bike pth. Structural design of steel sheet pile and reinforced concrete cap, including barrier wall connection, and utility crossover detail for FPL 69KV oil-filled transmission line.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (continued)

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jason R. Cummins	Senior Coastal & Marine Engineer	14	8

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
M. Sc., Coastal Engineering B. Sc., Civil Engineering	Professional Engineer, Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Member of American Society of Civil Engineers

19. RELEVANT PROJECTS

f.

(1) TITLE AND LOCATION *(City and State)*: North District Wastewater Treatment Plant, Miami-Dade County

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(If applicable)*: NA

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Assessment of coastal resiliency of important infrastructure components relative to flooding and sea level rise. Analyzed storm surge impacts from historical hurricane eventsas well assessed potential and magnitude of future impacts. Evaluated risk and probabilityof various events.

g.

(1) TITLE AND LOCATION *(City and State)*: Sunny Isles Coastal Analysis, Sunny Isles

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2008; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Assessment of local sediment transport characteristics and the potential for shoreline stabilization along Sunny Isles Beach. An evaluation of nearshore coastal processes and sediment transport characteristics in the project vicinity was completed. Based on the assessment, a beach management plan was prepared for long-term beach planning.

h.

(1) TITLE AND LOCATION *(City and State)*: Winston Tower 700, Sunny Isles Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016; CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Construction of 240 feet of seawall and repair of 800 feet of seawall for shoreline stabilization at large condominium. Above/below water condition inspection, seawall replacement and repair design, permit application and processing (DERM/USACE/DEP), construction administration.

i.

(1) TITLE AND LOCATION *(City and State)*: Costa Brava Marina, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Costa Brava Condominium Association. Environmental permitting for reconstruction of a 30-slip marina in Biscayne Bay through local, state, and federal agencies such as Miami-Dade County Regulatory, Economical Resources Department, Florida, Department of Environmental Protection and US Army Corps of Engineers. Engineering support through construction bid process, including bid evaluation, contractor selection and construction administration.

j.

(1) TITLE AND LOCATION *(City and State)*: Matheson Hammock Sea Level Rise Flood Mitigation Study, Miami

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION *(If applicable)*: NA

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Technical assessment of the conditions at Matheson Hammock Park relative to developing flood mitigation conceptsto limit impacts of sea level rise, compiling and processing of topographic LiDAR data to develop a detailed topographic map. Conditions inspection of all significant infrastructure components. Mapping of environmental resources. Typical and extreme tidal water levels was evaluated to understand peak tidal levels and exceedance probability. Published sea level rise projections were reviewed and adopted for the study. A flood inundation model was developed to analyze areas of flooding and timeframes relative to sea level rise. Flood mitigation concepts were developed and evaluated relative to urgency, construction costs, impacts to Park guests, permit feasibility and environmental impacts. An implementation schedule reaching the year 2100 was developed, outlining estimated infrastructure replacement dates, anticipated service life and required elevations based on the adopted sea level rise projection.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (continued)

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
na Francesca Chiello	Marine Scientist	8	2

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami and Jupiter, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
B.S. Marine Biology Graduate Certificate in GIS, Environmental Science	

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Member of America Academy of Underwater Sciences
Member of Florida Association of Environmental Professionals, Treasure Coast Chapter - Treasurer

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Hillsboro Club Dune Restoration, Town of Hillsboro Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016; CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Managed Project and coordinated with DEP to secure a Coastal Construction Control Line (CCCL) permit to restore a dune adjacent to a multifamily condominium by placing approx. 1,300 cubic yards of sand on the beach. Conducted a dune vegetation survey and prepared an invasive exotic removal and native planting plan. Coordinated with DEP regarding appropriate sand color and placement and construction methodology. Currently under contract for construction administration services and permit close out.

b.

(1) TITLE AND LOCATION *(City and State)*: Parque Towers, Sunny Isles Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Managed project involving extensive project team and agency coordination. Coordinated with the USACE, SFWMD, and DERM to secure permits for a new bulkhead requiring Dade County BCC approval, as part of an an upland development, where seagrass and mangroves are present. Conducted a UMAM assessment and designed a mangrove mitigation plan to offset impacts to mangroves that included a mangrove planter. Conducted a WATER assessment and coordinated with the FPL Everglades Mitigation Bank to purchase saltwater credits to offset the remaining mitigation requirements.

c.

(1) TITLE AND LOCATION *(City and State)*: North Bay Village Public Boardwalk and Slips, North Bay Village

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Coordinated project design and feasibility with several upland developers with riparian rights and supported pre-application negotiations with DEP to secure preliminary approval for a public boardwalk, connecting 10 different properties, with associated piers and slips, on state owned lands and within the Biscayne Bay Aquatic Preserve, which requires proprietary authorization a submerged lands lease. Coordinated a hydrographic survey and conducted a marine resource assessment of the proposed project area to determine whether significant marine resources such as seagrass or corals were growing on the substrate to evaluate impacts related to the project. A Field Observation Report was prepared.

d.

(1) TITLE AND LOCATION *(City and State)*: Bentley Bay Marina, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION *(If applicable)*: 2018

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Managed project that involved extensive project team and agency coordination. Conducted sovereign submerged lands research relative to historical mooring and the Butler Act Disclainer. secured permits from the USACE, DEP and DERM, as well as sovereign submerged lands authorization via a lease, for a 16-slip public docking facility, where seagrass is present, in the Biscayne Bay Aquatic Preserve.

e.

(1) TITLE AND LOCATION *(City and State)*: Matheson Hammock Sea Level Rise Flood Mitigation Study, Miami

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION *(If applicable)*: NA

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Technical assessment of the conditions at Matheson Hammock Park relative to developing flood mitigation concepts to limit impacts of sea level rise. Mapping of environmental resources. Published sea level rise projections were reviewed and adopted for the study. Permitting feasibility study conducted along with assessment of potential impacts and required mitigation of adaptation concepts. Flood mitigation concepts were developed and evaluated relative to urgency, construction costs, impacts to Park guests, permit feasibility and environmental impacts. An implementation schedule reaching the year 2100 was developed, outlining estimated infrastructure replacement dates, anticipated service life and required elevations based on the adopted sea level rise projection.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (continued)

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
na Francesca Chiello	Marine Scientist	8	2

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami and Jupiter, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
B.S. Marine Biology Graduate Certificate in GIS, Environmental Science	

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Member of America Academy of Underwater Sciences
Member of Florida Association of Environmental Professionals, Treasure Coast Chapter - Treasurer

19. RELEVANT PROJECTS

f.

(1) TITLE AND LOCATION *(City and State)*: Bakers Haulover Inlet, Village of Bal Harbour

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted a marine resource assessment of the existing jetty and proposed footprint of the reconfigured jetty as required by the environmental regulatory agencies to evaluate impacts related to the proposed Project and as required to secure permits for the proposed Project. A Field Observation Report was prepared documenting the extent, species, and density of existing marine resources.

g.

(1) TITLE AND LOCATION *(City and State)*: Village of Key Biscayne Beach Re-nourishment, Village of Key Biscayne

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(If applicable)*: 2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted resource assessments of the nearshore seagrass habitat using the Braun Blanquet method to monitor twenty-seven 35 meter long transects and conducted nearshore seagrass edge mapping, to evaluate any unanticipated project related impacts. Monitoring Reports were prepared, per the project specific permit requirements, documenting the findings of the nearshore seagrass edge surveys and Braun Blanquet monitoring data.

h.

(1) TITLE AND LOCATION *(City and State)*: Hollywood Beach Re-nourishment, Hollywood

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: 2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted pre-construction transect installation and biological monitoring including hardbottom mapping. *Acropora cervicornis* health tracking, and assessment of the nearshore reef using BEAMR, and conducted post construction hardbottom and epifaunal edge surveys. Monitoring reports were prepared per the project specific permit conditions.

i.

(1) TITLE AND LOCATION *(City and State)*: Miami Harbor Phase III, Miami

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted post-transplantation surveys of 38 *Acropora cervicornis* colonies. Work involved locating and tagging colonies, taking photographs, measuring colony size, identifying stress indicators, and assessing tissue color and partial mortality. Fragments were reattached via apoxy. Monitoring reports were prepared per the project specific permit conditions.

j.

(1) TITLE AND LOCATION *(City and State)*: 6800 Indian Creek Docking Facility, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Managed project and coordinated with the USACE, DEP, and DERM to secure permits and sovereign submerged lands authorization via a lease modification, to reconfigure a multifamily 16-slip docking facility with ADA access, in conjunction with an upland multifamily redevelopment in the Biscayne Bay Aquatic Preserve.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Tason S. Taylor, M.Sc., P.E.	Senior Engineer	21	1

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
B. Sc., Civil Engineering M. Sc. Structural Engineering	Professional Engineer, Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Special Inspector
Advanced Open Water SCUBA
American Institute of Steel Construction (AISC)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Coastal Towers Marina and Living Shoreline Project, Sunny Isles

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017 — CONSTRUCTION *(If applicable)*: on-going

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Performed marine resource surveys along 2300 liner feet of seawall to assess potential impacts of development and identify corals and seagrass located within the project footprint. Coordinated with DERM, DEP, NMFS and USACE to obtain environmental permits for construction activities.

b.

(1) TITLE AND LOCATION *(City and State)*: Bentley Bay Marina, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 — CONSTRUCTION *(If applicable)*: 2018

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Managed project that involved extensive project team and agency coordination. Conducted sovereign submerged lands research relative to historical mooring and the Butler Act Disclaimer. Secured permits from the USACE, DEP, and DERM, as well as sovereign submerged lands authorization via a lease, for a 16 slip public docking facility, where seagrass is present, in the Biscayne Bay Aquatic Preserve.

c.

(1) TITLE AND LOCATION *(City and State)*: Island Gardens Mega Yacht Harbor, Miami

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015 — CONSTRUCTION *(If applicable)*: 2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

1,000 LF of existing bulkhead replacement on West shore of Watson Island with anchored steel sheet piling. Submerged Mediterranean mooring anchors, consisting of composite steel/auger piles connected with mooring chain. Mooring dolphins consisting of large diameter steel pipe piles.

d.

(1) TITLE AND LOCATION *(City and State)*: Marina Palms, North Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015 — CONSTRUCTION *(If applicable)*: 2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Replacement of existing derelict marina for new condominium development. New concrete docks and steel sheet pile seawall.

e.

(1) TITLE AND LOCATION *(City and State)*: Haulover Marine Facility, Dade County

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 — CONSTRUCTION *(If applicable)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

New bulkhead and platform construction to support forklift launching operations. Steel sheet piles and concrete auger piles. New trash facility with truck ramp supported by perimeter cantilevered concrete retaining wall.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jason S. Taylor, M.Sc., P.E.	Senior Engineer	21	1

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
B. S.C., Civil Engineering M. Sc., Structural Engineering	Professional Engineer, Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Special Inspector
Advanced Open Water SCUBA
American Institute of Steel Construction (AISC)

19. RELEVANT PROJECTS

f.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Keystone Point Marina, North Miami	2014	2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

Bulkhead replacement with concrete sheet piling and steel king piles. New concrete launching platform supported on steel piling.

g.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Bimini Bay Ferry Terminal, Bahamas	2014	2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

Design of 30'W x 1,600 LF access pier for new cruise terminal. Precast concrete planks, caps and steel pipe piling supporting truck traffic. Concrete topping slab pavement. Steel sheet pile abutment at island.

h.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Rickenbacker Shoreline Improvement, Miami	2013	2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

Design of steel sheet pile retaining wall system along shoreline to support public traffic, including emergency vehicular loads.

i.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Museum Park, Miami	2014	2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

Design and Construction Administration of site civil concrete structures. 2015 American Society of Civil Engineers award for Outstanding Project, Category III.

j.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Miami Marine Stadium Marina, Miami	2014	2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

New bulkhead and platform construction to support forklift launching operations. Steel sheet pilesand concrete auger piles.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Leonard Barrera Allen	Coastal Engineer	4	4

15. FIRM NAME AND LOCATION *(City and State)*
Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
B. S.C., Civil Engineering M. Sc., Coastal Engineering	Engineering Intern Florida Board of Professional Engineers.

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
Member of American Society of Civil Engineers
Member of Society of Hispanic Professional Engineers
Member of Florida Water Environment Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Winston Towers 700 Seawall Repair Project, City of Sunny Isles Beach, Florida	2015	2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Design,permitting of repair and replacement of over 1,000 feet of seawall along the Intracoastal Waterway in the City of Sunny Isles Beach, Florida. Conducted initial underwater inspection and subsequent engineering design, as well obtained environmental regulatory approval from Miami-Dade County RER, FDEP, and USACE.

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
SEACOR Island Lines RoRo Ramp Repair Project, City of Dania Beach, Florida	2014	2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Repairs of roll-on/roll-off concrete slab at the SEACOR Island Lines terminal. Repairs included installation of new toe wall, sealing of existing scour holes located at the bottom of the seawall, removal of extremely deteriorated portion of concrete slab, flowable fill poured existing gaps, and installation of new concrete slab portion. Construction administration services were provided to ensure construction was conducted according to construction documents

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
14th Street End Seawall and outfall Project, City of Miami Beach, Florida	2014	2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Design of replacement seawall located at the 14th Street end in Miami Beach. The design consisted of a new 85-foot reinforced concrete seawall with an allowance for two existing marine reinforced concrete outfall pipes of 60-inches and 36-inches in different segments of the seawall. Design included installation of reinforced concrete batter piles, king piles, and a raised reinforced concrete cap.

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
North District Wastewater Treatment Plant Coastal Resiliency Study, Miami Florida	2014	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Assessment of coastal resiliency of important infrastructure components relative to flooding and sea level rise. Analyzed storm surge impacts from historical hurricane events as well as assessed potential and magnitude of future impacts. Evaluated risk and probability of various events. Develop coastal resiliency plan and concepts for implementation as part of plant upgrades.

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
47th Street Beach Nourishment Project.	2015	2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Permitting for placement of 20.0000 sand in Miami Beach. The permit included adjacent beaches to permitted segments that had shown excessive erosion to be included as part of the existing permit for several beach segments in Sunny Isles, Bal Harbour, and Miami Beach. In addition to design drawings, an Equilibrium Toe of Fill (ETOF) analysis was conducted to assess potential impacts to existing marine resources.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Leonard Barrera Allen	Coastal Engineer	4	4

15. FIRM NAME AND LOCATION *(City and State)*
Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
B. S.C., Civil Engineering M. Sc., Coastal Engineering	Engineering Intern Florida Board of Professional Engineers.

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
Member of American Society of Civil Engineers
Member of Society of Hispanic Professional Engineers
Member of Florida Water Environment Association

19. RELEVANT PROJECTS

f.

(1) TITLE AND LOCATION *(City and State)*
One Miami, Seawall and Scour Mat Repair Project

(2) YEAR COMPLETED: PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Design of repairs for approximately 900 linear feet of a steel sheet pile bulkhead, including a reinforced concrete cap, and concrete scour mats. Construction drawings detailing the location of repairs and scour protections where needed was created.

g.

(1) TITLE AND LOCATION *(City and State)*
Crandon Shoreline Stabilization, Crandon Park

(2) YEAR COMPLETED: PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Stabilization of approximately 315 linear feet of shoreline in Crandon Park, Key Biscayne. Design of the shoreline stabilization using rock revetment composed of native lime rock. Created an approximate area of 2,800 square feet for the planting of mangroves located directly behind the rock revetment.

h.

(1) TITLE AND LOCATION *(City and State)*
Lincoln Bay Towers, Miami Beach

(2) YEAR COMPLETED: PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Replacement of approximately 700 square feet of a waterward viewing platform located at the end of Lincoln Road. Identified structural items that needed demolition and designed new reinforced concrete slabs, pile caps, and beams to support new viewing platform.

i.

(1) TITLE AND LOCATION *(City and State)*
Aquazul Condominium Dune Project, Lauderdale-by-the-Sea

(2) YEAR COMPLETED: PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Design of dune restoration project to provide storm protection to beach front structures. CCCL permitting and coordination with city. Contractor selection and review. Construction administration and testing of beach fill material relative to DEP requirements.

j.

(1) TITLE AND LOCATION *(City and State)*
Bentley Bay Marina, Miami Beach

(2) YEAR COMPLETED: PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Structural design of 16-slip reinforced concrete marina located in Miami Beach. The marine consisted of reinforced concrete beams, pile caps, and fiberglass grating. The structural design was optimized to reduce the number of material required while maintaining an aesthetically pleasing marina.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Elizabeth Jones	Marine Scientist	4	4

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
B. Sc. Environmental and Marine Science M.P.S. Environmental and Marine Science	

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

MOCC Boating Certification
AAUS Scientific Diver Authorization
PADI Advanced Diver and Rescue Diver Certified

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Crandon Park Swim Zone, Key Biscayne, FL

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted a marine resource survey at designated survey sites spanning 3 miles of Biscayne Bay to identify and delineate areas with marine resources (seagrass, corals or other marine organisms of significance) within the 37 proposed buoy locations

b.

(1) TITLE AND LOCATION *(City and State)*: Coastal Towers Marine and Living Shoreline Project, Sunny Isles, FL

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017 | CONSTRUCTION *(If applicable)*: 2018

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Performed marine resource surveys along 2300 liner feet of seawall to assess potential impacts of development and identify corals and seagrasses located within the project footprint. Coordinated with DERM, DEP, NMFS and USACE to obtain environmental permits for construction activities.

c.

(1) TITLE AND LOCATION *(City and State)*: Crandon Park Shoreline Stabilization and Mangrove Restoration, Key Biscayne, FL

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted marine resource and mangrove surveys to identify and delineate areas of natural resources. Developed a mangrove restoration plan to provide enhanced shoreline protection and increase local biodiversity. Coordinated with DERM, DEP and USACE to obtain permits.

d.

(1) TITLE AND LOCATION *(City and State)*: One Miami Condominium Seawall, Miami Dade County, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Environmental permitting for 900 feet bulkhead repair project. Developed permit strategy as well prepared and processed permit applications with the various stakeholders. Prepared bid documents for contractor selection.

e.

(1) TITLE AND LOCATION *(City and State)*: Pelican Island Docking Facility, Miami.

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Performed marine resource surveys to identify species of concern at the project site, developed coral relocation plan and coordinated with DERM, DEP and USACE to obtain environmental permits.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Elizabeth Jones	Marine Scientist	4	4

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*

B. Sc. Environmental and Marine Science
M.P.S. Environmental and Marine Science

17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

MOCC Boating Certification
AAUS Scientific Diver Authorization
PADI Advanced Diver and Rescue Diver Certified

19. RELEVANT PROJECTS

f.

(1) TITLE AND LOCATION *(City and State)*: JCC Kayak Dock, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015 | CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Coordinated with County, State and Federal (DERM, FDEP, USACE, respectively) permitting agencies for the Construction of a floating dock for kayak launching in an area with seagrass present. A submerged lands lease Was also coordinated and approved by FDEP.

g.

(1) TITLE AND LOCATION *(City and State)*: Miami Beach Water Taxi Docking Facilities, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted field investigations at several locations in Biscayne Bay relative to potential waterborne passenger terminals. Field investigations were conducted to better understand site conditions, existing marine resources, water depths, debris and existing infrastructure.

h.

(1) TITLE AND LOCATION *(City and State)*: 1161 Stillwater Drive Dock Project, Miami Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted a biological assessment at the project site to document coral, seagrass, mangroves and species of concern. A habitat map was generated to illustrate species size and abundance based on the findings of the survey.

i.

(1) TITLE AND LOCATION *(City and State)*: Winston Tower 700, Sunny Isles Beach

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Project Components, construction of 240 feet of seawall and repair of 800 feet of seawall for shoreline stabilization at large condominium. Services Provided: Above/below water condition inspection, seawall replacement and repair design, permit application and processing (DERM/USACE/DEP), construction administration.

j.

