February 21, 2020

Ms. Elizabeth Powell
Assistant Director, Parks & Conservation Resources
Indian River County
5500 77th Street
Vero Beach, Florida 32967

RE: Lost Tree Island Conservation Area Ecological Enhancement
Civil Engineering and Surveying Services Proposal
CAI Project No. 19-426 E

Dear Beth:

It is our pleasure to present for your acceptance, the following proposal for Civil Engineering and Surveying services associated with the above referenced project. Please find attached an ENGINEER's scope of services and budget outlining the steps for the enhancement planning and design services. Additional services required, but not included in the estimate, will be provided at our hourly rates, a copy of which is attached.

Thank you for giving us the opportunity to submit a proposal for our services. We look forward to working with you on this project. Should you have any questions or need additional information, please do not hesitate to contact me at our office.

Sincerely,

CARTER ASSOCIATES, INC.

John H. Blum, P.E.
Principal

PROPOSAL TO PROVIDE
PROFESSIONAL ENGINEERING AND SURVEYING SERVICES
"SCOPE OF SERVICES"
for
INDIAN RIVER COUNTY PARKS & CONSERVATION RESOURCES
LOST TREE ISLAND CONSERVATION AREA ECOLOGICAL ENHANCEMENT

SECTION 1: PROJECT OBJECTIVES

The project objectives for design and engineering of the Lost Tree Island Conservation Area (LTICA) ecological enhancement plan are briefly summarized as follows:

- Site design that is resilient and versatile, and by its nature will be adaptable during extreme weather events and climate change
- Water quality benefits through creation and enhancement of wetland communities
- Establishment of endemic habitat, including, but not limited to:
    - High marsh habitat which is a rare resource in Indian River County
    - Strategically located mangrove wetlands
    - Maritime hammock habitat
    - Salt flats and open sandy beaches for shorebird nesting
    - Seagrass habitat (based on appropriateness and feasibility)
    - Oyster reefs (based on appropriateness and feasibility)
    - Expanded nursery areas for fish and invertebrates
- Incorporation of innovative, low maintenance elements for shoreline stabilization
- Incorporation of green technologies where appropriate and feasible
- Provide for educational engagement on the ecological issues facing the Lagoon
- Provide passive recreational opportunities that promote ecotourism, educational awareness, local responsibility and facilitates informed community input
- Minimization of mosquito production
- Elimination of nuisance and exotic plant species such as Australian pine and Brazilian pepper
- Minimization of long-term maintenance, management, and capital costs

This proposal provides an outline of services required to provide an engineered design to meet the project objectives. The proposal does not include any permitting, bidding, or construction administration services.

SECTION 2: SCOPE OF SERVICES

Based on the LTICA ecological enhancement Project Objectives described in Section 1, the following Scope of Services has been prepared to define the design and engineering work to

be completed by Carter Associates, Inc. (ENGINEER) for the Indian River County Parks and Conservation Resources Division (CLIENT).

TASK 1 –PRELIMINARY PLANNING

ENGINEER will attend up to three initial coordination meetings with CLIENT to discuss wetland enhancement plan and construction phasing based on priority and funding. This task will include completing one site visit with CLIENT to observe existing site conditions in preparation for completion of additional baseline data collection. This task will be focused on defining the location and extent of topographic and bathymetric information generated in Task 2, below. The task will also be focused on assessing possible methods of construction, and transport and mobilization of equipment, with various sources in an effort to provide a general framework for conceptual design.

Deliverable for this task will be a memorandum prepared by the ENGINEER outlining the information gathered from meetings, site review, and coordination, and providing a general discussion of issues that may need to be addressed as part of site design.

TASK 2 - SITE SURVEYS

CLIENT will provide available survey data that was obtained as part of prior mitigation projects on Earman and Duck Head islands. ENGINEER will sub-consult with a site contractor to perform limited clearing along baselines needed for data collection. ENGINEER will perform survey to collect baseline data including topography, bathymetry, and vegetative cover of the three (i.e. Earman, Duck Head, and Hog's Head) islands sufficient to develop the Conceptual Design (Task 3). Topographic survey to include spot elevations on 400-foot intervals to obtain sufficient information to complete the required grading plan. Coordinate with CLIENT to identify land uses on site, with emphasis on the coverage of exotic species and native vegetation to be preserved. Utilize drone and underwater ROV for additional data collection.

Deliverables for this task will include 24”x36” full-sized drawings of the survey signed and sealed by a Professional Surveyor and Mapper.

