



Ms. Ilyse Triestman
City of Delray Beach
100 N.W. 1st Avenue
Delray Beach, FL 33444

December 15, 2020

Dear Ms. Triestman:

Ecological Associates, Inc. (EAI) is pleased to submit its Cost Proposal and Scope of Work for providing professional environmental services in support of the City of Delray Beach's (City's) 2021 Sea Turtle Monitoring program.

The proposed task is pre- and post-construction sea turtle monitoring on the City's 3.03 miles of beach between approximately R-175 +325 ft. and approximately R-190 +175 ft. (Project Area) during the 2021 sea turtle nesting season, as described in the Scope of Work presented below. This monitoring will comply with all Florida Fish and Wildlife Conservation Commission (FWC) sea turtle monitoring requirements and applicable conditions set forth in Florida Department of Environmental Protection (FDEP) Joint Coastal Permit (JCP) No. 0303553-001-JC, as amended, and U.S. Fish and Wildlife Service (USFWS) Revised Programmatic Biological Opinion (BO) dated March 13, 2015.

SCOPE OF WORK

A. Mobilization (Task 1).

All field survey equipment, including ATVs and nest stakes, will be prepared and mobilized to the project location. Pre-existing survey zone boundaries will be verified and re-marked. Customized field datasheets and a Microsoft Access database will be created to facilitate data collection and management (EAI uses an electronic data collection system with paper datasheet back-ups). A project schedule, as well as field survey schedules, will be created and maintained throughout the life of the project. All equipment and supplies necessary to successfully implement this Scope of Work are available.

B. Project Management (Task 2).

An EAI Project manager will oversee all fieldwork and data management operations and consult with the City on permit requirements, as necessary.

C. Pre-Season Compaction and Scarp Monitoring (Optional Task 3; Specific Condition 16 and 17).

Monitoring will be performed prior to February 15, 2021 to provide sufficient time for tilling, if required. Compaction will be measured using a standard FDOT-approved cone penetrometer. Transects will be established at approximately 500-foot intervals along the Project Area. Along each transect, stations will be established at the seaward edge of the restored dune and midway between the toe of the dune and the high-water line. At each station three replicate readings will be taken at each of three depths (6, 12 and 18 inches) in accordance with FDEP guidelines. EAI will tabulate the results of compaction monitoring showing all 18 compaction values for each transect as well as average values for each depth at each station. Average values that exceed 500 psi will be highlighted. FDEP may require that those areas be tilled prior to March 1. If the City decides to till the entire project area prior to nesting season, then compaction monitoring will not be required.

Scarp monitoring will be performed prior to February 15, 2021 in conjunction with pre-season compaction monitoring (if applicable). EAI will notify the City of the presence of escarpments that may potentially interfere with sea turtle nesting. FDEP may require that those areas be leveled or the beach profile reconfigured to minimize scarp formation prior to March 1.

D. Daily Sea Turtle Nesting Surveys (Task 4; FDEP Specific Condition 22).

EAI will conduct daily morning sea turtle nesting surveys of the Project Area. Surveys will begin on March 1, 2021 and continue through October 31, 2021. For sand placement projects occurring after October 31, 2021, surveys will continue through November 30, 2021 or until seven (7) days without a nest in the Project Area, whichever is earlier. EAI will consult with FWC and the USFWS to determine when monitoring may be discontinued in advance of the nourishment project expected to occur in Winter 2021.

Surveys will commence within 30 minutes of sunrise. Monitoring will be performed by EAI staff either on foot or using ATVs. All emergences (turtle crawls) apparent from the previous night will be interpreted to determine which species of turtle came ashore and whether or not it nested. Crawls will be denoted as being above or below the previous high tide line. The approximate geographic location of each crawl will be determined by GPS. In addition to segregating crawls into nesting and non-nesting emergences (false crawls), each false crawl within the Project Area will be assigned to one of the following categories denoting the stage at which the nesting attempt was abandoned: no digging, abandoned body pit, or abandoned egg cavity. Any obstacles encountered by turtles during their crawls will be documented.