(1) TITLE AND LOCATION *(City and State)*: Ocean Cay Development, Bahamas

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 | CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Marine resource surveys were completed to provide an understanding of the existing conditions of the marine environment surrounding Ocean Cay. The assessment included the roving and transect surveys, detailed habitat mapping, and photo and video surveillance. Data was analyzed to identify species abundance and diversity, habitat complexity, as well as overall resource complexity and health at the Project site. Prepared an Environmental Impact Assessment for the Bahamas Environment Science and Technology Commission (BEST).

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (continued)

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jonathon Allen Cunningham	Project Engineer	2	1

15. FIRM NAME AND LOCATION *(City and State)*

Cummins Cederberg, Inc. South Miami and Jupiter, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
B.S. Civil Engineering	Engineer Intern

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Member of American Society of Civil Engineers (ASCE)
Member of Florida Association of Environmental Professionals

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) WEEKS COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Structural Analysis/Design, Lancaster City, Pennsylvania	2017	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Conducted a structural analysis and repair plan design for a failing 3-wythe exterior brick wall which was bowing outward greater than 1-1/4" at the second floor-framing line. Structural analysis to determine the structural integrity of existing brick and mortar, structural design of new beam and column framing system to divert loads from existing wall, structural design of tie backs to secure existing wall to floor framing.

b.

(1) TITLE AND LOCATION *(City and State)*	0.5 YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Commercial Building Renovation, Mechanicsburg, Pennsylvania	2017	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with currefitm

Conducted existing condition inspection of PEMB commercial building for additions and structural renovations. Performed structural analysis of existing steel and masonry framing systems for addition loads. Performed timber, steel and concrete structural design for roof structure and store-front additions.

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Structural Condition Inspections, Pennsylvania	2016-2017	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Performed greater than 65 structural condition inspections for residential and commercial buildings including condition and structural integrity assessment of timber, steel, concrete and masonry buildings. Drafted detailed inspection reports and designed structural repair plans.

d.

(1) TITLE AND LOCATION *(City and State)*	3 DAYS COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Marina Inspection, Turks & Caicos Islands	2018	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Above and under water inspection and condition assessment of 1,600+ LF of existing concrete floating docks and steel piles.

e.

(1) TITLE AND LOCATION *(City and State)*	(1) MONTH COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ocean Breeze Mobile Home Resort, Marathon, Florida	2018	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Structural design for 170+ LF of concrete pile/panel seawall including reinforced concrete cap design, pre-stressed and pre-cast concrete pile design, reinforced concrete wall panel design. Structural design for 500 SF of timber dock structures including timber framing design and timber pile design.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Alfredo Sanchez, AIA, AICP LEED AP	**Urban Planner**	**44**	**24**

15. FIRM NAME AND LOCATION (City and State) **Bermello Ajamil & Partners, Inc., Miami, Florida**

16. EDUCATION (DEGREE AND SPECIALIZATION)
Master of Architecture, University of Pennsylvania, 1978 Master of City Planning, University of Pennsylvania, 1978; Bachelor of Architecture, University of Florida, 1972

17. CURRENT PROFESSIONAL REGISTRATION (STATE & DISCIPLINE)
Registered Architect, State of Florida, 1979, Reg. No. AR 0007969; American Institute of Certified Planners, 1994

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

A. **Arch Creek Drainage Basin Outreach Methodology**
Miami, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2018** CONSTRUCTION (if applicable): **Ongoing**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Lead Planner. Assignment consisted of a pilot program to test an outreach methodology for potential use in future Adaptation Action Areas. The project provided technical and outreach services to obtain input from local residents on proposed flood resilient solutions for the Arch Creek Drainage Basin in Miami-Dade. Responsibilities included the preparation of the survey and educational materials, graphics and images to be presented at the public meeting.

B. **City Wide Master Plan**
Hollywood, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2000** CONSTRUCTION (if applicable): **2001**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Planner. Carried out all the urban design analysis and is responsible for the development of the Urban Design Element of the Master Plan. Directed the urban design component of the city-wide master plan. Analysis of the different sectors that comprise Hollywood assessed the problems and opportunities in each area.

C. **City Wide and Neighborhood Hurricane Recovery Master Plans, The "Moss Plan" South Dade Neighborhood Development Concept Plans**
Miami, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **1994** CONSTRUCTION (if applicable): **1997**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Planner. In response to the ravages created by Hurricane Andrew and recognizing that many neighborhoods in South Dade were neglected communities in need of redevelopment prior to the onslaught of the hurricane The Board of County Commissioners approved on September of 1992 the use of funds to be utilized for capital improvements and planning activities to redevelop the affected target areas in South Dade. The Firm of Bermello, Ajamil and Partners was selected as the Overall Coordinating Consultant for the preparation of the South Dade Neighborhood Development Concept Plans, later identified as the "Moss Plan" in recognition of Comm. Moss' leadership in the effort. Project Manager for the development of the plan that directed the work of five other firms in the preparation of the neighborhood reconstruction plans.

D. **New Orleans Neighborhoods Rebuilding Plan-A Strategy for Reconstruction**
New Orleans, Louisiana

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2006** CONSTRUCTION (if applicable): **2006**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Project Manager for B&A the Lead Planning Consultant and as part of the Lambert Advisory Team, prepared the project approach and directed a group of six other local and national planning consultants to develop the Neighborhoods Rebuilding Plans for the reconstruction of the 49 Hurricane Katrina flooded neighborhoods of the City of New Orleans. As part of the project presentations were made to each neighborhood. As part of the work B&A evaluated and made a presentation to the City Council on the proposed FEMA Recovery Advisory Base Flood Elevation (ABFE) to which there was community concern that the proposed ABFE would make a substantial number of parcels unbuildable. B&A used the building damage assessment maps and its evaluation to establish that the proposed ABFE would not negatively impact most of the neighborhoods and the reconstruction process.

E. **The World Islands Strategic Development Plan**
Dubai, United Arab Emirates

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2005** CONSTRUCTION (if applicable): **2008**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Architect. Improvements included general renovations to accommodate the current needs of the Port, Carnival Corporation and Customs and Border Protection (CBP). Terminal 19 provides improved security screening for passengers and baggage, new check-in and passenger waiting areas, concourse improvements, and an improved ground transportation area. New exterior canopies were designed to provide shelter for passengers loading and unloading at curbside.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE a. TOTAL	b. WITH CURRENT FIRM
Tere Garcia	**Public Involvement Officer**	**44**	**24**

15. FIRM NAME AND LOCATION (City and State) **Bermello Ajamil & Partners, Inc., Miami, Florida**

16. EDUCATION (DEGREE AND SPECIALIZATION)
Master in Urban Planning, University of Puerto Rico, 1979; Master in Architecture, Tulane University, 1974
Bachelor of Architecture, Tulane University, 1974

17. CURRENT PROFESSIONAL REGISTRATION (STATE & DISCIPLINE)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

Arch Creek Drainage Basin Outreach Methodology
Miami, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2018** | CONSTRUCTION (if applicable): **Ongoing**

A.

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm

Public Information Officer. Assignment consisted pilot program to test an outreach methodology for potential use in future Adaptation Action Areas. The project provided technical and outreach services to obtain input from local residents on proposed flood resilient solutions for the Arch Creek Drainage Basin in Miami-Dade. Mrs. Garcia's responsibilities included the preparation of promotional flyers in English, Spanish and Creole, a meeting agenda, PowerPoint presentation, and host the public meeting to present proposed flood resiliency/adaptation alternatives, and polling survey.

Broward County Office of Environmental Services Neighborhood Improvement Project
Broward County, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **1993** | CONSTRUCTION (if applicable): **2011**

B.

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm

Public Involvement Project Manager. Responsible for the participation of four unincorporated Broward County neighborhoods - Franklin Park, Washington Park, St. George West and St. George East. Worked closely with the Design and Construction Team to effectively convey information to general public and special interest groups.

Miami-Dade Expressway Authority
Miami-Dade County, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2006** | CONSTRUCTION (if applicable): **Ongoing**

C.

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm

Public Involvement Director for General Engineering Consultant. Responsible for developing strategies and overseeing all public involvement and community awareness programs throughout the master planning and final design phases of MDX's projects. This has included strategic and extensive community awareness campaigns to reach the impacted communities using workshops, presentations to elected officials and Community Councils, open house, community meetings, speaker's bureaus, fact sheets, newsletters, website, PowerPoint presentations and public hearings.

MDX Long Range Master Transportation Plan (2025 and 2035 Update)
Miami-Dade County, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2014** | CONSTRUCTION (if applicable): **2016**

D.

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm

Public Involvement Director. Every five years MDX updates their Long Range Transportation Plan and identifies new projects through a visioning process with its Board of Directors, transportation partners and the public. This update included the use of a new innovative preference survey technology (Turning Point) with the Board Members to gather and present live results of priorities for all presented projects. Initial tasks included working with the technical planning team on a needs assessment of transportation needs in Miami-Dade County and the identification on potential projects where MDX could be a catalyst in providing mobility to the region. Public outreach consists of providing public involvement and information through the concept planning phase including interagency coordination and outreach to stakeholders in the area.

City Wide and Neighborhood Hurricane Recovery Master Plans, The "Moss Plan" South Dade Neighborhood Development Concept Plans
Miami, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **1994** | CONSTRUCTION (if applicable): **1997**

E.

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm

Public Involvement Director. In response to the ravages created by Hurricane Andrew and recognizing that many neighborhoods in South Dade were neglected communities in need of redevelopment prior to the onslaught of the hurricane The Board of County Commissioners approved on September of 1992 the use of funds to be utilized for capital improvements and planning activities to redevelop the affected target areas in South Dade. The Firm of Bermello, Ajamil and Partners was selected as the Overall Coordinating Consultant for the preparation of the South Dade Neighborhood Development Concept Plans, later identified as the "Moss Plan" in recognition of Comm. Moss' leadership in the effort. Project Manager for the development of the plan that directed the work of five other firms in the preparation of the neighborhood reconstruction plans.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE a. TOTAL	b. WITH CURRENT FIRM
Frank Tejidor, PE	**Marine Engineer**	**39**	**15**

15. FIRM NAME AND LOCATION (City and State) **Bermello Ajamil & Partners, Inc., Miami, Florida**

16. EDUCATION (DEGREE AND SPECIALIZATION)
Master of Science in Civil Engineering, Geotechnical Engineering, Purdue University, 1984; Bachelor of Science in Civil Engineering, University of Miami, 1979

17. CURRENT PROFESSIONAL REGISTRATION (STATE & DISCIPLINE)
Professional Engineer, State of Florida - No. 38847

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

PortMiami 2035 Strategic Master Plan
Miami, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2009** | CONSTRUCTION (if applicable): **2011**

A. (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Marine Engineer. As a general consultant to the Port, one of the world's largest cruise ports and a leading container terminal facility, participated in planning, design, construction, management, and financing of its $750 million expansion. Mr. Tejidor, in close participation with the geotechnical investigations was responsible for the design of the wharf extension to the Port.

MSC Ocean Cay Marine Reserve
Bahamas

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2017** | CONSTRUCTION (if applicable): **Ongoing**

B. (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Marine Engineer. B&A was selected to develop a private destination island in Bahamas for MSC Cruises. The 95 acre island will consist of 6 separate beaches, 11,400 feet of beach front, a 2,000 seat amphitheater, a Bahamian village shopping area with: restaurants, bars, zip line attraction, a lagoon water feature, pavilion and bike paths. Additionally, the island will have a spa and wellness area, private bungalows and a massage hut.

Port Everglades Terminals 2, 19, 21 and 26,
Fort Lauderdale, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2009** | CONSTRUCTION (if applicable): **2012**

C. (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Marine Enginer. B&A conducted a primary survey in the fall of 2009 to determine space allocations and operational capacities for each. Subsequently, B&A programmed and is in the midst of schematic design for the terminals. B&A has led several workshops with Port Everglades, Carnival Corporation, and related Carnival brands at critical junctures and, due to tight budget and schedule constraints, B&A has conducted value engineering audits and made several recommendations to lower costs and increase efficiencies. Additionally, B&A has worked with the Port to gain the necessary approvals of the U.S. Customs & Border Protection for each terminal.

Port Everglades Berth 18 & 29 Bulkhead Analysis & Evaluation
Fort Lauderdale, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2008** | CONSTRUCTION (if applicable): **2009**

D. (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Marine Engineer. Bermello Ajamil & Partners, Inc. (B&A) completed a Bulkhead Evaluation at Berth 18 - The bulkheads along Berth 18 were evaluated to accept mooring upgrades and retrofits for the berthing of Oasis class ships. Due to the condition of the bulkhead, high capacity bollards were isolated from the bulkhead. Additional lower capacity bollards for spring lines were allowed to be installed along the bulkhead line. Bulkhead Anaylsis at Berth 29 - Analysis of the bulkheads at Berth 29 to accept a harbor crane. Mudline at bulkhead was at - 46.0. Alternatives were developed to allow the proposed cranes to operate along the bulkhead.

Port Everglades Terminal 4 Renovations and Slip 2 Lengthening
Fort Lauderdale, Florida

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2009** | CONSTRUCTION (if applicable): **2017**

E. (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [X] Check if project performed with current firm
Marine Engineer. He has led the programming elements of Terminal 4 and is actively involved in moving this effort forward. He continues to oversee the design development and focus on schedule and budget related to this project. He worked with the Port's staff throughout the programming and design phases.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
alerie Seidel	Principal Economist	a. TOTAL 33	b. WITH CURRENT FIRM 13

15. FIRM NAME AND LOCATION *(City and State)*

The Balmoral Group, Winter Park, FL

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
Master of Commerce, Economics, University of Sydney Bachelors of Science, Accounting, Economics, University of Tampa	Leadership Florida Class XXXI American Applied Economics Association Chair, Children's Home Society of Florida

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

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19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Using Earth Observations to Inform the Valuation of Ecosystem Services that Support Coastal Resilliency (Gulf Coast, US)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Project Director; prepared and conducted workshops for scientists, resource managers and policymakers to assess data sources currently in use for coastal resiliency planning and management. Identified and demonstrated potential remote sensing data sources for timely and cost-effective coastal management and monitoring information. Performed surveys, literature reviews, and feedback to determine appropriate infrastructure, training and communication required to institute use of satellite data in coastal resiliency management. Ongoing.

b.

(1) TITLE AND LOCATION *(City and State)*: Cost-Benefit Analysis of Coastal Management Options for Lake Cathie (Lake Cathie, NSW, AU)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Project Director; estimated economic costs and benefits of rock revetment, beach nourishment and managed retreat options facing this coastal town experiencing extreme coastal erosion. Using spatial techniques in GIS, results of engineering analysis and literature-based values for costs and amenities ranging from sand maintenance to beach visitor values, CBA analysis was completed for 10 options. In accordance with Treasury rules, sensitivity analysis was conducted using three different discount rates for two time periods (20 and 50 years). Impacts were expressed in terms of economic activity, quality of life, natural resources, and public infrastructure.

c.

(1) TITLE AND LOCATION *(City and State)*: Cost-Benefit Analysis of Options to Protect Old Bar (Old Bar, NSW, AU)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Project Director; assessed the impacts of alternative strategies on economic activity, quality of life, natural resources and public infrastructure over a variety of scenarios and under varying sensitivity measures. Potential strategies to manage the effects of coastal erosion range widely from property easements to "hard" engineering solutions. Balmoral Group Australia estimated economic costs and benefits using spatial techniques in GIS. The resultant report was described as "a landmark report" in providing policy guidance.

d.

(1) TITLE AND LOCATION *(City and State)*: Economic Impact of the St Johns River and Water Quality on Property Values (Duval, St. Johns, Clay and Putnam Counties, FL)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Project Director; estimated the effects of water quality on property sales values for properties on or near the St Johns River, as revealed through property values. GIS was used to build a dataset for regression analysis using a hedonic model to quantify proximity effects of the river on property values in 4 counties (Putnam, Clay, St. Johns, and Duval). The statistical model considered physical property factors, location, and FDEP data reflecting water quality status throughout a 10-year period and tied to specific river segments.

e.

(1) TITLE AND LOCATION *(City and State)*: Community Resiliency Analysis of Martin and Okaloosa Counties (Martin and Okaloosa Counties, FL)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Project Director; evaluated the costs and benefits of alternative adaptation strategies for coastal resiliency. The project used economic principles to develop pilot policies for managing and mitigating issues related to coastal resiliency that are suitable for Martin and Okaloosa Counties' comprehensive plans. Parcel-level analysis estimates the change in relative benefits from different policy alternatives over time, and calculates the value of incentives necessary to successfully implement specific policies. Factors included in the analysis range from property values, to impacts on public infrastructure and natural resources. Funded by NOAA, the final deliverable is intended to be a template transferrable to all coastal Florida counties.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Craig Diamond	Senior Economist; Resiliency Planner	36	6

15. FIRM NAME AND LOCATION *(City and State)*

The Balmoral Group, Winter Park, Florida

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
Master of Science, Environmental Engineering Sciences, University of Florida, 1984 Bachelor of Science, Mathematics, Union College, New York, 1976	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Florida Natural Resources Leadership Institute, Class X: Planning Fellow and Alumni Association: Board Member (2010-present)

Florida Association of Environmental Professionals, Northwest Chapter: Treasurer (1995 - 1999); Vice President (2003 - 2004)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Using Earth Observations to Inform the Valuation of Ecosystem Services that Support Coastal Resiliency (Gulf Coast, US)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 | CONSTRUCTION *(If applicable)*:

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Senior Economist, Co-PI - The Balmoral Group conducted workshops with public and private sector stakeholders in five Gulf Coast states to advance the use of Earth observations for valuing ecosystem services and to incorporate these values into resource planning and decision making in the coastal environment. Outcomes will guide NASA and other Federal agencies on the use of earth observations to inform ecosystems valuation.

b.

(1) TITLE AND LOCATION *(City and State)*: Cost-Benefit Analysis of Coastal Management Options for Lake Cathie (Lake Cathie, NSW, AU)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015 | CONSTRUCTION *(If applicable)*:

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Senior Economist - estimated costs and benefits of options to manage coastal erosion facing the NSW coastal town of Lake Cathie; analyzed 10 options including combinations of rock revetments, beach renourishment and planned retreat; used GIS for analysis and to incorporate probabilistic profiles of recession. The analysis reflected costs from prior engineering reports and literature based values for benefits, ranging from sand maintenance to beach amenity values.

c.

(1) TITLE AND LOCATION *(City and State)*: Cost-Benefit Analysis of Options to Protect Old Bar (Old Bar, NSW, AU)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 | CONSTRUCTION *(If applicable)*:

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Senior Economist - considered social, economic and environmental implications of four options under consideration by local Council. Project entailed development of a geodatabase or property attributes, demographics and engineers' estimates of hazard probabilities. The methodology and findings were favorably received by NSW Office of Environment and Heritage and the NSW Treasury.

d.

(1) TITLE AND LOCATION *(City and State)*: Economic Impact of the St Johns River and Water Quality on Property Values (Duval, St. Johns, Clay and Putnam Counties, FL)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 | CONSTRUCTION *(If applicable)*:

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Senior Economist - Through hedonic methods estimated the property value premium for proximity to the River and the premium that higher water quality generates. The riverfront enjoys about $900 million in added value while nearby properties benefit $800 million. Additional ad valorem benefits of $45 million would accrue if all properties in the study were to achieve the water quality that 16% of properties currently enjoy.

e.

