

WORK ORDER NUMBER 2
PROJECT NAME: LOST TREE ISLANDS FEASIBILITY STUDY

This Work Order Number 2 is entered into as of this _____ day of _____, pursuant to that certain Continuing Contract Agreement for Environmental and Biological Support Services, dated October 10th, 2017, (referred to as the "Agreement"), by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida ("COUNTY") and Environmental Science Associates, ("Consultant").

The COUNTY has selected the Consultant to perform the Environmental and Biological Support Services set forth on Exhibit A (Scope of Work), attached to this Work Order and made part hereof by this reference. The Environmental and Biological Support Services will be performed by the Consultant for a Not-to-exceed fee of \$ 41,750. The Consultant will perform the Environmental and Biological Support Services within the timeframe more particularly set forth in Exhibit A, attached to this Work Order and made a part hereof by this reference all in accordance with the terms and provisions set forth in the Agreement. Pursuant to paragraph 1.4 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Work Order as of the date first written above.

CONSULTANT:

Environmental Science Associates

By:

Bryan D. Flynn

Title:

Sr. Coastal Engineer

**BOARD OF COUNTY COMMISSIONERS
OF INDIAN RIVER COUNTY**

By:

Peter D. O'Bryan, Chairman

BCC Approved Date: _____

Attest: Jeffrey R. Smith, Clerk of Court and Comptroller

By:

Deputy Clerk

Approved:

Jason E. Brown, County Administrator

Approved as to form and legal sufficiency:

William K. DeBraal, Deputy County
Attorney

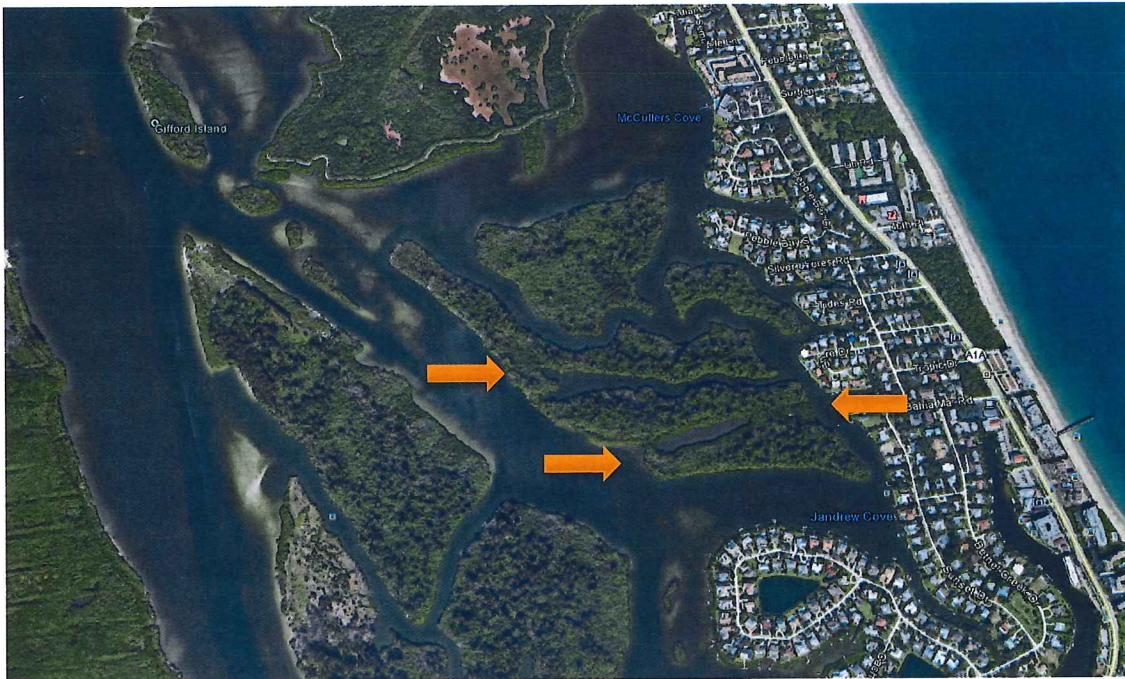
EXHIBIT A



Scope of Services Lost Tree Islands Feasibility Study for Indian River County Vero Beach Shores, Florida January 3, 2018

Background

The Lost Tree Islands Conservation Area (LTICA) is located north of the Merrill Barber Bridge in Vero Beach Shores. This area was once slated for development and preliminary site work created finger canals to drain mangrove swamp and create upland for residential housing. Those plans stalled and were eventually scrapped in the 1970s, but the finger canals remain. Historically, the LTICA canals were connected to open water, but these canals have shoaled along the western shoreline and now create stagnant areas of water that exhibit low dissolved oxygen and potential for mosquito breeding areas. Indian River County would like to explore options to 1) reconnect these canals to open water, 2) improving water quality and habitat and 3) reducing the area for exotic vegetation, stagnant water and mosquito breeding. The goal is to improve the overall health of the LTICA in conjunction with the Indian River Lagoon (IRL).