TASK 3 – CONCEPTUAL ECOLOGICAL ENHANCEMENT PLAN

Based on the information collected in tasks 1 and 2, ENGINEER will coordinate with CLIENT to provide a series of Conceptual Enhancement Plans. It is proposed that the ENGINEER will generate a series of design concepts based at the following milestones in project planning:

- Initial Conceptual Plan Development: The ENGINEER will provide the CLIENT with two (2) sets of full-sized sheets (for each of the three islands) depicting the baseline data information. One set will be used by the CLIENT to generate rough schematics of possible community structure per island. The second set will be a clean copy of the

initial iteration of the schematic generated by the CLIENT, for each island, to be used by the ENGINEER as a starting point for the design. The ENGINEER will use the clean copy to generate the initial CAD design for the project.

Based on the CAD drawing, the ENGINEER will provide a rough calculation of vegetative community acreages and quantities of excavated material based on the initial schematic. The ENGINEER will coordinate with the CLIENT to discuss a broad approach for phasing and construction based on the initial conceptual plan.

- Interim Conceptual Plan 1: Based on the data generated from review of the initial plan, the ENGINEER will work with the CLIENT to develop a modified version of the initial plan. As with the Initial Conceptual Plan, the ENGINEER will provide a revised calculation of vegetative community acreages and earthwork balance, as well as general information on potential construction costs and staging, based on various phasing and construction alternatives.

  The CLIENT will use Interim Plan 1 as a starting point for the Regulatory/Stakeholder Engagement of the project design. These meetings are planned to solicit feedback on technical information, as well as other design considerations such as aesthetics, recreation, and other aspects of the overall plan.

- Interim Conceptual Design 2: Based on feedback from these meetings, the ENGINEER will coordinate with the CLIENT to develop a modified version of the plan as applicable. As with the Interim Conceptual Plan 1, the ENGINEER will provide a revised calculation of vegetative community acreages and earthwork balance, as well as general information on potential construction costs based on various phasing and construction alternatives.

  The CLIENT will use Interim Plan 2 for general public meetings to be held to solicit feedback on the design of the project.

  Based on these public meetings, the design will be modified to address any relevant concerns. The Conceptual Design resulting from the project meetings will be finalized so that the ENGINEER can proceed with the development of project plans (Tasks, 4 & 5). It is anticipated that the level of effort required to address public comments should be reduced from the development of other iterations of the plan (barring any unforeseen circumstances).

Deliverables for this task will be renderings for each portion of the Conceptual Design, as outlined above.

TASK 4 – ADDITIONAL SURVEY DATA COLLECTION

Based on the development of the Conceptual Plan, it is anticipated that there will be a need to collect additional site-specific data. Additional topography and bathymetry may be required, as well as geotechnical data required for further design. Bathymetric information shall be obtained

from the Mean High Water (MHW) elevation on each island to a sufficient distance waterward of the shoreline as required for dock permitting and potential re-contouring of the shorelines. This task may also include research for projected project elements associated with wetland design or recreational elements. The information from the additional data collection and research may be used to guide and inform the CLIENT on project design based on feasibility or cost issues.

Deliverables for this task will be data to be incorporated into the Development of Project Plans (Task 5).

TASK 5 –DEVELOPMENT OF PROJECT PLANS

The ENGINEER will develop project plans based on the following process:

- A preliminary site grading plan will be developed based on the Conceptual Plan.

- A hydraulic analysis of flow volumes and characteristics to analyze nutrient removal potential (with input from CLIENT) will be completed using flood routings, pond sizing, discharge calculations, and drawdown analysis based on the Conceptual Plan.

- The ENGINEER will coordinate with the CLIENT to assess the need for pumps and/or other infrastructure to facilitate/mimic tide fluctuations and maximize treatment of Lagoon waters.

  A 30% design plan will be submitted for review by the CLIENT. The ENGINEER will refine the assessment of vegetative community acreages and earthwork balance, as well as the information on potential construction costs based on various phasing and construction alternatives.

- Based on the plan review and assessment of project costs and phasing, the ENGINEER will work with the CLIENT to develop a set of 60% design plans. These plans will be used to complete the Regulatory/Stakeholder Engagement of the project. Feedback from these additional meetings will be incorporated into the 90% design plans, as appropriate.

- The ENGINEER will develop 90% project plans to include earthwork plan sheets, detail sheets, and cross-sections; planting lists (with the assistance of County staff); proposed project phasing; mobilization and staging locations; land clearing/exotics removal; erosion control plan(s) utilizing best management practices and erosion control devices; schematics of proposed recreational and educational structures (to be designed based on project funding and schedule); and infrastructure details including any pump station performance criteria for manufacturing design and construction.