(1) TITLE AND LOCATION *(City and State)*: Community Resiliency Analysis of Martin and Okaloosa Counties (Martin and Okaloosa Counties, FL)

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012 | CONSTRUCTION *(If applicable)*:

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Chief of State Planning -- contract oversight of The Balmoral Group. This project evaluated the cost-effectiveness of strategies to reduce risks from sea level rise. The economic and spatial analyses incorporated elements of public policy and nonmarket values for salient costs or benefits

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
Icia Barker	Senior Economist	a. TOTAL 7	b. WITH CURRENT FIRM 7

15. FIRM NAME AND LOCATION *(City and State)*
The Balmoral Group, Winter Park, FL

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
Bachelors of Arts, Economics, Statistics, University of Central Florida, Summa Cum Laude, 2012	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
ArcGIS, ICPR, LIMDEP, R, JMP, STATA, SAS, Microsoft Excel, Access, Word and PowerPoint
FDOT Environmental Management Office PD&E Training Course

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: Countywide Stormwater Needs Assessment Master Plan, (Orange County, Florida)

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013 | CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[4] Check if project performed with current firm

Research Economist; accessed over 1,000 Orange County stormwater management projects and prioritized the optimal allocation of resources. Water quality issues were evaluated against demographics, cost, and physical/topographic features to optimize costs and benefits using econometric techniques, GIS analysis, flood engineering concepts, and erosion control ideas. The analysis assigns a realistic prioritization methodology for ongoing use by the County, which can be updated as projects are completed or added, or as the relative importance of different project aspects change.

b.

(1) TITLE AND LOCATION *(City and State)*: Cost-Benefit Analysis of Coastal Management Options for Lake Cathie (Lake Cathie, NSW, AU)

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015 | CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[4] Check if project performed with current firm

Research Economist; constructed a Cost-Benefit tool to assess the impacts of coastal resiliency strategies ranging from planned retreat to revetment options. Assessed stamp duty and council rates for properties, as well as net present values over the time period. Rolling easements and Right-of-Way easements were also calculated for properties. Conducted a sensitivity analysis and updated the Cost-Benefit tool with the appropriate values. Conducted a literature review for reference values.

c.

(1) TITLE AND LOCATION *(City and State)*: Cost-Benefit Analysis of Options to Protect Old Bar (Old Bar, NSW, AU)

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014 | CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[4] Check if project performed with current firm

Research Economist/ GIS Analyst; identified potential strategies to manage the effects of coastal erosion and estimated economic costs and benefits using GIS spatial techniques. Created a GIS database of affected lots, including the physical location, value, and associated non-market factors to assess the impacts of coastal resiliency strategies on economic activity, quality of life, natural resources and public infrastructure. The resultant report provided Governments with guidance for choosing a mitigation strategy relevant for the community.

d.

(1) TITLE AND LOCATION *(City and State)*: Economic Impact of the St Johns River and Water Quality on Property Values (Duval, St. Johns, Clay and Putnam Counties, FL)

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014 | CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[4] Check if project performed with current firm

Research Economist/GIS Analyst; valued proximity to the St. Johns River on property values in four counties: Putnam, Clay, St. Johns, and Duval. Developed hedonic regression models of property value using parcel-level GIS data to account for lot size, building size, existing land use, access (e.g., boat ramps or street stubs), and neighborhood effects, which account for nearby amenities (such as parks). Potential "disamenities" such as landfills were also accounted for.

e.

(1) TITLE AND LOCATION *(City and State)*: Community Resiliency Analysis of Martin and Okaloosa Counties (Martin and Okaloosa Counties, FL)

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012 | CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[4] Check if project performed with current firm

Research Analyst; created parcel specific GIS maps and datasets in the analysis of parcels affected by Coastal High Hazard areas along shorelines. Ran parcel selections based on the effects of economic and spatial impacts such as proximity to public lands, wetlands, and evacuation routes, and census tract. Resulting GIS datasets were further used to analyze factors including, but not limited to, parcel value, environmental impacts, and conservation/rolling easement policies for several land use types.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
EPHRAT YOVEL		a. TOTAL 19	b. WITH CURRENT FIRM 7

15. FIRM NAME AND LOCATION (City and State)
COUNTERPOINT, MIAMI, FL

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
MBA, READING UNIVERSITY, UK (2003) MASTER OF DESIGN STUDIES, LANDSCAPE, PLANNING & ECOLOGY, HARVARD UNIVERSITY (1996) BACHELOR OF LANDSCPE ARCHITECTURE, MICHIGAN STATE UNIVERISTY (1994)	AICP LEED AP

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

PUBLICATIONS

Yovel, E. 2016. Methodological Guidelines in Climate Tagging of the National Public Budget: A User's Guide. Support Document for the Mainstreaming of Climate Change Adaptation into the National Budget, as part of the Project: Supporting Moldova's National Climate Change Adaptation Planning Process. Climate Change Office, UNDP: Chisinau

Yovel, E. and Santos, ST. 2016. Mainstreaming Climate Change Adaptation into Moldova's Policy and Planning: A Simplified User's Guide. Project: Supporting Moldova's National Climate Change Adaptation Planning Process. Climate Change Office, UNDP: Chisinau

Yovel, E. 2013. Shaping Resilience: Mainstreaming Disaster Risk Reduction into Land Use Planning. Working Paper. UN/ISDR: Incheon, Korea

Yovel, E. and I. Even-Zur. 2004. Reefs, Divers and Money: An Economic Assessment of Recreation Diving Activities on the Coral Reefs in the Gulf of Aqaba (Eilat). Horizons in Geography 62: 89 – 94

Yovel et al. 2002. Reasonable Illusions: Participatory Planning and Protected Areas. In Proceedings of the International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas, A. Arnberger, C. Brandenburg and A. Muhar (eds.) Pp. 412 – 416. Vienna: Austria

Gregory et al. Florida State Park System Economic Impact Assessment, FY 1997/98, FY 1998/99 and FY 1999/2000. Florida Department of Environmental Protection

Yovel, E. 1996. River of No Return. Landscape Design, No. 255, Nov. 1996

Steinitz et al. 1996. Alternative Futures for the Region of Camp Pendleton, CA. Harvard Graduate School of Design, The Nature Conservancy, US Department of Defence and the US Environmental Protection Agency

CERTIFICATIONS

Certified Planner, American Institute of Certified Planners (AICP), American Planning Association

Accredited Professional, Leadership in Energy and Environment Design (LEED AP), United States Green Building Council

TECHNICAL WORKING GROUP

Member, Shoreline Resilience Working Group, Southeast Florida Regional Climate Change Compact

Expert group member, Climate Resilience Integration to Low Emission Development Strategies (LEDS) working group, LEDS Global Partnership

Expert group member, Global Partnership on Sustainable Tourism

Co-leader and member, Technical Working Group on Urban Planning, UNISDRs Making Cities Resilient Campaign (Jan 2011 – Mar 2015)

Member, Steering Committee, Health Impact Assessment for the Building Resilience Against Climate Effects (BRACE) in Florida, US Centers for Disease Control and Florida Public Health Institute (June 2013 – Mar 2014)

Member, South East Asia climate change community of practice (SEA Change CoP)

TRAININGS

2016. Eastern Europe, Caucasus and Central Asia (EECCA) Regional Workshop on National Adaptation Plans. Organized by UNEP, UNDP, NAP-GSP Government of Moldova and ADA. Chisinau, Moldova. June

2015. Planning Without Plans: Addressing Urban Risk Through Private Investment - A Case Study in Urban Disaster Risk Reduction, American Planning Association, Florida Chapter. Miami, FL, May.

2015. Raising the Bar: Green Infrastructure Planning and Design in Southeast Florida American Planning Association, Florida Chapter. Miami, FL, March.

2015. Climate change in SE FL and its implications for urban planning. Florida International University, Miami Beach, FL. March.

2013. Climate integration, mainstreaming and implementation workshops and training on land use planning, hazard mitigation and disaster risk reduction, green infrastructure, transportation planning and renewable energy for the Southeast Florida Regional Climate Change Compact. September and November.

2012. Mainstreaming Adaptation and Disaster Reduction into Development (MADRID) 3rd Leadership Development Forum (LDF). Incheon, Korea. November

19. RELEVANT PROJECTS

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Climate risk and vulnerability assessment of the redesign of the East-West Highway in the Republic of Georgia	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
	X	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Climate risk and vulnerability assessment of the redesign of the East-West Highway in the Republic of Georgia; LEAD / CLIMATE RISK & VULNERABILITY ASSESSMENT

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED 2018	
Greater Male' Environmental Improvement and Waste Management Project, Greater Male', Maldives	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
	X	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Climate risk and vulnerability assessment of solid waste management strategy and planned capital investment in Greater Male' region, Maldives; LEAD / CLIMATE RISK & VULNERABILITY ASSESSMENT

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED 2017	
India's national flagship urban program in 6 towns in Tamil Nadu, India	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
	X	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Climate risk and vulnerability assessment and prioritization of the sanitation and water supply investment plan under India's national flagship urban program in 6 towns in Tamil Nadu: Chennai, Coimbatore, Tiruchirappalli, Tirunelveli and Vellore; LEAD / CLIMATE RISK & VULNERABILITY ASSESSMENT

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED 2017	
Adaptation opportunities in the urban/coastal zone in Albania	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
	X	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Identification and prioritization of adaptation opportunities for infrastructure investment in the urban/coastal zone in Albania; LEAD / ADAPTATION PLANNING

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED 2012	
National climate resilient transport infrastructure investment plan for Belize	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
	X	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Identification and prioritization of a national climate resilient transport infrastructure investment plan for Belize; TECHNICAL COORDINATOR

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Georgio Tachiev	Senior Hydrologist	27	10

15. FIRM NAME AND LOCATION *(City and State)*

GIT Consulting LLC, 2665 S. Bayshore Dr Suite 220, Coconut Grove FL 33133

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD - Water Resources and Environmental Engineering, Vanderbilt University, TN MS - Chemical Engineering, Vanderbilt University, TN BS - Civil Engineering, VIAS, Sofia Bulgaria	Professional Engineer, State of Florida, Environmental Engineering

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Publications: 40 peer review publications in Water Resources, Hydrology, Remediation, Computer Science, Organizations: EWRE chapter of ASCE, Miami, Training: Project Management, and Princeton Remediation Course

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Integrated Surface and Subsurface Flow Model of the Everglades National Park (ENP)	2016	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Scope: Developed an integrated surface and subsurface model integrated with drainage water management operations of the Everglades National Park (ENP) using MIKE SHE and MIKE 11 simulation platforms and including operation schedule of control structures. Model Size 1250 square miles, Cost: $440K, Specific Role: Lead Model Developer

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2D hydrodynamic model of Stormwater Treatment Area STA1-W, West Palm Beach	2014	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Scope: Develop a 2D model using MIKEFLOOD which couples MIKE11 with the 2D overland flow capabilities of MIKE21. Integrated the MIKE 11 model with the 2D model and conducted detailed evaluations of the flow in 8 treatment cells including 3 new cells: Model Size: 13,000 acres, Cost $450K, Specific Role: Lead MIKEFLOOD Model Developer

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Hydrologic Modeling of West Miami Dade Reservoir for Phase II, Phase IIIA, Phase IIIB1	2014	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Scope: Develop integrated hydrologic modeling of a proposed 1,800 ac reservoir in West Miami-Dade County. A series of simulations were developed to understand the impacts of the reservoir, Model Size: 1250 sq.miles, Cost: $300K, Specific Role: Lead Model Developer

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Engineering Services for Culvert Repair for Stormwater Treatment Area STA-1E, USACE	2017	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Scope: Engineering services for Culvert Repairs in Stormwater Treatment Area STA-1E, West Palm Beach, dewatering plans earthen and sheetpile cofferdam design, analyze site lithology, hydrology, operation schedules of gates and pumps. Size: 7,000 acres, Cost: $135K, Specific Role: Principal Engineer

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Everglades Agricultural Area (EAA) Trends and Variability Analysis	2013	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☑ Check if project performed with current firm

Scope: Update and develop a new SAS code to provide analysis of flow and water quality parameters. Significant additions and modifications were made to the program to improve automation and allow execution in different computer environment. Size: 700,000 acres, 337 structures, 237 farms, Cost: $50K, Specific Role: Lead SAS Model

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Mehrnoosh Mahmoudi	Senior Hydrologist	11	1

15. FIRM NAME AND LOCATION *(City and State)*

GIT Consulting LLC, 2665 S. Bayshore Dr Suite 220, Coconut Grove FL 33133

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD - Geoscience, Florida International University, FL MS - Environmental Engineering, Florida International University, FL BS - Chemical Engineering, Isfahan University of technology, Isfahan, Iran	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Publications: 5 peer review publications in Water Resources, Hydrology, Organizations: EWRE chapter of ASCE, Miami, Training: Geographic Information System (GIS)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Integrated Surface Water and Groundwater Flow Model of the Tims Branch Watershed, SC	2018	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☐ Check if project performed with current firm

Scope: Developed an integrated surface and subsurface model coupled with contaminant transport using MIKE SHE and MIKE 11 and EcoLab simulation platforms Role: Model Developer

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2D Flow and Sediment Transport for Loxahatchee Impoundment Landscape Assessment (LILA), West palm Beach, FL	2014	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☐ Check if project performed with current firm

Scope: Develop a 2D model using FLO2D to simulate spatiotemporal variation of flow depth and velocity in LILA macrocosm when a conditional pulse flow was applied. Integrated the FLO2D model with the 2D model of solute transport to simulate spatial distribution of dye within the macrocosm over time. Role: Model Developer

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
The Everglades Restoration Plan: Remote Sensing and Mitigation, West Palm Beach, FL	2010	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☑ Check if project performed with current firm

Scope: Developed a remote sensing model to evaluate the historic changes in shoreline of lake Okeechobee. Developed a model to estimate the temporal changes in evapotranspiration in West Broward using remote sensing techniques

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Biofuel Production Using Sugarcane Biomass, South Bay, FL	2009	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☑ Check if project performed with current firm

Scope: Designed pilot plant for pretreatment of sugarcane biomass to produce commercial Ethanol using different mechanical method. Developed laboratory experiments to analyze the biomass fermentation processes. Role:Project Scientist

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Groundwater Remediation Plan, Oak Ridge, TN	2008	

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☐ Check if project performed with current firm

Scope: Developed laboratory methods to evaluate the effect of using Nano-scale Zero Valent Iron (NZVI) for remediation of groundwater starting from small scale batch experiment to column experiment set up. Role: Research Assistant

F. Example Projects (Present as many projects as requested by the agency, or 10 projects, if not specified.
Complete one Section F for each project)

20. 1

21. TITLE AND LOCATION *(City and State)*

Matheson Hammock Sea Level Rise Flood Mitigation Study, Coral Gables, Miami-Dade County, Florida

22. YEAR COMPLETED:

PROFESSIONAL SERVICES	CONSTRUCTION
2018	NA

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Miami Dade County	Jose A. Gonzalez	305-755-7833

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Summary:
Underwater inspection, engineering analysis, coastal resiliency, sea level rise, flooding, marine resources, environmental permitting, flood mitigation design, planning, cost estimates.

Relevance:

- ☐ The Project demonstrates knowledge of coastal resiliency and sea level rise.
- ☐ The Project demonstrates the ability to combine various disciplines to develop and plan long term solutions.
- ☐ The Project demonstrates innovative design to meet changing conditions and incorporate flexibility in designs.

Project Schedule/ Actual Schedule:

On schedule.

Scope: Engineer, Marine Scientist and Project Manager

Size: 630 acres

Construction Cost: $50M (est.)

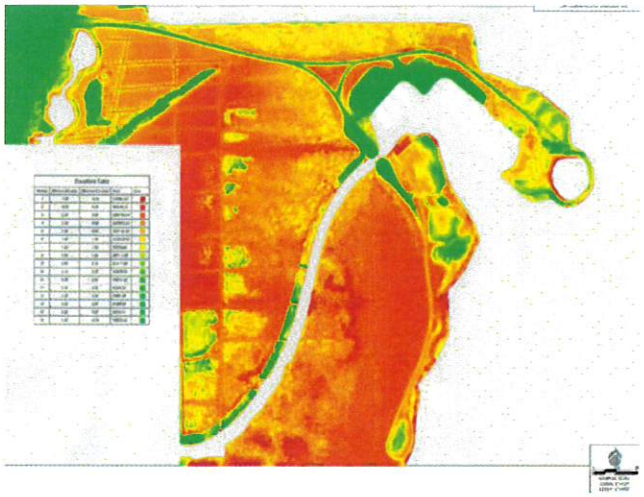
Description:
A technical assessment of the conditions at Matheson Hammock Park (Park) was conducted relative to developing flood mitigation concepts to limit impacts of sea level rise. Topographic LiDAR data was compiled and processed to develop a detailed topographic map of the Project area. A conditions inspection was conducted of the Park documenting the condition of all significant infrastructure components, along with anticipated service life. Environmental resources were preliminary assessed and mapped.

An evaluation of typical and extreme tidal water levels was conducted to understand peak tidal levels and exceedance probability. Published sea level rise projections were reviewed and adopted for the study. A flood inundation model was developed to analyze areas of flooding and timeframes relative to sea level rise.

Flood mitigation concepts were developed for major infrastructure components within the Park. The concepts were evaluated relative to urgency, construction costs, impacts to Park guests, permit feasibility and environmental impacts. An implementation schedule reaching the year 2100 was developed, outlining estimated infrastructure replacement dates, anticipated service life and required elevations based on the adopted sea level rise projection.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	Cummins Cederberg, Inc.	Miami, Florida	Engineer



F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, If not specified. Complete one Section F for each project.)

20. 2

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED:	
	PROFESSIONAL SERVICES	CONSTRUCTION
North District Wastewater Treatment Plant Storm Surge and Sea Level Rise Assessment, , City of North Miami, Florida	2014	NA

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Miami Dade County (through Brown & Caldwell)	Jennifer Leone	(561) 515-6249

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Summary

Coastal Engineering analysis, Storm Surge Analysis, Sea Level Rise, Mangrove Assessment

Relevance

- The project demonstrates knowledge of large infrastructure project.
- The project demonstrates the ability to work within a large team.
- The project demonstrates knowledge of critical issues (storm surge and sea level rise) important to the City.

Project Schedule/ Actual Schedule

On schedule.

Scope: Engineer

Size: Approximately 50 acres

Construction Cost: NA

Description:

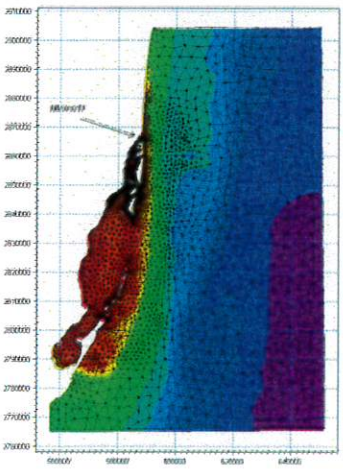
A technical assessment of design conditions was conducted relative to the North District Wastewater Treatment Plant (NDWWTP) to evaluate potential sea level rise and storm surge impacts as part of the Ocean Outfall Legislation. Global and local sea level rise projections were reviewed relative to application, uncertainty and service life of infrastructure.