SCOPE-OF-WORK

Task 1 - Site Visit

ESA staff will prepare for and attend a site visit with County staff and Mosquito Control staff to the Lost Tree Islands project site. ESA will document site conditions, including water levels, sediment types, vegetative cover, submerged aquatic vegetation (SAV) and oysters. ESA will bring underwater camera and other instruments to conduct preliminary assessments of the area. This task will include two (2) ESA staff and it is anticipated County Staff or Mosquito Control will provide boats to access the island. ESA has an 18 foot skiff that can be authorized by the County on a contingency basis for a fee of \$250 per day. Anticipated need would only be one day of boat usage.

Deliverables: Copies of field notes will be provided.

Task 2 – Data Collection

ESA staff will continue to work with the County to acquire historical data including topographic & bathymetric survey data (or LiDAR), water quality data, aerials, oyster and seagrass maps. In the absence of historical data and the need for recent, site specific data; ESA proposes to collect water quality data at points around the project area for depth, dissolved oxygen (DO), salinity, temperature, and Chlorophyll. This information will help to characterize the site and determine which type of restoration project will be the most successful. This work can be repeated on a quarterly or event basis by ESA or by the County to determine seasonal variability in the water quality. Pending the site visit in Task 1, this task may be revised to select the best collection points and water quality sampling parameters for the site.

In order to determine if the finger canals should be reconnected ESA staff will examine the existing subsurface conditions in the immediate area of potential reconnection sites. Sediment samples will be collected both upland and in-water and photographed. These samples will undergo visual analysis only, and will not be logged. Laboratory testing for mechanical or chemical properties of the sediment would occur in future phases of the project if warranted. SAV and oyster reconnaissance surveys will be conducted on a presence/absence basis, since the work will not be during the seagrass growing season. Limits closest to proposed work may be recorded for preliminary design purposes only. SAV and oyster densities and mapping will be conducted in future phases if necessary for permitting.

ESA will use their boat to access the islands for data collection and field work in this task, County staff are welcome to join/assist in data collection efforts if timing allows. ESA estimates two field days to collect the necessary data.

Deliverables: Project database files and figures (Excel, GIS, PDF) will be provided to the County

Task 3 – Planning Meeting

At the conclusion of Task 2, ESA Staff will chair a project planning meeting with County staff (Coastal, Natural Resources & Parks) along with other stakeholders (Mosquito Control) to discuss project feasibility, determine project stages, funding streams and schedules. The meeting will focus on the timing of proposed project elements including reconnection of the

finger canals, living shorelines, oyster and SAV restoration and public access/recreation elements. This meeting will be held at the County offices.

Deliverables: Project planning documents and meeting minutes.

Task 4 – Pre-Application Meeting(s)

Once the project team has developed a tentative plan, ESA and County staff will schedule pre-application meetings with the U.S. Army Corps of Engineers (USACE) and the Florida Department of Environmental Protection (FDEP) Central District and Coastal & Aquatic Managed Areas (CAMA) departments to discuss the regulatory requirements for permitting and constructing project elements. ESA staff will prepare figures, drawings and/or PowerPoint presentations and travel to the project site, or to regulatory offices as necessary for the meeting(s).

Deliverables: Project planning documents and meeting minutes.

Task 5 - Preliminary Design Report

ESA staff will develop a preliminary design report that will compile the information collected in Tasks 1-4. The report will provide a narrative on the feasibility of restoration and habitat creation in the Lost Tree Island finger canals. Items that will be discussed in the report will include 1) water quality & circulation improvement, 2) reconnection of finger canals 3) grading of islands to reduce exotic proliferation, 4) restoration/habitat creation 5) public access and recreation enhancements. The report will discuss the data collected, results of meetings with the County, local stakeholders, and regulatory agencies. It will include figures, tables and photographs of the project sites, data collection and results. Estimated costs for project elements and potential funding sources will be provided. A preliminary project schedule will be developed to show project phasing. Project drawings in plan and typical cross sections will be included to the extent possible provided topographic and bathymetric data are available from other sources with reliable metadata. The report will provide direction on phasing project elements, their cost, a preliminary schedule and an opinion of whether the project is feasible going forward.

Deliverables: Preliminary Design Report (3 Hard Copies and 3 CDs)

Budget Estimate

Task 1: Site Visit.....	\$ 4,450
Task 2: Data Collection.....	\$ 9,600
Task 3: Planning Meeting	\$ 3,300
Task 4: Pre-Application Meeting(s)	\$ 7,600
<u>Task 5: Preliminary Design Report</u>	<u>\$ 16,800</u>
Total (Not-To-Exceed).....	\$ 41,750

ASSUMPTIONS:

- County/Mosquito Control District will provide boat for site visit in Task 1. ESA boat can be authorized for use by the County at a fee of \$250/day.
- ESA will provide boat to conduct data collection in Task 2, boat usage fees included.
- Since the field work will occur in January/February, outside seagrass growing season, the SAV reconnaissance survey will be conducted on a presence/absence basis.