- A final public meeting will be held at this stage of the project to solicit feedback on the design.

- Following the completion of the final public meeting, the ENGINEER will make any

minor modifications to the design. The 100% plans will depict all aspects of the project as detailed in the scope of services, and will include project specifications and notes for construction. The ENGINEER will finalize the construction phasing plan and prepare engineer's opinion of probable costs for construction for each phase.

TASK 6 – PROGRESS AND STAKEHOLDER MEETINGS

Attend meetings with County staff to review plans and progress at 30%, 60%, 90%, and 100% design stages. Attend and participate at stakeholder and other public meetings.

TASK 7 – REIMBURSABLE EXPENSES

Reimbursable expenses, such as boat transportation, mileage, prints, copies, vellum, postage, etc.

SECTION 3: ENGINEERING SCOPE ASSUMPTIONS:

In developing this Scope of Services, ENGINEER represents to the CLIENT that the following assumptions have been made and that deviation from these assumptions may require additional work and compensation on behalf of CLIENT to the ENGINEER.

1. This proposal specifically excludes all application and/or impact fees, which shall be the responsibility of CLIENT.

2. This Scope of Services specifically excludes preparation of legal documents, easement descriptions, structural, mechanical, electrical, landscape, and architectural work.

3. Wetland planting design drawings, plant lists, and installation will be provided by others.

4. Civil engineering design and permitting fees for off-site improvements, such as deep-water access or utility line extensions, are not included with this proposal.

5. Permitting for disposal of any existing on-site hazardous or industrial waste material, or any other underground, unforeseen issues is not included with this proposal.

6. Construction services including but not limited to the preparation of construction contract documents, contractor bidding, inspection services, as-built surveys and final certifications are not included with this proposal, but can be provided as an additional service if needed.

7. Soil testing is not included in this proposal and would be considered as an additional service, if required for ecological enhancement design.

8. Construction stakeout and as-builts are not included with this proposal.

SECTION 4: COMPENSATION

The proposed scope of services will be provided on a NOT TO EXCEED basis and invoiced monthly based on work performed to date for each task.

Task 1 –Preliminary Planning	**$14,180.00.**
Task 2 - Site Surveys	**$66,410.00.**
Task 3 – Conceptual Ecological Enhancement Plan	**$39,560.00.**
Task 4 –Additional Survey Data Collection	**$37,040.00.**
Task 5 – Development of Project Plans	**$73,680.00.**
Task 6 – Progress and Stakeholder Meetings	**$6,760.00.**
Task 7 – Reimbursable Expenses	**$100,450.00.**
TOTAL	**$338,080.00.**

CARTER ASSOCIATES, INC.

JANUARY 2020

FEE SCHEDULE

Staff Type:	Hourly Rates
Engineer (Principal)	$165.00
Engineer I	$140.00
Engineer II	$125.00
Engineer III	$115.00
Engineer IV	$105.00
Engineer V	$ 95.00
Surveyor (Principal)	$165.00
Surveyor (Sr. Consultant)	$140.00
Surveyor I	$140.00
Surveyor II	$125.00
Surveyor III	$105.00
CAD/GIS Tech I	$115.00
CAD/GIS Tech II	$110.00
CAD/GIS Tech III	$105.00
CAD/GIS Tech IV	$ 95.00
CAD/GIS Tech V	$ 85.00
Administrative Staff	$ 60.00
Expert Witness	$300.00
4 Man Survey Crew	$175.00
3-Man Survey Crew	$150.00
2-Man Survey Crew	$135.00
1-Man Survey Crew	$110.00
Inspector	$ 65.00

SPECIALIZED EQUIPMENT:

Leica HD P40 Scanner	$175.00/Hour
Aluminum Boat	$500.00/Day
All-Terrain Vehicle (ATV)/Trailer	$250.00/Day
	$1,000.00/Week

REIMBURSABLE EXPENSES:

Postage, Express Mail, etc.	Cost
Blueprints/Blackline (24" x 36")	$2.00/Each
Color Prints (24"x36)	$5.00/Each
Mileage	IRS Standard Rate
Mylar	$7.00/Each
Photocopies:	
8.5" x 11"	15¢/Each
8.5" x 14"	25¢/Each
11" x 17"	35¢/Each
Concrete Monuments	$20.00/Each
Rebar	$ 2.50/Each
Laths	$ 0.75/Each
Hubs	$ 1.00/Each

Sub-Consultants

Cost + 10%

Note: These hourly billing rates will remain effective for the duration of this Agreement