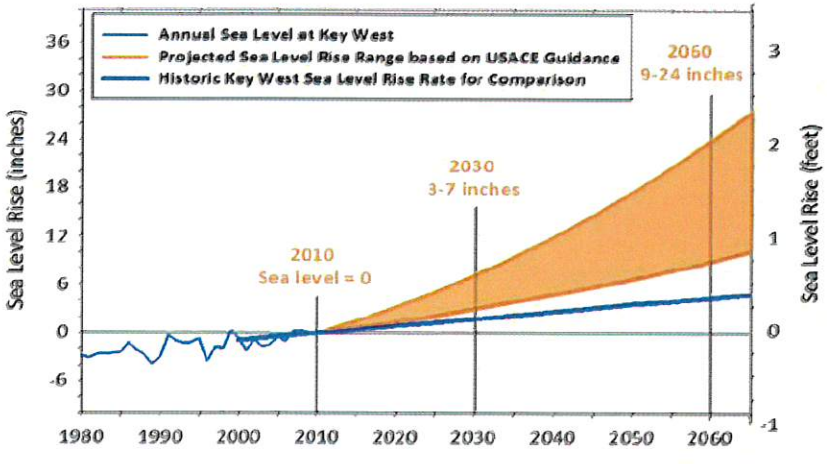
An evaluation of storm surge impacts was conducted. Historical records along with published data and studies were reviewed relative to application and validity. Relevant data was reviewed, including information regarding historical storm tides in the vicinity, historical hurricane tracks, approach angles, wind direction variations and relationship between storm tide levels and wave impacts. The analysis indicated hurricanes with specific characteristics will cause a higher level of storm tide at NDWWTP and the design hurricane identified. A desktop study was conducted to preliminarily estimate the 100-year storm tide level for the NDWWTP. The preliminary analysis indicated an alternative flooding scenario may exist apart from a direct hit near NDWWTP, which were further analyzed through numerical modeling.

Site specific conditions were reviewed relative to their effect on storm tide and associated processes, such as existing mangrove habitat. The probability of events with various return periods were estimated relative to varying service life allowing the Client to make informed decision regarding the design and service life.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	Cummins Cederberg, Inc.	Miami, Florida	Engineer





F. Example Projects (Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project)

20. 3

21. TITLE AND LOCATION *(City and State)*

Coco Plum Beach Restoration and Shoreline Stabilization, Marathon, Monroe County, Florida

22. YEAR COMPLETED:

PROFESSIONAL SERVICES	CONSTRUCTION
2017	NA

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Marathon	Carlos Solis	305-289-5008

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Summary:
Bathymetric surveying, coastal engineering analysis, wave modeling, sediment transport modeling, marine resource mapping, breakwater and beach design, permitting feasibility, funding opportunities.

Relevance:

- ☐ The Project demonstrates knowledge of Florida beach design, permitting constraints and funding.
- ☐ The Project demonstrates the ability to conduct complex coastal engineering analyses utilizing state of the art numerical modeling software as well as preparing beach and breakwater design.
- ☐ The Project demonstrates innovative design to meet client objectives and budget, while minimizing environmental impacts.

Scope: Engineer and Marine Scientist

Size: 5,000 feet of shoreline

Construction Cost: $1M (est.)

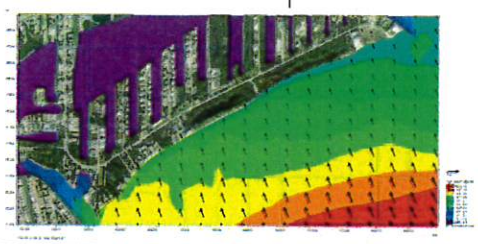
Description:
Coco Plum Beach is located along the southeast coast of Marathon in the Florida Keys. The beach has historically experienced significant erosion requiring costly beach fill projects along with the nuisance of construction and periods with limited beach use area. Extensive beds of seagrass are located throughout the area. Cummins Cederberg was retained to conduct an erosion study and prepare a beach design, involving coastal structures to provide long term stability. As part of the erosion study, a detailed statistical analysis of offshore wave data was conducted along with a wave propagations study. Sediment transport and potential erosion are typically governed by the wave conditions. Utilizing the advanced MIKE21 wave model, the wave transformation from offshore to nearshore was analyzed. The detailed wave modelling allowed for detailed review and comparison of the wave climate along the beach as well as assessing sediment transport rates.

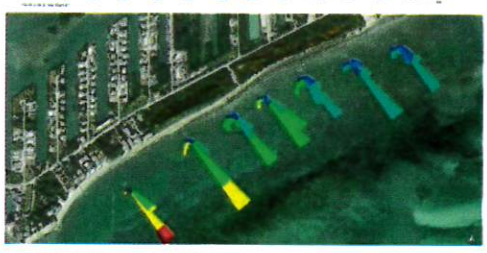
Based on the results of the wave modeling and sediment transport study, the underlying coastal processes of the erosion trends, were documented and utilized in the beach and coastal structure design process. The area triggering the beach erosion was identified and solutions for stabilizing this area, while still providing sandy beach access, were developed. Understanding the underlying coastal processes allowed for an efficient design that works with the natural processes, thus reducing long term maintenance typically associated with projects working against nature.

Project Schedule/ Actual Schedule:
On schedule.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	Cummins Cederberg, Inc.	Miami, Florida	Engineer





F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, If not specified. Complete one Section F for each project.)

20. 4

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED:	
	PROFESSIONAL SERVICES	CONSTRUCTION
14th Street Stormwater Outfall and Seawall Project , City of Miami Beach, Florida	2014	2014

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Miami Beach (through Bergeron and BCI)	Michael Betancourt	(954) 640-4400

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Summary

Tidal Valve Design, Seawall Design, Sea Level Rise

Relevance

- The project demonstrates knowledge of large infrastructure project.
- The project demonstrates the ability to work within a large team with a tight schedule.
- The project demonstrates knowledge of critical issues (sea level rise) important to the City.

Project Schedule/ Actual Schedule

On schedule.

Scope: Engineer

Size: 14th Street End

Construction Cost: NA

Description:

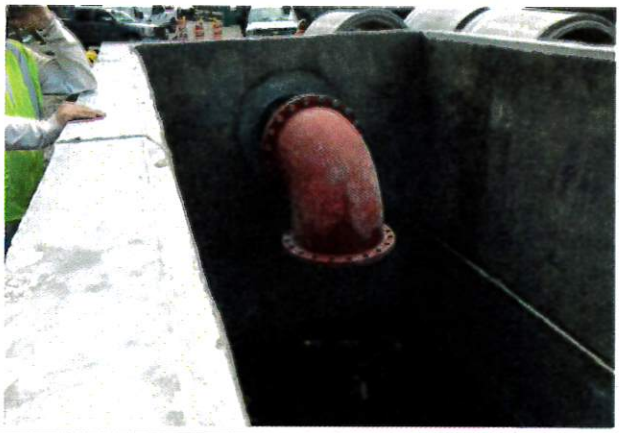
As part of the overall improvements associated with the Miami Beach Stormwater Master Plan, new pump stations and outfalls were proposed at the 14th street end to facilitate the discharge of water collected through the upland stormwater system. Cummins Cederberg was retained by the Contractor to assist during construction with the engineering design of the position and support of the 60" outfall through the existing seawall. Due to the accelerated schedule to meet fast approaching king tides, Cummins Cederberg also provided construction engineering support during implementation of the design to ensure varying conditions encountered in the field could be addressed quickly.

The existing seawall consisted of a lightly reinforced concrete retaining wall supported by timber piles. A large cut in the seawall was made to below the invert of the outfall pipe to accommodate the eschewed alignment. The large outfall pipe was then supported by several pin pile sand concrete foundation. Ultimately a new reinforced concrete collar was placed around the pipe to secure the location and retain backfill.

As a result of the seawall age, limited cap elevation, number and size of existing outfalls, as well as a proposed additional outfall of large size a new seawall was proposed for the shoreline. Cummins Cederberg has since designed a new concrete seawall to meet the recently specified higher cap elevations associated with the increasing sea level rise. In addition, the seawall was designed with appropriate specifications to accommodate the new stormwater outfalls, and provide a similar level service life as the new stormwater system.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	Cummins Cederberg, Inc.	Miami, Florida	Engineer



F. Example Projects (Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project)

20. 5

21. TITLE AND LOCATION *(City and State)*

Brickell Key Coastal Resiliency Study, Brickell Key, Miami, Miami-Dade County, Florida

22. YEAR COMPLETED:

PROFESSIONAL SERVICES	CONSTRUCTION
2018	2018

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Brickell Key Home Owner Association	Daniel Ponce	305-358-9892

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Summary:
Underwater inspection, engineering analysis, coastal resiliency, sea level rise, flooding, marine resources, environmental permitting, flood mitigation design, planning, cost estimates.

Relevance:

- ☐ The Project demonstrates knowledge of coastal resiliency and sea level rise.
- ☐ The Project demonstrates the ability to combine various disciplines to develop and plan long term solutions.
- ☐ The Project demonstrates innovative design to meet changing conditions and incorporate flexibility in designs.

Project Schedule/ Actual Schedule:

On schedule.

Scope: Engineer, Marine Scientist and Project Manager

Size: 40 acres

Construction Cost: $150,000 (est.)

Description:
Cummins Cederberg assessed the existing shoreline and infrastructure of Brickell Key in downtown Miami in order to understand the effects of sea level rise on normal and extreme conditions (i.e. hurricanes). An inspection of existing coastal infrastructure was conducted to idenfify vulnerable areas. The entire island perimeter was assessed to address all areas. Analysis sea level rise and extreme tide events were conducted to understand water level design conditions. The potential for increased storm impacts was assessed. Recommendations for long term planning was provided along with mitigation options. Construction documents and environmental permitting was conducted for the design. The design focused on adapting existing infrastructure to provide a cost effective solution.

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25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	Cummins Cederberg, Inc.	Miami, Florida	Engineer

F. Example Projects (Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project)

20. 6

21. TITLE AND LOCATION *(City and State)*

MSC Ocean Cay Private Destination Island, Bimini Islands, Bahamas

22. YEAR COMPLETED: On-going

PROFESSIONAL SERVICES	CONSTRUCTION
2018	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
MSC Cruise Line	Gianluca Suprani	41.22.703.8114

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Summary:
Engineering analysis, beach and lagoon creation, dredging, hurricane simulation, flood mapping, marine resources, storm surge predictions, flood mitigation design, planning, cost estimates.

Relevance:

- ☐ The Project demonstrates knowledge of coastal resiliency and hurricane impacts.
- ☐ The Project demonstrates the ability to combine various disciplines to develop and plan long term solutions.
- ☐ The Project demonstrates innovative design to meet changing conditions and incorporate flexibility in designs.

Project Schedule/Actual Schedule:

On schedule.

Scope: Engineer, Marine Scientist and Project Manager

Size: 150 acres

Construction Cost: $100M (est.)

Description:
Cummins Cederberg and Bermello Ajamil were retained to lead all surveying and coastal engineering for the development of MSC's new private destination island, Ocean Cay. Topographic and bathymetric surveying were performed along with rectified aerials. Ocean Cay is a remote location, so existing information was limited and thus many items, such as control points and water levels, were redeveloped. A long term tidal study was performed which was critical in determining dredge and storm surge elevations. A marine resource survey was conducted to map marine resources which could potentially be impacted by the construction and an Environmental Impact Analysis (EIA) was prepared and approved by BEST commission.

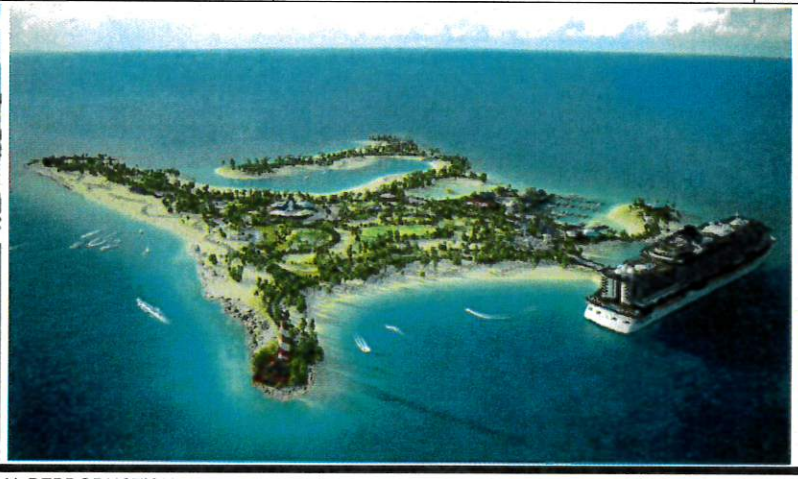
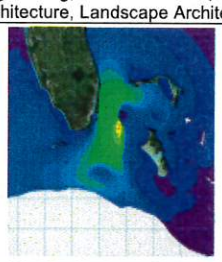
Detailed hurricane and wave modeling were conducted to determine extreme wave and storm surge conditions. A flood map with minimum floor elevations was prepare for use by the design team. The model storm surge elevations were consistent with the observed impacts from Hurricane Matthew.

A detailed sediment transport study was performed for subsequent use in the beach design. Nearly two miles of beach was created along the island perimeter and within two interior lagoons. Water circulation modeling was performed to ensure a high rate of water exchange in the lagoons. Shorelines stabilization was designed along critical areas of the island perimeter to ensure stability during extreme hurricane conditions.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a	Cummins Cederberg, Inc.	Miami, Florida	Coastal and Marine Engineering
b	Bermello Ajamil & Partners, Inc.	Miami, Florida	Planning, Civil Engineering, Marine Engineering, Public Outreach, Architecture, Landscape Architecture




F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY No.

7

21. TITLE AND LOCATION *(City and State)*

Port of Miami 2035 Strategic Master Plan
Miami, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2009	**2011**

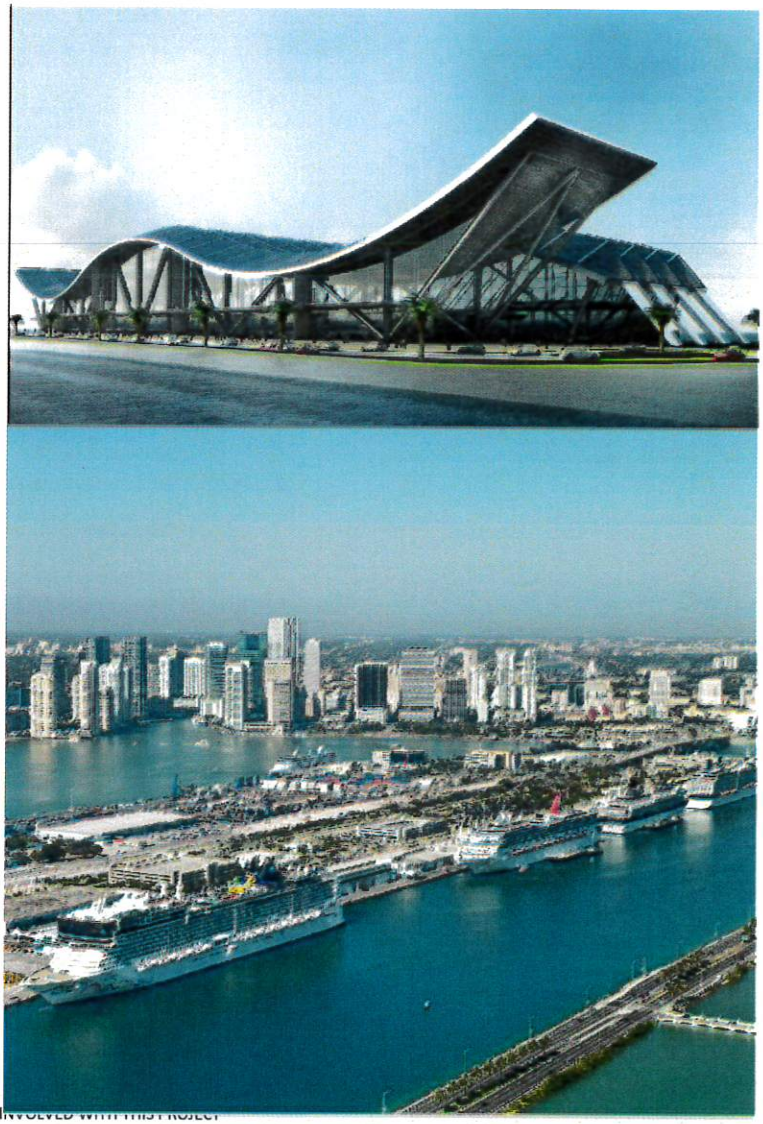
23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Miami-Dade County/ Port of Miami	**Felix Pereira**	**305.347.5505**

PROJECT DESCRIPTION

B&A reviewed existing port conditions and facilities, its economic impact within the community, and cruise and cargo trends. This data was synthesized into an analysis of strategic opportunities, resiliency and constraints. A recommended plan for port expansion and maintenance through the year 2035 was developed, including an outline of impacts from the projected development, comprehensive financial planning alternatives and steps for plan implementation.

The Master Plan study for PortMiami is structured to address sustainability in the design and in the preparation of the Port's cargo, cruise, and ferry capital development plans. The study will address resiliency and vulnerability to climate change impacts due to sea level rise or high tides, including berthing analyses and studies as well as mooring improvements for both cruise and cargo areas. As part of these analyses, an evaluation of Port's seawalls and bulkheads will be completed to identify any deficiencies or improvements that may be necessary for the Port to comply with current and future demands as well as new environmental regulations by local, state and federal agencies.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
	Bermello Ajamil & Partners, Inc.	Miami, Florida	Planning, Marine Engineering, Civil Engineering, Public Involvement, Architecture, Engineering, Landscape Architecture, Feasibility Studies

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY No.

8

21. TITLE AND LOCATION *(City and State)*

City of Hollywood Master Plan
Hollywood, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2000	**2001**

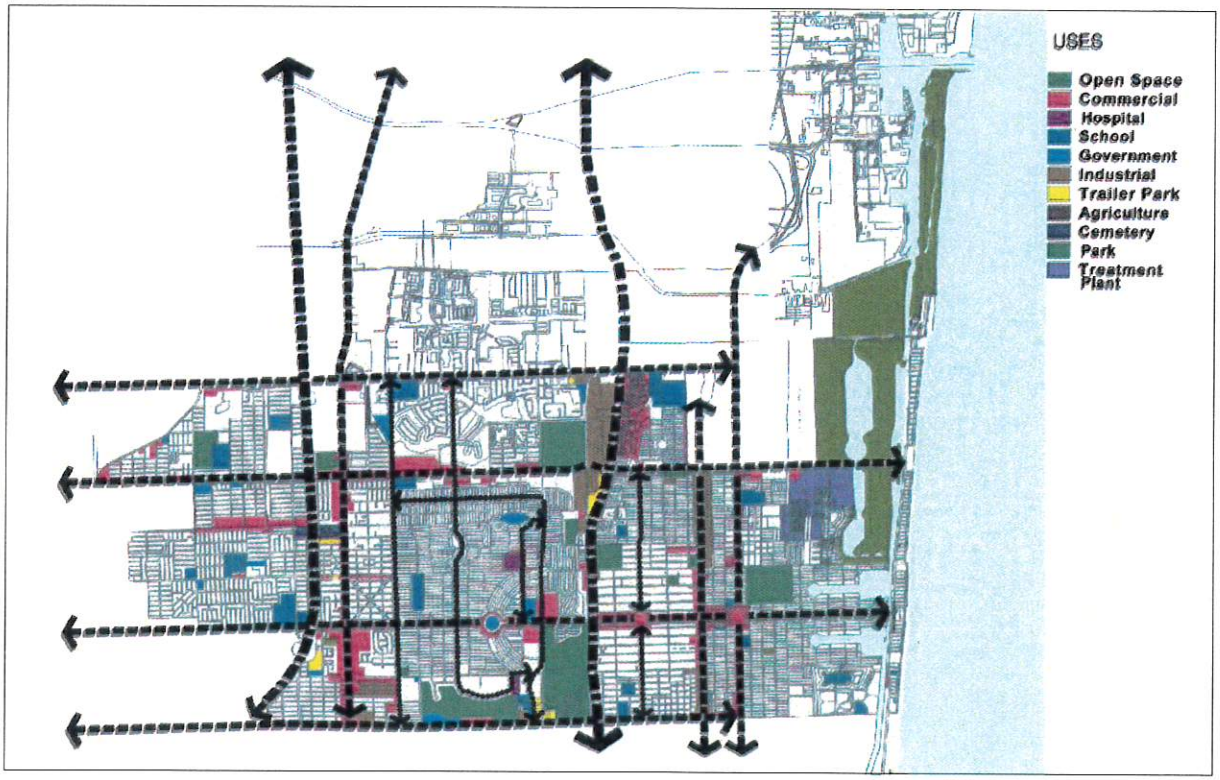
23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Hollywood	**Cameron Benson**	**954.921.3201**

PROJECT DESCRIPTION

B&A in cooperation with Keith and Schnars, P.A. developed the City of Hollywood City-Wide Master Plan within an 18 month project schedule. As part of the team, B&A carried out all the urban design analysis and was responsible for the development of the Urban Design Element of the Master Plan; considering the City's sustainability and resiliency.

A city-wide analysis of the different sectors that comprise the City of Hollywood was undertaken to assess the problems and opportunities in each area as well as to gain an understanding of how the City of Hollywood functions in its totality. Major roadway corridors and proposed improvements by FDOT were analyzed to identify potential opportunities for redevelopment that considered flooding and sea level rise. Being a completely built-up city, the Master Plan identified the potential to increase development densities in opportunesections of the City, along with the motor court area for public transportation.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
	Bermello Ajamil & Partners, Inc.	Miami, Florida	Planning & Urban Design

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY No.

9

21. TITLE AND LOCATION *(City and State)*

Port Everglades 2018 Master/Vision Plan Update
Fort Lauderdale, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	**2018**

23. PROJECT OWNER'S INFORMATION

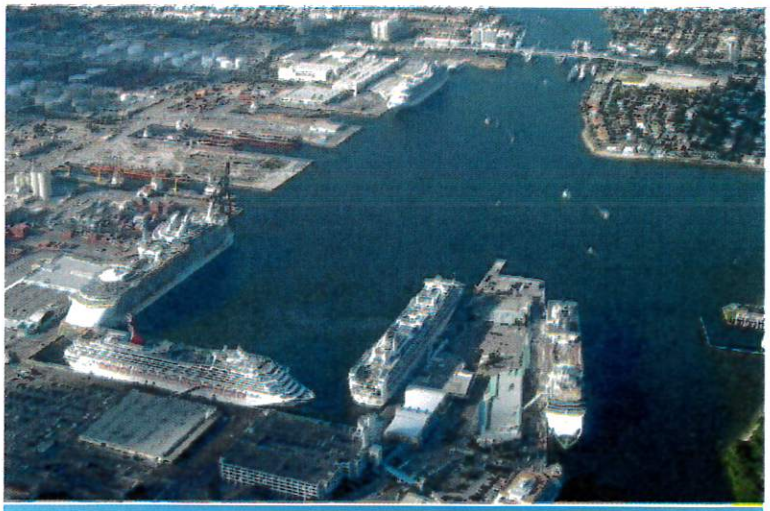
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Broward County/Port Everglades	**John Foglesong**	**954.523.3404**

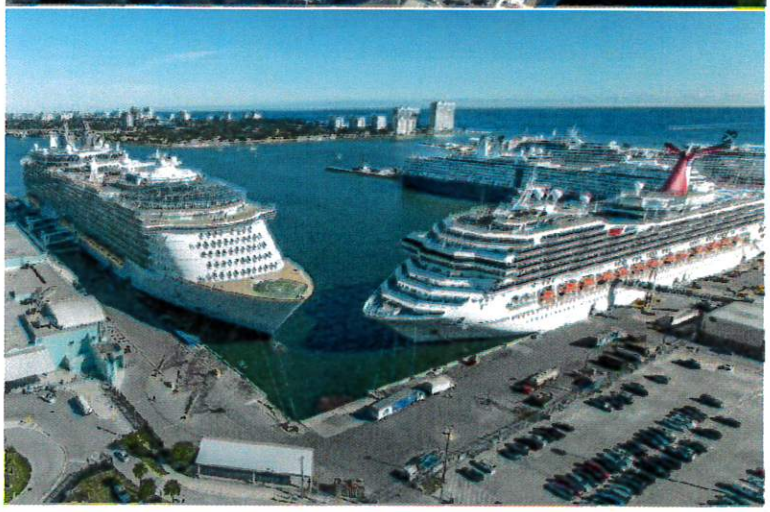
PROJECT DESCRIPTION

For the third update to the Broward County Port Everglades Master/Vision Plan, B&A reviewed the 2014 adopted Master/Vision Plan, related economic activity, financial and market forecasts and conditions, and other relevant port/county planning documents as approved by the Contract Administrator.

B&A's services included professional planning, civil, structural, mechanical, electrical engineering, architectural, and environmental services, as applicable for the Project.

B&A is also developing strategies to reduce the short and long-term environmental risks associated with climate change, including: increased flooding, storm surges, frequent storms, heat waves, and sea level rise. B&A's resiliency approach includes: drainage infrastructure designed to accommodate future sea level rise, climate-informed flood protection measures, and an integrated flood protection system for Port Everglades. All within compliance of current and anticipated Broward County, State, and Federal regulatory requirements.





25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
	Bermello Ajamil & Partners, Inc.	Miami, Florida	**Planning, Public Involvement, Engineering, Environmental Engineering, Architecture, Cruise Market Assessment**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY No.

10

21. TITLE AND LOCATION *(City and State)*

City of New Orleans Neighborhood Rebuilding Master Plan

New Orleans, Louisiana

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2005	**2006**

23. PROJECT OWNER'S INFORMATION

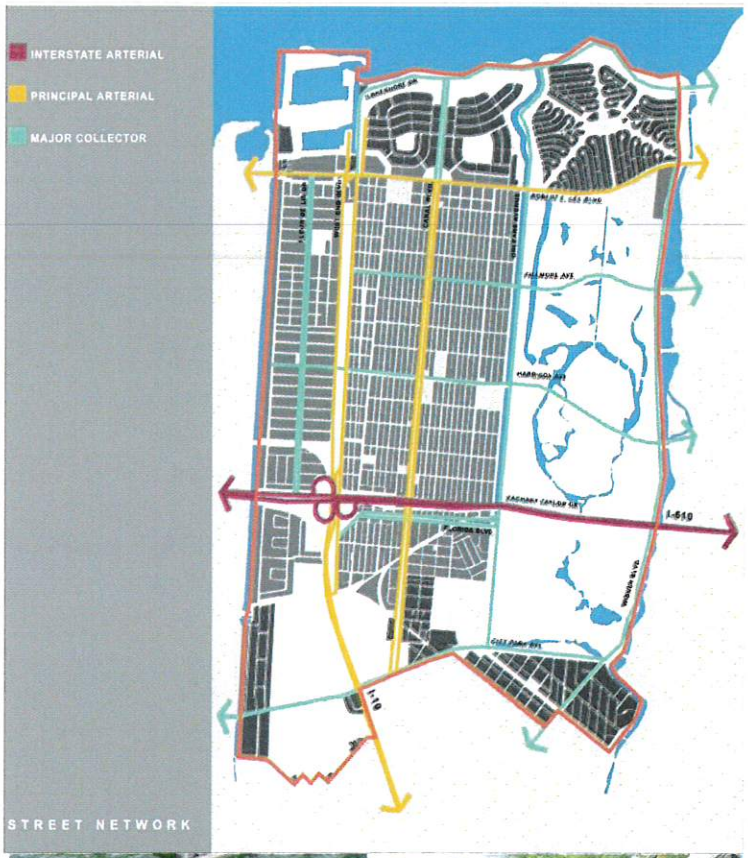
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of New Orleans City Council	**Cynthia Hedge Morrell**	**504.658.1040**

PROJECT DESCRIPTION

B&A led teams in the preparation of a strategic reconstruction and adaptation plan for the City of New Orleans, Louisiana, after the vast majority of the City was destroyed by Hurricane Katrina. B&A prepared the project approach and directed the development of research, plans and community outreach following FEMA guidelines considering vulnerability to sea level rise, storm surge, and flooding.

This complex effort involved planning 48 different areas in a major U.S. metropolitan city, with quite an amount of historical significance. The Neighborhood Rebuilding Plan strategy for reconstruction identified required investments through both research and community participation and provided a vehicle for the prioritization of specific investments and programs to address reconstruction of the neighborhoods.

The plan addresses resiliency, transportation issues, housing rehabilitation, community facilities, retail development and other urban related strategic reconstruction issues. The plan consolidated neighborhood-by- neighborhood plans in a unified, seamless format and provided a list of off –the-shelf projects for government and other appropriate funding resources.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
	Bermello Ajamil & Partners, Inc.	Miami, Florida	Planning

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY No.

11

21. TITLE AND LOCATION *(City and State)*

Arch Creek Drainage Basin Outreach Methodology Miami-Dade County, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	**Ongoing**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Miami-Dade Department of Regulatory and Economic Resources (RER) Office of Resilience	**Jim Murley, Chief Resilience Officer**	**305.375.4811**

PROJECT DESCRIPTION

B&A was contracted by the Miami-Dade Department of Regulatory and Economic Resources (RER) Office of Resilience to pilot an outreach methodology for potential use in future Adaptation Action Areas and to provide technical and outreach services to get input from local residents on proposed flood resilient solutions for the Arch Creek Drainage Basin in Miami-Dade.

Under this contract, B&A prepared a brief educational presentation for use in the public meeting and collaborate on images that represent five different flood resiliency/adaptation solutions for the Arch Creek Drainage Basin area, including green infrastructure, living shorelines, sea walls/ berms, flood pumps, and raised streets/buildings.

B&A staff also prepared promotional flyers in English, Spanish and Creole, a meeting agenda, PowerPoint presentation, proposed flood resiliency/ adaptation alternatives, and polling survey using pairwise comparison

Upon completion of the Public Meeting, B&A prepared and upload the same survey and brief educational material presented at the Public Meeting for online response by local residents to provide their input and comments for a period of 15-days. B&A will prepare a final report summarizing the methodology used to collect the information of the survey and the final results with the residents' preferences/rankings of the solutions presented.

25. FIRMS FROM SECTION C

	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Bermello Ajamil & Partners, Inc.	Miami, Florida	Public Outreach
b.	Cummins Cederberg	Miami, Florida	Coastal & Marine Engineering

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER 12

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Community Resiliency Analysis for Martin and Okaloosa County, Florida	2012	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT	c. POINT OF CONTACT TELEPHONE NUMBER
FL Dept. of Economic Opportunity	Julie Dennis, Div. Comm. Development	(850) 717-8478

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

The Balmoral Group used parcel-level GIS analysis to evaluate the costs and benefits of alternative adaptation strategies for coastal-resiliency. The project evaluated how the feasibility of strategies changes over time as coastal conditions change. The results show that many strategies that are broadly feasible now may be cost effective for far fewer parcels in the future. By showing how policy alternatives react to changing conditions, this project provides local governments with clear guidelines to design mitigation strategies that best suit their own communities.

Extensive literature review was performed to identify appropriate values and techniques for measuring costs and benefits associated with each of seven alternatives strategies. GIS analysis was applied to individual land areas to consider the unique properties of each location while determining appropriate mitigation options. Property values, nonmarket estimates of environmental and aesthetic resources, and avoided costs of future municipal services were quantified and applied at the parcel level using automated algorithms. Cost benefit calculations were performed for both residential and non-residential (commercial, industrial, and public) properties.

This project evaluated the cost-effectiveness of alternative strategies for coastal counties (Martin and Okaloosa County, in Florida) to reduce risks from storm surge and other coastal hazards to private property and citizens. Complex economic and spatial analysis was necessary to incorporate specific elements of public policy. Knowledge of land use policy and sophisticated economic analysis of spatial characteristics was required to determine optimal strategies, and TBG brought both to the table. An important component of this project incorporated nonmarket values for recreational amenities, wildlife habitat, and other salient costs or benefits.

Cost: $46,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	The Balmoral Group	Winter Park, FL	Prime
b.			
c.			
d.			
e.			
f.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 13

21. TITLE AND LOCATION (City and State)
Orange County Stormwater Needs Assessment Master Plan, Prioritization and Cost Benefit Analysis (Florida)

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2014	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT	c. POINT OF CONTACT TELEPHONE NUMBER
GeoSyntec Consultants	Mark Ellard, PE	(407) 321-7030

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

This project developed a decision matrix for the review of approximately 100 drainage and other stormwater capital improvement projects, based on factors such as public safety, flood reduction, constructability, maintenance reduction, permitability, right-of-way need, aesthetics, and costs and benefits. Cost data for all projects, including several that had been designed decades ago but never built, were updated with current typical expenditures for most project elements, such as pipe, revetment, weirs, land cover, etc. Social and environmental costs and benefits were evaluated using calibrated benefits transfer techniques.

Cost: $39,162

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	The Balmoral Group	Winter Park, FL	Prime
b.			
c.			
d.			
e.			
f.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER 14

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
St. Johns River Property Value Study (Duval, Clay, Putnam, St Johns Counties, Florida)	2015	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT	c. POINT OF CONTACT TELEPHONE NUMBER
University of North Florida	Dr. Courtney Hackney	(904) 620-1000

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

The objective of this Waterways economic impacts study was to estimate the increased or "premium" value that proximity to the St. Johns River provides to property values; a secondary objective was to estimate the premium value that higher water quality generates. The study was funded by legislative appropriation, as part of an overall investigation into the impacts of water quality investments. The study found that proximity to the River provides about $900 million in additional value to riverfront properties to the four (primarily rural) counties evaluated, and $800 million through properties nearby but not riverfront, with riverfront properties alone generating $134 million in "premium" taxes. Additional ad valorem benefits of $45 million were estimated to accrue if all properties in the study were to achieve the water quality that currently 16% of properties enjoy. The University of North Florida administered this study for SJRWMD, which was charged legislatively to determine the value of the River to the State of Florida.

Cost: $114,860

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	The Balmoral Group	Winter Park, FL	Prime
b.			
c.			
d.			
e.			
f.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER 15

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Economic Benefit Analysis of Centralized Water Services to the Lakewood Park and Indian River Estates Study Area (St Lucie County, Florida)	2016	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT	c. POINT OF CONTACT TELEPHONE NUMBER
St Lucie County Utilities	Valentim Santos	(772) 462-1150

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Using GIS, zoning, and rates of absorption for residential and commercial uses, TBG evaluated the costs and benefits of central water services for an antiquated subdivision in St. Lucie County. The analysis evaluated current and projected numbers of potential connections; the incremental costs per unit for the production, treatment and distribution of potable water; utility revenues; property value enhancement; avoided costs for property owners (for individual treatment and reduced appliance lifespans); and community-level savings associated with reduced risk of fire and with illness due to contaminated private well water supplies. The study found that central water would provide significant savings to the County and the residents of this unincorporated area. TBG developed an infographic for property owners and elected officials describing the project's net benefits.

Cost: $31,760

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	The Balmoral Group	Winter Park, FL	Prime
b.			
c.			
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f.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 16

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED 2013	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Coordinator / Program Officer **Southeast Florida Regional Climate Change Compact**	X	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT	c. POINT OF CONTACT TELEPHONE NUMBER
Southeast Florida Regional Climate Change Compact / Institute for Sustainable Communities		

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Supported collaboration between the 4 county and 40 local governments and other partners in the implementation of the Compact's Regional Climate Action Plan, including the design and development of thematic capacity building workshops/training in support of collaborative implementation, increased outreach and awareness of the role of local governments in climate change adaptation and provided support for coordinated development of local hazard mitigation plans

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	COUNTERPOINT	*MIAMI, FLORIDA*	COORIDNATOR
b.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
d.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
e.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
f.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **17**

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED 2013	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Technical coordinator **Identification and prioritization of a national climate resilient infrastructure investment plan for Belize**	2017	

23. PROJECT OWNER'S INFORMATION

e. PROJECT OWNER	f. POINT OF CONTACT	c. POINT OF CONTACT TELEPHONE NUMBER
World Bank / Belize Ministry of Finance	Procurement Unit	(202) 473-2222

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Technical coordinator and team leader for the development of a climate resilient national (road) infrastructure investment plan based on a climate and disaster risk vulnerability assessment for the road transport network. Stated objectives include enhancing the resilience of road infrastructure against flood risk and impacts of climate change; and improving the Belize's capacity to respond promptly and effectively in crisis or emergency

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	COUNTERPOINT	*MIAMI, FLORIDA*	PRIME / TECHNICAL COORDINATOR
b.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
d.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
e.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
f.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER
	18

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Development of Hydrological Model of Everglades National Park, Florida	2016	NA

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
National Park Service	Robert Johnson	305-224-7700

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Scope: The project developed an integrated surface and subsurface model integrated with drainage water management operations of the Everglades National Park (ENP) using MIKE SHE and MIKE 11 simulation platforms and including operation schedule of control structures. The model provides analysis of observed and computed timeseries of canal discharges, stages within the canals and domain. The main use of the model is to determine the impact of operation scenarios on subsurface and overland flow across ENP. The domain covers approximately 1225 mi2 west of L31N/C111 and south of L29. The model has a resolution of 400 m and includes 110 miles of canals, (L29, L31N, C111), the corresponding detention areas west of L31N and C111, and the control structures (implementing operations) within the model domain. The subsurface zone includes the soil layer and the Surficial Aquifer System. Daily timesteps were used for model simulations.Rainfall and potential evapotranspiration data used in the 2x2 SFWMM model were applied as boundary conditions. Observed groundwater table, canal discharges and water stages from 1980 to present were used as boundary conditions and for analysis of model performance.The main calibration period was 1987-1997 and included two extremely dry and two wet periods. The calibration criteria were based on timeseries response and probability exceedances and usede MATALB code to provide stochastic analysis and derive operating parameters. The model was most sensitive to hydraulic conductivities of the Surficial Aquifer System, Manning's number, and leakage coefficients describing canal/aquifer interactions. The model was used to provide analysis of various operational scenarios and to determine the impact on hydroperiods. The model was extended using coupled MIKE SHE/MIKE 11/ECOLAB to analyze the total phosphorus fluxes within the Everglades National Park. By coupling the hydrological cycle with total phosphorus and sediment transport the model provides a state of the art framework for analysis of the impact of water management strategies and operating plans on water and total phosphorus distribution. Additional field measurements provided details of the flow distribution north of Tamiami Trail and along the L-31N detention areas and total phosphorus measurements at selected transects.The focus was on the shallow subsurface and surface flow to the resources of the Park and delivered as source input through pumps, structures and culverts. Inputs via the S-12 structures, culverts and L-31N/C-111 pumps and structures. The project provided enhanced understanding of phosphorus cycling within ENP.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	GIT Consulting LLC	Coral Gables, Florida	Prime model developer
b.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
d.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
e.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
f.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER 19

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Engineering Services for Culvert Repair for Stormwater Treatment Area STA-1E. USACE	2016	2016

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
LJ Clark Construction Inc	Jonnah Allen	863-634-6049

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Scope: Provide engineering and environmental monitoring services within Stormwater Treatment Area (STA-1E) in Palm Beach County, Florida for the C-51 Project by USACE. STA-1E's domain includes more than 6,000 acres and 44 culverts with the objective to detain and treat stormwater runoff from the western portion of the C-51 basin that is collected in the West Palm Beach (C-51) Canal. GIT Consulting provides engineering services which include earthen and sheetpile cofferdam analysis, development of dewatering plans and environmental monitoring. The objective of the cofferdam stability analysis is to ensure safe construction and decommissioning. In addition the scope includes numerical modeling to determine the seepage rates, analyze the hydrologic conditions of site, dewatering plans to provide groundwater control. The objectives of the dewatering plans are to control surface and groundwater throughout construction toward or into excavations and dewatered canal areas, and continuously maintain water levels, as required below the lowest working level, to prevent sloughing of excavation and canal slopes, boils, uplift and heave in the excavation, and to eliminate interference with the construction and repairs, while meeting State Water Quality standards, and conserving the quality of surface and groundwater resources within the project site and its adjacent areas. The dewatering plans include site plans with containment structures and dewatering systems, background of the site including lithology, hydraulic properties, and water elevations, calculations, design and model of dewatering, planned turbidity controls and monitoring schedules, and contingency plan for off-site discharge. Dewatering operations represent a closed-loop system in which water is removed from the excavation area via dewatering, pumped to the area between the temporary cofferdam and turbidity barrier, and eventually seeps back into the excavation area through the earthen cofferdam. The services include review of site hydrogeology, dewatering sequence and design, dewatering alculations, erosion and turbidity control, offsite discharging contingence. In addition, the project provides wildlife bird monitoring service and Eastern Indigo Snake monitoring in accordance with specification by the USACE. The project demonstrates experience and understanding of the local water resources management and hydrology, drainage and water management infrastructure. Total fee for this project is approximately $200K.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	GIT Consulting LLC	Coral Gables, FL	Prime Contractor
b.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
d.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
e.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
f.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER
	20

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Hydrologic Modeling of West Miami Dade Reservoir for Phase II, Phase IIIA, Phase IIIB1	2016	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Kendal Investment Properties Inc	William Murphy	(954) 746-2221 X313

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

This project provides hydrologic analysis of the proposed Miami Dade Reservoir Project. The analysis used existing integrated surface and groundwater model which covers more than 1,226 square miles and it has been calibrated for the period of 1987 to 2010 using daily time stress periods. The model incorporates the full hydrological cycle including canals and structure operations. The integration of surface, groundwater, and canal operations is critical for a better understanding of the hydrology of the domain and for better understanding of the seepage through and under Levee L31N. The model has demonstrated the capability to determine variability in movement of groundwater from the Everglades in response to daily changes of hydrological events (such as changes of the operation schedules of adjacent structures and response to variable boundary conditions).The objective of this project was to determine the operational boundaries of the seasonal reservoir withdrawals, which are safe for the Everglades National Park (ENP) and the adjacent land, and do not impact the West Well Field withdrawals. For critical hydrologic conditions (such as lower stages within ENP, insufficient seasonal rainfall), the discharge rates from the reservoir were limited to avoid impacts on the water stages within ENP and excessive seepage in the eastern direction. The simulations provided understanding of the overall capacity of the reservoir on a seasonal basis and developed safe reservoir withdrawal rates which do impact ENP areas and L31N stages. Furthermore, the simulations provided information about the safe discharge capacities during each month. The primary conveyance system within Miami-Dade County was analyzed to determine potential routes for delivering the excess water from the reservoir to the Biscayne National Park. The analysis showed that the Core Mission Value of the reservoir is to capture excess water from L-31N during the wet season and to improve year-round flows to the Biscayne National Park. This reservoir adds capacity to help manage regional water supply through equalizing the seasonal fluctuations (collecting water during wet season, and discharging during the dry season) and excess water quantities can improve the hydroperiods of regionally significant wetland systems. In addition, the reservoir can be used for public use opportunities similar to other reservoirs in South Florida are C-51, L-8 in West Palm Beach.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	GIT Consulting LLC	Coral Gables, FL	Prime Model Developer
b.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
d.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
e.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
f.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL *(From Section E, Block 12)*	27. ROLE IN THIS CONTRACT *(From Section E, Block 13)*	28. EXAMPLE PROJECTS LISTED IN SECTION F *(Fill in "Example Projects Key" section below before completing table. Place "X" under project key number for participation in same or similar role.)*									
		1	2	3	4	5	6	7	8	9	10
Jannek Cederberg	Project Manager	X	X	X	X	X	X				
Jason Cummins	Coastal and Marine Engineer	X	X	X	X	X	X				
Gina Chiello	Environmental Scientist	X		X	X	X	X				
Jason Taylor	Marine Engineer	X		X		X	X	X			
Elizabeth Jones	Environmental Scientist	X	X	X	X	X	X				
Leonard Barrera	Coastal Engineer	X	X	X	X	X	X	X			
Theano Kampani	Coastal Engineer					X	X	X			
Jon Cunningham	Marine Engineer	X					X	X			
Jose Lopez	Civil/Environmental Engineer						X	X		X	
Alfredo Sanchez	Urban Planner						X	X	X	X	X
Tere Garcia	Public Involvement Officer						X	X	X	X	X
Frank Tejidor	Marine Engineer						X	X	X	X	X
Valerie Seidel	Economist										
Craig Diamond	Economist										
Alicia Barker	Economist										
Ephrat Yovel	Planner										
Georgio Tachiev	Environmental Engineer										
Mehrnoosh Mahmoudi	Environmental Engineer										

29. EXAMPLE PROJECTS KEY

NUMBER	TITLE OF EXAMPLE PROJECT *(From Section F)*	NUMBER	TITLE OF EXAMPLE PROJECT *(From Section F)*
1	Matheson Hammock Sea Level Rise Flood	6	MSC Ocean Cay Private Destinatio Island
2	NDWWTP Coastal Resiliency Study	7	Port of Miami 2035 Strategic Master Plan
3	Coco Plum Beach Restoration	8	City of Hollywood Master Plan
4	14th Street Stormwater Outfall and Seawall	9	Port Everglades 2018 Master/Vision Plan Update
5	Brickell Key Coastal Resiliency Study	10	City of New Orleans Neighborhood Rebuilding MP

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL *(From Section E, Block 12)*	27. ROLE IN THIS CONTRACT *(From Section E, Block 13)*	28. EXAMPLE PROJECTS LISTED IN SECTION F *(Fill in "Example Projects Key" section below before completing table. Place "X" under project key number for participation in same or similar role.)*									
		11	12	13	14	15	16	17	18	19	20
Jannek Cederberg	Project Manager										
Jason Cummins	Coastal and Marine Engineer										
Gina Chiello	Environmental Scientist										
Jason Taylor	Marine Engineer										
Elizabeth Jones	Environmental Scientist										
Leonard Barrera	Coastal Engineer										
Theano Kampani	Coastal Engineer										
Jon Cunningham	Marine Engineer										
Jose Lopez	Civil/Environmental Engineer	X							X	X	X
Alfredo Sanchez	Urban Planner	X									
Tere Garcia	Public Involvement Officer	X									
Frank Tejidor	Marine Engineer	X									
Valerie Seidel	Economist		X	X	X	X					
Craig Diamond	Economist		X	X	X	X					
Alicia Barker	Economist		X	X	X	X					
Ephrat Yovel	Planner						X	X			
Georgio Tachiev	Environmental Engineer								X	X	X
Mehrnoosh Mahmoudi	Environmental Engineer										

29. EXAMPLE PROJECTS KEY

NUMBER	TITLE OF EXAMPLE PROJECT *(From Section F)*	NUMBER	TITLE OF EXAMPLE PROJECT *(From Section F)*
11	Arch Creek Drainage Basin Outreach	16	Southeast Climate Compact Coordinator
12	Community Resiliency Analysis	17	Identification and Prioritization of a national climate
13	Orange County Stormwater Needs Assessment	18	Development of Hydrological Model of Everglades
14	St. Johns River Property Value Study	19	Culvert Repair for Stormwater Treatment Area
15	Economic Benefit Analysis	20	Hydrological Modeling of West Miami Dade Reservoir

ARCHITECT – ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*

PART II – GENERAL CONDITIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME **Cummins Cederberg, Inc.**		3. YEAR ESTABLISHED **2016**	4. DUNS NUMBER **962526153**
2b. STREET **50 S US Highway, Suite 308**		5. OWNERSHIP a. TYPE **Corporation**	
2c. CITY **Jupiter**	2d. STATE **FL**	2e. ZIP CODE **33477**	b. SMALL BUSINESS STATUS
6a. POINT OF CONTACT NAME AND TITLE **Gina Francesca Chiello, Project Manager**			7. NAME OF FIRM *(If block 2a is a branch office)* Cummins Cederberg
6b. TELEPHONE NUMBER **(561)-210-9330**	6c. E-MAIL ADDRESS **gchiello@CumminsCederberg.com**		
8a. FORMER FIRM NAME(S) *(If any)*		8b. YR. ESTABLISHED	8c. DUNS NUMBER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
2	Administrative	2	0
7	Biologist	3	1
1	CADD Technician	3	0
1	Marine Engineer	3	1
1	Coastal Engineer	4	0
	Total	1	

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C07	Coastal Engineering	1
C15	Construction Management	1
D08	Dredging Studies and Design	1
E09	Environmental Impact Studies	1
E10	Environmental & Nat. Res. Mapping	1
E11	Environmental Planning	1
G04	Geographic Info. System Services	1
H01	Harbors; Jetties; Piers, Ship Term	1
R11	Rivers; Canals; Waterways; Fld Ctrl	1
S09	Structural Design, Special Struc	1
S10	Flood Plain Studies, Mapping	1
T04	Topographic Surveying & Mapping	1

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	1
c. Total Work	1

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE	b. DATE June 7, 2018
c. NAME AND TITLE Jannek Cederberg, President	

ARCHITECT – ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*

PART II – GENERAL CONDITIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. DUNS NUMBER
Cummins Cederberg, Inc.			**2010**	**962526153**
2b. STREET			5. OWNERSHIP	
7550 Red Road, Suite 217			a. TYPE	
2c. CITY	2d. STATE	2e. ZIP CODE	**Corporation**	
South Miami	**FL**	**33143**	b. SMALL BUSINESS STATUS	
6a. POINT OF CONTACT NAME AND TITLE			CBE (small business with Dade County)	
Jannek Cederberg, President			7. NAME OF FIRM *(If block 2a is a branch office)*	
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS			
(305) 741-6155	**jcederberg@CumminsCederberg.com**			
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. DUNS NUMBER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
2	Administrative	2	2
7	Biologist	3	2
8	CADD Technician	3	3
	Marine Engineer	3	2
	Coastal Engineer	4	4
	Total	15	13

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C07	Coastal Engineering	2
C15	Construction Management	1
D08	Dredging Studies and Design	1
E09	Environmental Impact Studies	1
E10	Environmental & Nat. Res. Mapping	1
E11	Environmental Planning	1
G04	Geographic Info. System Services	1
H01	Harbors; Jetties; Piers, Ship Term	1
R11	Rivers; Canals; Waterways; Fld Ctrl	1
S09	Structural Design, Special Struc	2
S10	Flood Plain Studies, Mapping	2
T04	Topographic Surveying & Mapping	1

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	3
c. Total Work	4

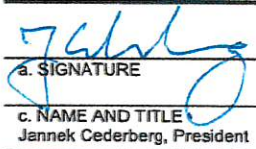
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE: June 7, 2018

c. NAME AND TITLE: Jannek Cederberg, President

Tab C: Profile of Consultant

CUMMINS | CEDERBERG
Coastal & Marine Engineering

CUMMINS | CEDERBERG
Coastal & Marine Engineering

PROFILE OF CONSULTANT

General Information

Company Name: Cummins Cederberg, Inc.
Company Type: Corporation
Primary Contact: Jannek Cederberg, M.Sc., P.E., President
Primary Entity Responsible for Project: Cummins Cederberg, Inc.

Office Locations – Prime Consultant

Cummins Cederberg (Work will be performed jointly between Miami and Jupiter office)

- Main Office
  Location: 7550 Red Road, Suite 217 South Miami, Florida 33143
  Number of Employee: 15
    - Engineering Department: 8
    - Environmental Department: 2
    - Corporate: 2
    - Part-time: 3

- Branch Office
  Location: 50 S US Hwy 1, Suite 308, Jupiter, Florida 33477
  Number of Employee: 2
    - Engineering Department: 1
    - Environmental Department: 1

Office Locations – Sub-Consultants

- Bermello Ajamil & Associates, Inc.
  Contact: Mr. Jose Lopez, P.E.
  Location: 900 SE 3rd Ave # 203, Fort Lauderdale, FL 33316

- The Balmoral Group
  Contact: Ms. Valerie Seidel
  Location: 165 Lincoln Ave, Winter Park, FL 3278

- GIT Consulting LLC
  Contact: Georgio Tachiev
  Location: 2665 S Bayshore Dr Suite 220, Coconut Grove, Florida 33133

- Counterpoint CS, LLC
  Contact: Ephrat Yovel
  Location: 12973 SW 112 Street, Suite 351, Miami, FL 33186

Cummins Cederberg

Cummins Cederberg is a professional engineering firm uniquely specialized in the coastal and marine environment. All of the firm's work occurs within this discipline from the main office in Miami-Dade County (County) and the support office in Palm Beach County. We are a certified Community Business Enterprise (CBE) as part of the Miami Dade County small business program.

The firm includes a mixed staff of engineers and marine scientists ensuring we can lead and perform all aspects of coastal and marine projects. We are fully geared to conduct environmental and engineering field investigations requiring boats, GPS, hydrographic surveying equipment, SCUBA equipment, tide and current measurements. We also routinely use advanced engineering software, to conduct numerical modeling, including CAD, ARCGIS, RAM Structural Analyses, and MIKE21 coastal modeling. In fact, our firm has developed a unique hurricane model simulating the storm surge and wave conditions in Broward County including the entire shoreline of the City of Hollywood.

The firm was founded by Mr. Jason Cummins, P.E. and Mr. Jannek Cederberg, P.E., and over the course of 8 years has successfully grown and been established as the leading engineering firm for complex coastal and marine engineering projects in Florida and the Caribbean. The company is repeatedly selected ahead of larger national engineering firms due to the unique and focused qualifications. The firm's success is built on providing high quality work in a transparent manner in order to build long term relationships. The two founders have extensive experience in the coastal and marine environment in the U.S. and the Caribbean, from both private and public clients. They have been involved in more than 500 coastal and marine engineering projects in Florida and the Caribbean (some of the largest in the region) providing unmatched knowledge and experience. Both founders will remain highly involved in all work related to this contract.

No other firm has more coastal and marine engineers on staff in Southeast Florida. This means work is done by engineers familiar with Hollywood and directly accessible to the City.

Similar Municipal Projects Performed the last Four Years

Matheson Hammock Sea Level Flood Mitigation Study
Client: Miami-Dade County Parks, Recreation and Open Spaces
Contact Person: Mr. Jose A. Gonzalez P.E.
Phone: 305-755-7833
Scope: Data compilation, condition assessment, environmental resources assessment, topographic map based on LIDAR data, sea level projections, coastal resiliency assessment, storm surge evaluation, water level analysis, adaptation concepts, permitting feasibility, operational impacts, sea level rise strategy, implementation plan, financial estimates.

Miami-Dade County North District Wastewater Treatment Plan Coastal Resiliency Study
Client: Brown & Caldwell for Miami Dade County Water & Sewer
Contact Person: Ms. Jennifer Leone
Phone: 561-515-6249
Scope: A technical assessment of design conditions was conducted relative to the North District Wastewater Treatment Plant (NDWWTP) to evaluate sea level rise and storm surge impacts as part of the Ocean Outfall Legislation. Global and local sea level rise projections were reviewed relative to application, uncertainty and service life of infrastructure.

An evaluation of storm surge impacts was conducted. Historical records along with published data and studies were reviewed relative to application and validity. Relevant data was reviewed, including information regarding historical storm tides in the vicinity, historical hurricane tracks, approach angles, wind direction variations and relationship between storm tide levels and wave impacts. The analysis indicated hurricanes with specific characteristics will cause a higher level of storm tide at NDWWTP and the design hurricane identified. A desktop study was conducted to preliminarily estimate the 100-year storm tide level for the NDWWTP. The preliminary analysis indicated an alternative flooding scenario may exist apart from a direct hit near NDWWTP, which were further analyzed through numerical modeling.

Site specific conditions were reviewed relative to their effect on storm tide and associated processes, such as existing mangrove habitat. The probability of events with various return periods were estimated relative to varying service life allowing the Client to make informed decision regarding the design and service life.

Brickell Key Island Coastal Resiliency Study
Client: Miami Dade County Water & Sewer through Brown & Caldwell
Contact Person: Mr. Daniel Ponce
Phone: 305-358-9892

Cummins Cederberg assessed the existing shoreline and infrastructure of Brickell Key in downtown Miami in order to understand the effects of sea level rise on normal and extreme conditions (i.e. hurricanes). An inspection of existing coastal infrastructure was conducted to identify vulnerable areas. The entire island perimeter was assessed to address all areas. Analysis sea level rise and extreme tide events were conducted to understand water level design conditions. The potential for increased storm impacts was assessed. Recommendations for long term planning was provided along with mitigation options. Construction documents and environmental permitting was conducted for the design. The design focused on adapting existing infrastructure to provide a cost effective solution.

14th Street Stormwater Outfall and Seawall Project
Client: City of Miami Beach (through Bergeron and BCI)
Contact Person: Mr. Michael Betancourt
Phone: 954-640-4400

As part of the overall improvements associated with the Miami Beach Stormwater Master Plan, new pump stations and outfalls were proposed at the 14th street end to facilitate the discharge of water collected through the upland stormwater system. Cummins Cederberg was retained by the Contractor to assist during construction with the engineering design of the position and support of the 60" outfall through the existing seawall. Due to the accelerated schedule to meet fast approaching king tides, Cummins Cederberg also provided construction engineering support during implementation of the design to ensure varying conditions encountered in the field could be addressed quickly.

The existing seawall consisted of a lightly reinforced concrete retaining wall supported by timber piles. A large cut in the seawall was made to below the invert of the outfall pipe to accommodate the eschewed alignment. The large outfall pipe was then supported by several pin pile sand concrete foundation. Ultimately a new reinforced concrete collar was placed around the pipe to secure the location and retain backfill.

As a result of the seawall age, limited cap elevation, number and size of existing outfalls, as well as a proposed additional outfall of large size a new seawall was proposed for the shoreline. Cummins Cederberg has since designed a new concrete seawall to meet the recently specified higher cap elevations associated with the increasing sea level rise. In addition, the seawall was designed with appropriate specifications to accommodate the new stormwater outfalls, and provide a similar level service life as the new stormwater system.

Litigation

Cummins Cederberg has not been involved in any litigation.

ORGANIZATION CHART AND KEY STAFF MEMBERS

The Cummins Cederberg team for this project is comprised of experienced and knowledgeable engineers, scientists, public outreach specialists, sea level rise and resiliency experts and other proven technical and administrative support professionals. The Cummins Cederberg team offers skills and expertise in the full range of services required by the City of Hollywood to complete the project.

We believe the most important aspect of any project is creating a team that involves the right people. People who are familiar with the client, experienced in their proposed role, and willing and readily available to perform the work requested. With this in mind, we carefully selected our team members to offer the City of Hollywood a comprehensive, experienced, and eager team that is

standing by ready to complete the project on time and on budget. We provide a local team dedicated to providing the necessary resources in close proximity to the City 's operations, which enables fast, responsive service.

Our team will be led by Jannek Cederberg as Principal-in-Charge, Jose Lopez as our proposed Deputy Project Manager for the Design. Mr. Cederberg has over 15 years of in-depth experience in project management and in dealing with complex environmental and engineering projects.

An organizational chart, which include their role and responsibilities is attached along with the resumes of our key team members.

Key Personnel - Cummins Cederberg Team

Jannek Cederberg, M. Sc., P.E.

As Principal, Mr. Cederberg is responsible for all engineering production including scheduling, resource allocation, and quality management. Mr. Cederberg has extensive experience in planning, designing and permitting coastal and marine development projects with an emphasis on achieving a waterfront experience characterized by a strong connectivity between the water and upland environment. Mr. Cederberg is formally trained as a coastal engineer from the Technical University of Denmark with more than 15 years of experience in marine field investigations, hydrodynamics, linear and nonlinear wave dynamics, sediment transport, hurricanes, numerical modeling, coastal structure design and environmental permitting. He is a registered professional engineer in the United States and has completed engineering analyses, designs and permitting for a variety of shore protection, beach nourishment, riverfront, cruise-ship, marina and waterfront projects throughout Florida, the Caribbean and Central America. He has prepared construction plans and specifications for shore protection works including jetties, beaches, groins, revetments, breakwaters, bulkheads and marinas. Additionally, Mr. Cederberg has been selected to participate in several expert groups to develop industry guidelines.

Mr. Cederberg is originally from Denmark and earned his Master's degree in coastal engineering from the Technical University of Denmark. Prior to relocating to Miami 15 years ago, he worked in Denmark for the international consulting firms Cowi and the Carl Bro Group (now named Sweco) in their respective coastal and marine engineering departments. During his graduate studies, he also spent time at the Danish Hydraulic Institute - now named DHI Water & Environment (developer of the MIKE21 coastal software). Prior to cofounding Cummins Cederberg, Mr. Cederberg served as Head of the Engineering Department for a medium size engineering firm in Miami. Mr. Cederberg is a registered Professional Engineer in the State of Florida.

Mr. Cederberg has extensive experience in study the effects of climate change and develop strategies to adapt. Most recently he led a team conducting a Sea Level Rise Flood Mitigation Study for Miami-Dade County. The scope of work for that study is almost the identical to the scope of work as proposed as part of this RFQ. The study received great praise for connecting complex studies into hands-on realistic and function design solutions as well as providing a clear path for the County relative to design, planning and cost. The study was subsequent utilized as template for other municipalities, who are also pro-actively dealing with climate changes. Mr. Cederberg is currently leading a team analyzing the resiliency of the entire Town of Bay Harbour, Miami-Dade County, which is facing similar challenges as the City of Hollywood. Mr. Cederberg was instrumental in developing climate change strategies and preparing adaptation design for Brickell Key, an island community in Biscayne Bay. Common for these projects is the guiding principle of providing strategies that can be implemented. A principle developed through years of practical design experience.

Mr. Cederberg also has extensive experience in analyzing coastal resiliency. He has conducted hurricane modeling for more than 15 years in Florida and throughout the Caribbean creating flood maps and determining base flood elevations. He is regularly consulted on FEMA flood maps and building requirements relative to flood insurances and impacts from climate changes. He has extensive experience with the shoreline of Broward County and particularly the City of Hollywood, as served as lead senior engineer for the last beach nourishment project. Mr. Cederberg managed numerous projects for waterfront condominium associations and has successfully navigated through their desire of increase resiliency, while maintaining a functional waterfront, e.g. for boating or kayaking.

Jason Cummins

Mr. Cummins, Principal and co-founder of Cummins | Cederberg, is a Coastal Engineer by trade with significant experience in the planning, engineering design and environmental permitting of coastal and waterfront development projects in Florida, the Caribbean and Central America. Mr. Cummins is a registered Professional Engineer in the United States with experience ranging from inception to construction, including: field investigations, inspections, feasibility studies, marine resources, regulatory permitting, cost estimates, comprehensive coastal engineering analyses, numerical modeling, engineering design, construction drawings, technical specifications and construction oversight. Mr. Cummins has designed shoreline stabilization and coastal structures including steel sheet pile walls, fixed and floating docks, breakwaters, groins, jetties, and wave attenuators.

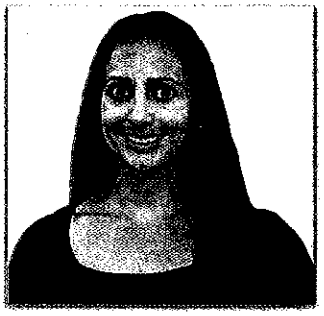
Mr. Cummins, a native Floridian and avid boater, has resided most of his life along the waters of Southeast Florida, and is intimately familiar with the local environment. He earned his Bachelor's and Master's degrees in civil and coastal engineering from the University of Florida and has been

practicing in South Florida since. Prior to cofounding Cummins Cederberg, Mr. Cummins served as Manager of the Coastal and Marine Engineering Group for a medium size engineering company in Miami. Mr. Cummins is a registered Professional Engineer in the State of Florida.

Mr. Cummins is proficient in the application of numerical models, including the Danish Hydraulics Institute (DHI) MIKE-21 suite of numerical modeling tools, to simulate coastal processes including tidal hydrodynamics, wave propagation, sediment transport, hurricanes and storm surge. He has applied these tools to simulate potential hurricane impacts and wave propagation to develop coastal design criteria for proposed coastal developments. Additionally, Mr. Cummins is experienced with structural analysis tools, such as CWALSHT and RAM Elements, along with applicable Federal, State and local design codes.

Mr. Cummins served as engineer of record for several seawalls and pump station outfalls for the City of Miami Beach, as part of their recent flood improvement projects. He has been leading the design and construction of coastal resiliency improvement project for Brickell that Cummins Cederberg recently completed. Mr. Cummins analysis and design experience along with construction expertise will be a critical component in determining baseline conditions and understanding vulnerability of the City as well as implementation and cost.

Gina Chiello



Ms. Chiello has over 8 years of experience in the field of environmental monitoring, assessment, planning and regulatory permitting at the local, State and Federal levels. She is able to quickly evaluate complex scientific information and communicate it to lay leaders for decision-making purposes. Prior to joining Cummins Cederberg, Ms. Chiello worked with the Florida Department of Environmental Protection (FDEP) as a Project Manager for the Submerged Lands and Environmental Resources Program (SLERP) and as a Senior Project Manager/Marine Biologist in the private sector. Currently, Ms. Chiello manages large scale complex coastal projects with a focus on coastal and environmental permit processing. Her project management responsibilities include budget tracking, coordination and review of resource assessments, project design plans, and other technical/legal data required to obtain environmental permits. Ms. Chiello has successfully obtained environmental approvals and permits working directly with the staff of Federal, State and Local agencies including the National Marine Fisheries Service (NMFS), U.S. Army Corps of Engineers (USACE), FDEP, and other local government agencies for a variety of coastal and marine type projects. Experience also includes application of Coastal Construction Control Line (CCCL) Permits, Joint Coastal Permits, Environmental Resource Permits/Licenses, preparation of Biological/Environmental Assessments, Feasibility and Due Diligence Reports,

UMAM documentation, and Biological and Marine Resource Surveys relative to environmental regulation.

Ms. Chiello extensive experience in the regulatory permitting will be critical in developing strategies that can be permitted as well as understanding where current code provides excessive constrains for the City relative to adapting to climate changes, so the City can act accordingly. She was a key member of the Cummins Cederberg team that provided a similar vulnerability and adaptation study for Miami Dade County.

Jose Lopez, P.E., PMP

Mr. Jose Lopez has over thirty three years of in-depth experience in project management, watershed management, stormwater management and flood control, permitting, water supply, wastewater treatment, and reuse, resiliency and sea level rise, best management practices for water quality improvement and Everglades restoration. Before joining B&A, Mr. Lopez was the Project Manager, and Engineer-of-Record for a couple of City of Hollywood projects under the Water Main Replacement Program as well as several Stormwater and utilities projects with the Seminole Tribe Hollywood Reservation. Mr. Lopez was also Lead Project Manager at the SFWMD, Broward Service Center, and the Vice President of a local manufacturing company, where he was responsible for the successful selection, development, implementation and engineering of civil engineer projects.

For the past decades, Mr. Lopez has been an active member of the Broward County Technical Advisory Committee and he has been involved in sea level rise and sustainability issues in Broward County. As a member of the Broward County Climate Change Task Force, which was formed by Broward County and the SFWMD in the late 2000s, he was also involved in determining what infrastructure(s) could be at risk from the effects of climate change and in developing coordinated adaptation strategies into long-term planning processes. Mr. Lopez also provided extensive input to the Broward County Climate Change Action Council and the Broward County Sea Level Rise Task Force. Both groups have released studies examining ways Broward County can both respond to and reduce the risks associated with climate change. The City of Hollywood also worked with the Broward County Department of Environmental Protection during their formation of BC Task Force, which establishes official sea-level rise projections and requires the consideration of climate risk in permit and funding applications and facility-siting regulations.

Mr. Lopez's public outreach involvement with Broward County issues also includes attending Everglades Working Group meetings, Broward County Surface Water Coordination meetings, Broward County Task Force meetings, and South Florida League of Utilities Council meetings. In the past, he presented Know-The-Flow seminars and currently he participates regularly in outreach events like such as Earth Day, Water Matters Day, Naturescape, and Adopt-a-Waterway. Mr. Lopez has facilitated pre-storm emergency operation teleconferences with 298 water control districts and other stakeholders and has facilitated Water Conservation Savings Incentive Program and Alternative Water Supply grant meetings. To promote the dissemination

of knowledge, Mr. Lopez has assisted Broward County staff with the organization of Water Academy events and similar workshops for elected officials and other stakeholders to provide current information concerning County water resource issues. As a President elect and President of the ASCE Broward Branch, Mr. Lopez chaired a Reuse Symposium and a Reuse Workshop as well several Tri-County Workshops conducted in Broward County in partnership with Palm Beach and Miami-Dade Branches to discuss common issues in the tri-county area, including climate change and sea level rise.

Alfredo Sanchez, Lead Planner

Alfredo C. Sanchez AIA AICP, our team's Lead Planner and urban designer, is a Florida-registered architect, AICP-certified planner and LEED Accredited Professional with over 40 years of experience. Alfredo brings a unique level of urban planning, architecture, urban design and construction experience to the project. His understanding of approach and methodology and his wide range of experience in all fields related to the natural and built environment make Alfredo a natural to understand and address the complex scenario development issues. Having been B&A Project Manager and lead urban designer for the City of Hollywood City Wide Master Plan, Alfredo has a thorough understanding of the City of Hollywood urban form, the relationship of the different functional areas, its roadway infrastructure and the natural and manmade systems that comprise the metropolitan area. His incisive thoughts and creative ability have allowed him to prepare different and varied large scale successful urban projects such as "The Moss Plan" which provided the reconstruction blueprint for a number of the Hurricane Andrew ravaged South Miami-Dade County neighborhoods; urban design plans for new towns in the Republic of Panama, the urban design plans for a new Downtown in Palmetto Bay; the development of the MDX Strategic Master Plan; and the creation of specific neighborhood plans among others. Alfredo is experienced in directing and working with large scale reconstruction projects such as the New Orleans Neighborhoods Rebuilding Plan which dealt with the reconstruction of the 49 Hurricane Katrina flooded neighborhoods of the City of New Orleans; and the preparation of city-wide Master Plans as exemplified by the City of Hollywood City Wide Master Plan. Most of all these projects dealt with numerous stakeholders and hundreds of community and neighborhood presentations.

Craig Diamond, M. Sc.

Craig Diamond (35 years' experience) is Regional Manager, Economics, and Senior Economist for The Balmoral Group. His focus is in the areas of local and state environmental policy; environmental resource economics; and environmental, transportation and land use planning. He is an experienced project manager and an academician, as research faculty and instructor in environmental science, environmental planning and ecological economics. He has been admitted by the Florida Division of Administrative Hearings as an expert witness in the following areas: environmental

planning, comprehensive planning, wetlands science, water resources planning, and water resources science. Mr. Diamonds experience in connecting engineering studies with economics will be key component of developing long term adaptation strategies for the City.

Ephrat Yovel

Ephrat Yovel is an AICP-certified planner with more than 18 years of experience in urban and regional planning. Her work fuses climate resilience, disaster risk reduction and biodiversity conservation for a systems approach through ecological, economic, organizational, and social considerations to foster community sustainability and economic prosperity.

Before founding Counterpoint, Ephrat worked in both the private sector and government. Her experience in planning, management and operations includes a host of challenging contexts in the Caribbean, North Africa, the Middle East, Central and Southeast Asia and the US. She is also past co-chair of the Technical Working Group on Urban Planning for UNISDRs Making Cities Resilient Campaign, and a current working group member of the Southeast Florida Regional Climate Change Compact's Shoreline Resilience Working Group.

Ephrat holds a Bachelor's in Landscape Architecture from Michigan State University, a Master in Design Studies in Landscape, Planning and Ecology from Harvard University, and a MBA from Henley Business School at the University of Reading.

Comparable experiences to Hollywood's Citywide Vulnerability Assessment and Adaptation Plan include the Climate risk and vulnerability assessment in 5 towns (Chennai, Coimbatore, Tiruchirappalli, Tirunelveli and Vellore) in India for the development and the development of adaptation investment packages; The Identification and prioritization of a national climate resilient transport infrastructure investment plan for Belize based on a climate and disaster risk vulnerability assessment; and the development Adaptation opportunity pathways for infrastructure investment in the urban/coastal zone in Albania.

Georgio Tachiev, P. hd., P.E.

Georgio Tachiev, is a professional Engineer in the State of Florida and holds a Ph.D. degree in Water Resources and Environmental Engineering. He has 27 years of experience in a broad range of projects which cover water resources, civil and environmental engineering, H&H modeling and spatial analysis with GIS technologies. He has been providing consulting services for Miami Dade County and is the engineer on record for the currently being updated Storm Water Master Plan of Miami Dade County. For this update he has developed a set of H&H models which are used to determine the performance of the current infrastructure for potential sea level rise for years

2035, 2065 and 2100. He is additionally a consultant for the National Park Service. For this project he has developed an integrated surface and ground water model for the Everglades National Park which covers more than 2,500 square miles and provides analysis of water management alternatives which affect Miami Dade and Broward counties. He has been involved as a lead developer of numerous models in many projects which provide analysis of changes in the hydrology within Florida caused by man-made, natural and climatic changes.

Organization of Proposed Team

Our team is uniquely qualified for this project with comprehensive experience in all required disciplines. Our team is ready to provide, and experienced in providing the services required for tasks outlined in the RFQ, as outlined in the below table:

Services	Cummins Cederberg	Bermello Ajamil & Partners	The Balmoral Group	Counterpoint CS	GIT
A. Beach/ Marine/ Intracoastal Waterway Engineering Services	✓	✓	✓		
B. Environmental Engineering Services	✓	✓			
C. Planning	✓	✓	✓	✓	
D. Sea Level Rise	✓	✓	✓		✓
E. Modeling / GIS	✓		✓		✓
F. Vulnerability Assessment	✓	✓	✓		✓
G. Financial / Benefit - Cost Analysis			✓		
H. Prioritize Vulnerabilities and Responses w/ Quantitative and Qualitative Factors	✓		✓	✓	
I. Develop Context-Appropriate Adaptation Strategies	✓	✓	✓	✓	
J. Adaptation Planning	✓	✓	✓	✓	✓
K. Public Outreach / Public Meetings	✓	✓		✓	
L. Additional Services	✓	✓		✓	✓

Anticipated Municipal Staff Support

For a successful project, our team anticipates support primarily from the following City Departments: Sustainability; Public Works; Public Utilities; Planning; Parks, Recreation & Cultural Arts. Other City Departments such as Finance and IT may be expected to provide important information as well.

Approach to Performing the Work

Please refer to attached Approach.

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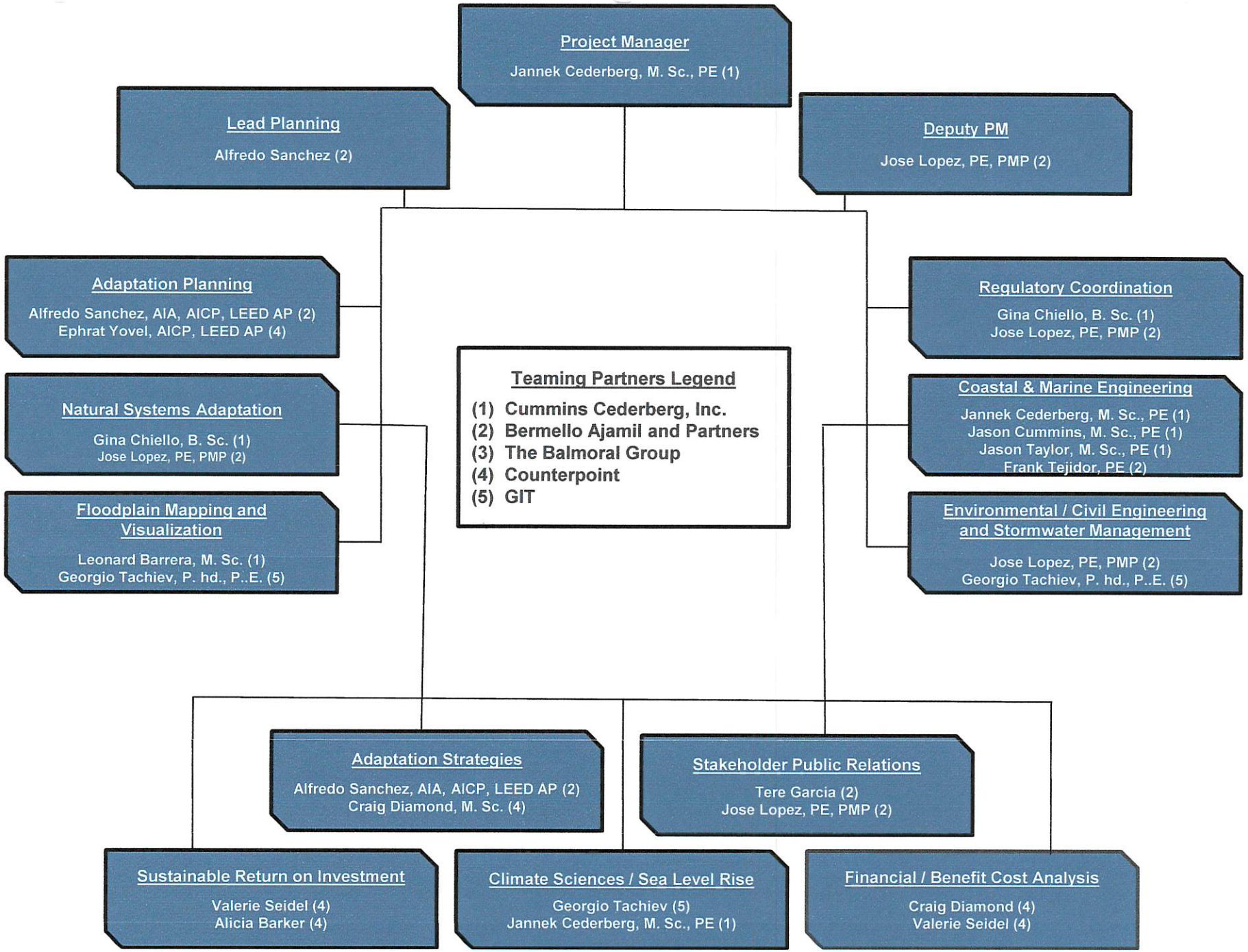

Project Manager
Jannek Cederberg, M. Sc., PE (1)
Lead Planning
Alfredo Sanchez (2)
Deputy PM
Jose Lopez, PE, PMP (2)
Adaptation Planning
Alfredo Sanchez, AIA, AICP, LEED AP (2)
Ephrat Yovel, AICP, LEED AP (4)
Natural Systems Adaptation
Gina Chiello, B. Sc. (1)
Jose Lopez, PE, PMP (2)
Floodplain Mapping and Visualization
Leonard Barrera, M. Sc. (1)
Georgio Tachiev, P. hd., P..E. (5)
Teaming Partners Legend
(1) Cummins Cederberg, Inc.
(2) Bermello Ajamil and Partners
(3) The Balmoral Group
(4) Counterpoint
(5) GIT
Regulatory Coordination
Gina Chiello, B. Sc. (1)
Jose Lopez, PE, PMP (2)
Coastal & Marine Engineering
Jannek Cederberg, M. Sc., PE (1)
Jason Cummins, M. Sc., PE (1)
Jason Taylor, M. Sc., PE (1)
Frank Tejidor, PE (2)
Environmental / Civil Engineering and Stormwater Management
Jose Lopez, PE, PMP (2)
Georgio Tachiev, P. hd., P..E. (5)
Adaptation Strategies
Alfredo Sanchez, AIA, AICP, LEED AP (2)
Craig Diamond, M. Sc. (4)
Stakeholder Public Relations
Tere Garcia (2)
Jose Lopez, PE, PMP (2)
Sustainable Return on Investment
Valerie Seidel (4)
Alicia Barker (4)
Climate Sciences / Sea Level Rise
Georgio Tachiev (5)
Jannek Cederberg, M. Sc., PE (1)
Financial / Benefit Cost Analysis
Craig Diamond (4)
Valerie Seidel (4)

UNDERSTANDING OF PROJECT SCOPE – THE CUMMINS CEDERBERG APPROACH TO VULNERABILITY ASSESSMENT AND ADAPTIVE MANAGEMENT

Climate change is a many-faceted challenge for the coastal communities in South Florida such as City of Hollywood due to its ocean frontage and associated waterways, as well as its extensive stormwater canal and lake systems. With a relatively low elevation, the City of Hollywood is directly exposed to several climate change impacts.

Sea level rise often receives the most attention in South Florida of the impacts from climate change, as sea level rise will change daily life and normal sea level elevation often sets the baseline on how we deal with extreme events. However, climate change will also impact other extreme events such as storm surge, extreme heat event, extreme precipitation and associated inland flooding.

These other components of climate change will affect almost all aspects of a community (environmentally, socially, financially, operationally, physiologically, etc.), and any vulnerability assessment and adaptive management response needs to be developed in cooperation with the City staff, elected officials and local residents to ensure that all components of vulnerability are identified, quantified, and addressed. An adaptation plan should be based on the community goals associated with these considerations and supported by science, engineering, urban planning, and financial resources.

Our team has successfully performed similar projects on a large scale for Miami-Dade County, and for other South Florida communities, other countries facing similar challenges, island communities (including the Caribbean), and for large development projects . From our work with diverse communities, we understand both the financial and operational concerns of residents when implementing difficult, but well-meant public initiatives. These instances have given our team the necessary hands-on experience implementing solutions in the context of not only engineering and permitting constraints, but also community-level planning opportunities.

The aesthetics of South Florida's natural environment is a main reason many have stayed in or originally moved to the area in the first place. Adaptation to climate change presents a practical response to ensuring that the City of Hollywood will continue to attract, keep and protect its residents. Those strategies are best handled by a team that understands not only South Florida's lifestyle and physical environment, but also developing solutions here.

THE CUMMINS CEDERBERG PERSPECTIVE AND APPROACH IN A NUTSHELL

- **Climate and Extreme Weather is Part of South Florida's Identity:** Planning and implementing adaptation strategies to against climate change is a challenging task; however, living with and planning around water and extreme weather events are already an integral part of living in South Florida, as the impacts of hurricanes such as storm surge, waves, increased flow, erosion, and extreme rain and heat events are all taken into consideration with any project. Climate change and in particular sea level rise are additional components to be considered and although future predictions of the exact magnitude and rate still contain uncertainty in the long term, the various predictions can be incorporated into the design and planning.

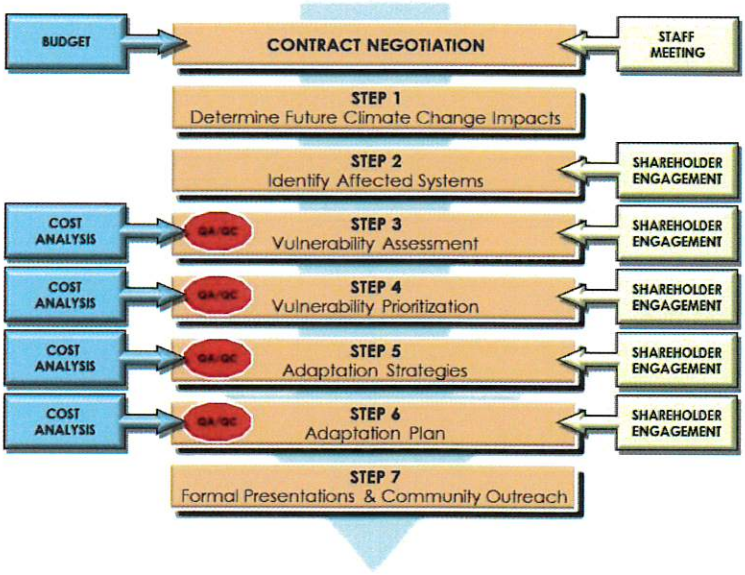
- **Pragmatic and Informed Infrastructure Maintenance and Replacement:** Adaptation to climate change is often viewed as a monumental task and a one-time solution with an astronomical price tag. However, due to both ambient environmental conditions and occasionally extreme weather, infrastructure in South Florida (e.g. seawalls, roads, sewer systems, and undergrounding of utilities), does not last 100+ years and requires frequent maintenance and occasional replacement. Many of these structures have a service life within a range where it is possible to plan for climate change more accurately and with limited additional financial cost. For example, raising a seawall to address sea level rise or raising roads by 6-12 inches to accommodate high tides during their service life are both limited incremental costs if these structures are already scheduled for replacement. Each infrastructure project is an opportunity for climate change adaptation at potentially low cost but an overall decision-making framework and plan need to be in place.

- **Understanding of Infrastructure Conditions and Service Life:** For proper planning of infrastructure work and long-term strategies relative to climate change, it is therefore critical to understand the condition and service life of infrastructure, climate change predictions and uncertainty, adaptation options, as well as operational and financial impacts. A better understanding of these aspects will form the basis for longer term urban planning and codes, such as minimum elevation requirements, which may increase over time. A minimum requirement would be tied into the overall infrastructure plan for an area, which will depend on the condition.

- **Incorporate and Communicate Planned Adaptation Strategies:** Once the City develops clear short and long-term strategies based on priorities and budgets, residents, businesses, and developers can plan accordingly, e.g. to projected increased minimum elevations; however, it is critical for them that the City is clear and open in their strategies.

PROPOSED APPROACH

The City has already developed a comprehensive outline for the scope of services, which is very similar to the approach we have used on similar projects for other communities. The following diagram summarizes our team's approach based on the City's scope of services. The exact level of details of the scope of work will be discussed with City staff based on budgets and already identified potential needs.



STEP 1 – DETERMINE FUTURE CLIMATE CHANGE IMPACTS

For the past few years, the City of Hollywood, along with Broward County and other local municipalities and organizations, has been dedicated to understanding the potential environmental impacts that are associated with climate change and climate variability in South Florida. As a result, there is an extensive body of work detailing existing conditions and identifying sea level rise projections and their associated impact available for review.

This baseline assessment will include, but not be limited to, elevations, localized sea level rise projections, variations in groundwater levels, storm surge modeling including sea-level rise and flood-prone areas, areas of concern identified by the Stormwater Master Plan, existing water management infrastructure, and assessments of property value and land use.

The deliverable during this step will be a technical, internally-focused report intended to build upon existing work already completed by Broward County and the City of Hollywood.

Our team is experienced in converting large bodies of literature into a fit-for-purpose synthesis. As shown by the following projects, we compile available information, including existing survey data, LIDAR, GIS, topographic information, as well as site conditions and engineering analysis as one of the first steps during the assessment phase to establish a clear baseline for scenario-based planning:

- Beach Resiliency Study, for Cocoplum Beach (City of Marathon);
- the City of Coconut Creek Master Plan;
- the Sea Level Rise Flood Mitigation Study for the 640-acres Matheson Hammock Park (Miami-Dade County);
- Coastal Resiliency Analysis for Martin and Okaloosa Counties (DEO); and
- Prioritizing Total Maximum Daily Loads (TMDLs) Using Seagrass Habitat Vulnerability to Sea Level Rise,

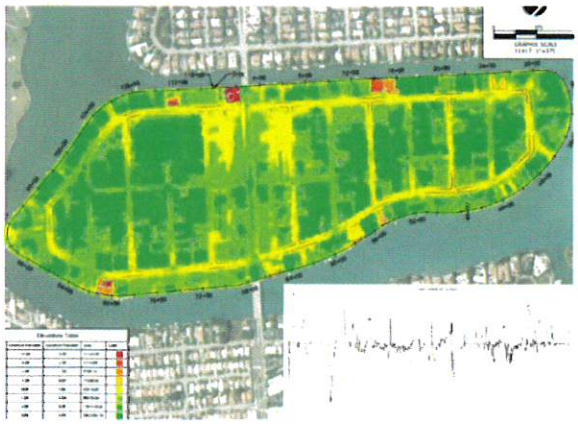
STEP 2 – IDENTIFY AFFECTED SYSTEMS

Based on the future climate change impacts determined under Step 1, the various components that are either directly or indirectly affected can be determined. Since impacts in one area may oftentimes impact other areas environmentally, socially, financially or operationally, this portion is critical in order to understand interrelated systems and subsequent prioritization (refer to Step 4).

Our planning team is intimately familiar with Hollywood as part of our existing and continuing service planning contract as well as past experience with the City; therefore we already understand operational, social, and economic connections along with the City's long-term goals. In addition, we are familiar with the Southeast Florida Regional Climate Change Compact of which the City is a Municipal Representative.

STEP 3 – VULNERABILITY ASSESSMENT

Once the background information and baseline assessment are completed during the evaluation of future climate change impacts (Step 1) and the systems to be assessed have been identified (Step 2), our team will conduct a vulnerability assessment in order to aid in the decision making of the next course of action.



In this phase, our team will work with City staff and other stakeholders to assist the City decision-makers in evaluating the cumulative vulnerabilities that sea level rise, storm surge, extreme heat, and extreme precipitation pose to the City's population and public assets such as transportation, water supply, wastewater and storm water management systems, as well as public lands, shorelines, the environment, and public safety within the context of vulnerability assessment.

A critical component of the vulnerability assessment will be the condition assessment, as the "low hanging fruit" may be areas that already require extensive work due to age and deterioration. We will work with City staff relative to existing maintenance logs and condition surveys to develop a

comprehensive understanding of the infrastructure throughout the City. As mentioned previously, an integral component of a sound sea level adaptation strategy is to take advantage of already planned maintenance or replacement element when implementing adaption solutions. The condition assessment will be the foundation of that.

We have extensive experience with assessing vulnerability in the City and the region. We have completed several FEMA flood map studies in Hollywood and Broward County as well as have experience from recent beach nourishment projects on understanding the impacts of extreme weather conditions. We also have an existing MIKE21 hurricane model for the state of Florida and the entire Caribbean, which has successfully been extensively utilized to predict hurricane impacts throughout the region. Another recent nearby vulnerability assessment experience includes the Miami-Dade County North District Wastewater Treatment Plant (NDWWTP) as part of the recent planned upgrades. NDWWTP is a major infrastructure component located just a few miles from Hollywood, where our team determined current and future vulnerability based on predicted sea level rise and hurricanes along with impacts to the groundwater level.

We have worked on the Infrastructure Life Cycle Analysis for the South Florida Water Management District, which included the impacts of sea level rise in infrastructure maintenance and costs, and is also currently compiling and summarizing condition information to develop an overall understanding of conditions for the Port of Miami based on prior inspection logs. Our team also has extensive experience in condition inspections in case additional data is required. We just completed an inspection of 20,000 feet of shoreline for the Town of Bay Harbor as part of a sea level rise vulnerability study for the Town

STEP 4 – VULNERABILITY PRIORITIZATION

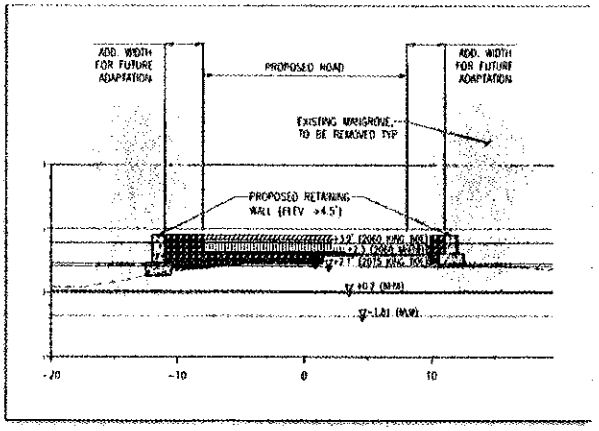
Once vulnerabilities and conditions for the City of Hollywood are identified in Step 3, our team will coordinate with City staff to evaluate and develop the metrics including potentially meeting with other stakeholders that can be used to complete the vulnerability prioritization. Such metrics will include probability of occurrence, impacts on City residents, real estate values, as well as economic impacts including the cumulative cost of adaptation, replacement costs of lost infrastructure (e.g. roadway, sewer, water, electric, and critical public facilities), the loss of revenue, and the loss of economic activity due to a reduction in tourism, infrastructure, jobs, wages, and economic output associated with each vulnerability.

Our team is experienced in assigning risk and resiliency in order to quantify vulnerability. This includes both spatial risk such as flooding to areas due to high tides or storm events, like hurricanes, as well as specific components such as bridges, sewer lift stations, roads, beach erosion, seawalls, or other infrastructure. Team experience includes numerous FEMA flood map studies throughout Florida including Hollywood as well as island wide studies such as Ocean Cay, where the vulnerability risk for the entire island was quantified for subsequent planning. Additional experience includes: pump station resiliency for Miami-Dade Water and Sewer Department and the Town of Medley, adaptation plans for the City of Delray Beach at a local level, and resilient infrastructure investment plans for Belize and the urban/coastal zone in Albania.

STEP 5 – ADAPTATION STRATEGIES

Under this step, our team will identify and characterize the costs and benefits and pros and cons of short and long-term adaptation scenarios. The adaptation scenarios will be spatially explicit detailing adaptation measures that are feasible for different vulnerabilities and that will allow for other stakeholders to plan accordingly.

These adaptation solutions may include, but are not limited to, new flood protection infrastructure, enhancing the existing drainage network, elevating key infrastructure, enhancing natural buffers like green infrastructure of living shorelines, flood-proofing existing assets, or changing land use patterns.



These scenarios will be based on a review of the technical feasibility of implementing different adaptation measures, a rigorous economic assessment of the potential costs and benefits, their impacts on the natural and urban environment, and stakeholder input. The adaptation strategies will be tied in to the vulnerability assessment so that high risk and critical areas can be prioritized and adaptation strategies incorporated into planned maintenance or replacement projects. This will ensure the most cost-effective solutions and highest return on investment for the City.

In each case, the adaptation pathways/scenarios will be evaluated for technical feasibility, economic implications, and impact on the natural and urban environments. The development of adaptation pathways will include City input and public investment to support the development of overall resilience in the City of Hollywood. In this way, the costs and benefits of the various adaptation options are linked to their technical efficacy, community co-benefits, and potential trigger points for decision-making and funding opportunities.

One example of our team participation in adaptation strategies is our involvement in the asset management plan for the South Florida Water Management District. We showed the importance of resiliency through a comprehensive Capital Improvement Plan prioritization for those valuable and critical infrastructures for storm water management, as well as policy and regulatory changes that have financial impacts. Adaptation strategies were also developed for the Matheson Hammock Sea Level Rise Flood Mitigation Study as previously mentioned. The team experience includes prioritizing the effectiveness of adaptation strategies, both "hard" and "soft", on Florida's east coast, the Panhandle and in tourist-oriented communities in Australia. Critical for this project is our ability to evaluate which strategies are feasible for different locations and at different points in time. The City's vulnerability initiative will benefit from the team's ability to effectively consider and incorporate the market and non-market costs and benefits of individual strategies to be included in the Adaptation Plan.

STEP 6 – ADAPTATION PLAN

Our team Adaptation Plan will develop a realistic, and science-based set of scenarios and adaptation alternatives that will drive creative solutions for the City vulnerability to medium and long-term climate change risks.

Adaptation to climate change is about understanding infrastructure, vulnerability, and planning. Being able to communicate the technical, economic, and social implications of the various planning scenarios is a critical aspect of the Adaptation Plan so private residents and businesses can plan accordingly as part of their site-specific adaptation.

An integral part of the development of an adaptation plan shall include illustration of:

- ✓ Implementation frameworks that address policy and regulatory changes and a phased investment plan. In order for these efforts to take hold, we need to feed into the City planning process such that resiliency efforts become business-as-usual and are incorporated seamlessly into projects. Also, by having a phased implementation plan, we create solutions that are technically feasible, financially affordable, and socially acceptable.

- ✓ Funding options that prioritize investments, identify revenue sources, can be easily displayed and understood by all; can be incorporated into the City CIP plan; and can serve as an off-the-shelf list of projects for future funding by others.

- ✓ Stakeholder participation. The process will be undertaken in a participatory and collaborative approach with a strong emphasis on technical and public Stakeholder Engagement.

Scenarios, expressing a range and timing of adaptation options, will be evaluated in terms of technical feasibility, economic implications, and impact on the natural and urban environments.

Technical Assessment

The Adaptation Plan will include an inventory and summary of relevant regional, national and global climate change plans, a description of methodologies, characterization of climate projections and assumptions, and will determine their technical vulnerabilities and priorities, protective value, costs, and flexibility to respond to changes in future conditions and shall include a range of protection and accommodation strategies and include both structural and non-structural solutions.

Economic Assessment

The Adaptation Plan will consider the economic facility and implementation of investment in different adaptation measures in any adaptation plan. The economic assessment will consider the relative return-on-investment of alternative adaption approaches and explicitly consider the costs to protect different portions of the City from climate risks. This analysis will estimate the economic and financial feasibility of adaptation strategies and will identify areas of future research and technical analysis needs.

Social Assessment

For any adaptation plan to be successful, it shall encompass social justice, protecting the most vulnerable and those who are least able to respond to emergencies through inclusive policies and investment. The Adaption Plan will include a recommended outreach methodology as well as an outreach plan, based on input received by local residents and other stakeholders.

Our team is currently working on a mitigation and adaptation plan for Port Everglades as part of the 2018 Master/Vision Plan update, including policies that require vulnerability assessment of habitats due to coastal flooding and sea level rise. This assessment includes several areas within the City of Hollywood that are close to Port Everglades, like West Lake Park, and evaluates the environmental impacts to natural resources like seagrass, mangroves, marine species, coral and hard bottom habitats, underground stormwater systems, greenhouse emissions and their financial impact to be included as part of the Plan Implementation. The team includes local hazard mitigation experience (content and adoption processes) and the capacity to link this experience to the proposed Adaptation Plan.

STEP 7 – FORMAL PRESENTATIONS AND COMMUNITY OUTREACH

The team will with work with the City of Hollywood and key stakeholders to present a summary of this information in a way that can be easily understood by the general public. This information will be based on the stakeholder engagement process as part of Step 2 through 6.

Successful adaptation to sea level rise and its associated impacts is about planning, community awareness, and, most of all, acceptance. For this, it is essential the City has a clear strategy and plan. It should be clear what the City's strategies are for specific neighborhoods in the short and long-term so residents and businesses can plan individually but as part of the same overall strategy. Building confidence is a basic precept of resiliency. Understanding community desires, aspirations, and gathering support is crucial to this endeavor. Effective communication and outreach to stakeholders and the community at large will be crucial. Our philosophy of stakeholder engagement is for participants to be truly enfranchised in the participation opportunity. We do not simply want to "broadcast" information, but, rather, engage in a meaningful participatory process.

Our team has recently prepared user-friendly visuals, flyers, power point presentations, graphics for websites, and a community survey for the Arc Creek Community in coordination with Miami-Dade Office of Resiliency. Additionally, in the past our team has experienced the effectiveness of outreach and social awareness in the reconstruction work in South Miami-Dade County with Hurricane Andrew; and in New Orleans with Hurricane Katrina.

We have expertise prioritizing large infrastructure capital plans into affordable, phased projects. Where our team shines is with experience in incorporating community preferences and desires into the prioritization of such capital works. In other words, we include the built infrastructure along with the natural infrastructure and human capital.