Disorientation Reporting. During the course of daily monitoring, any evidence of hatchling misorientation or disorientation from either marked or unmarked nests will

be documented using FWC's electronic Marine Turtle Hatchling Disorientation Incident Report Form. Based on track evaluations, an estimate of the number of hatchlings disoriented will be recorded and light sources potentially responsible for the disorientation identified. Information concerning each incident will be forwarded by email to the City so appropriate remedial action may be taken.

Stranding and Salvage. If requested, EAI may assist with sea turtle stranding response within the Project Area. Sick, injured, or dead animals are examined, and if alive, transported to state-approved care facilities. A standard Sea Turtle Stranding and Salvage data form will be completed and submitted for each stranded animal encountered by EAI. This information will be transmitted to FWC in accordance with established guidelines.

State and Federal Authorizations. All sea turtle monitoring and related activities will be performed under FWC Marine Turtle Permit #010 issued by FWC to EAI Director of Operations, Niki Desjardin. All persons engaged in monitoring performed by EAI for the City will be listed on the permit.

E. Nest Marking and Monitoring (Task 5; FDEP Specific Condition 22).

All nests in the Project Area will be marked for determination of nest fate and reproductive success (not to exceed 400 nests total). Nests will be marked using a series of stakes and surveyor's tape. These nests will be monitored throughout their incubation period to determine nest fate (e.g., hatched, washed out, depredated, vandalized, etc.). After an appropriate incubation period, and in accordance with the FWC handbook, nests will be excavated to determine reproductive success. Two measures of reproductive success will be calculated: hatching success (the percentage of eggs in the nest that hatch) and emerging success (the percentage of eggs in the nest that produce hatchlings which successfully escape from the nest).

Conspicuously marking all nests will ensure that there are no impacts from routine beach maintenance performed on City beaches by a beach raking contractor. It will be the responsibility of the beach raking contractor to communicate with EAI on a daily basis prior to performing any beach raking. If no surveys are conducted prior to raking, beach raking may not occur for 65 days. **Note: if nests are marked only for protection and not evaluated for reproductive success, they will be charged at a per nest rate of \$27.00/nest.*

F. Post-construction Escarpment Surveys (Task 6; FDEP Specific Condition 17).

Surveys will be conducted within the 2020 fill template to document the formation of scarps greater than 18 inches over a distance of 100 feet or more and potentially interfering with sea turtle nesting/hatching. Surveys will be conducted weekly throughout the nesting and hatching season. EAI will notify the City of any scarps that meet these conditions and may potentially interfere with sea turtle nesting. FDEP/FWC

may require that those areas be leveled, or the beach profile be reconfigured to minimize subsequent scarp formation. EAI will prepare an annual summary of escarpment surveys and actions taken (if leveling is required) and submit to the City in a final interpretive report.

G. Lighting Surveys (Task 7; FDEP Specific Condition 21).

A maximum of eight surveys (performed on a mutually agreed upon schedule) of beachfront lighting conditions will be performed. The location, number and type of lights visible from the beach and not in compliance with the City's lighting regulations will be documented and reported. Photos (long exposure, without flash) will also be taken of all lights visible from the beach.

A sub-meter GPS will be used to record coordinates from which observations are made and a summary of results will be provided to the City in standard report form as well as on an Excel spreadsheet. Reports, including recommendations for correcting problem lights, will be provided within 30 days of each survey. A full report including photographs and GPS locations of lights, along with a unique site evaluation form for each facility/property evaluated will be furnished following the first lighting evaluation. Subsequent reports will summarize any new lights observed and any lights that came into compliance since the previous survey.

It shall be the responsibility of the City to notify property owners of problem lights and to conduct follow-up site visits and consultations with property owners as necessary. EAI may perform these services, if requested, under separate contract.

H. Lighting Meeting (Task 8; USFWS BO Specific Condition A10).

An EAI lighting specialist will participate in a post-season virtual meeting with the City and FWC to discuss the survey reports and marine turtle disorientations documented within the Project Area.

I. Late Season Nest Relocations (Task 9; FDEP Specific Condition 11, as amended).

If construction occurs in November 2021, EAI will relocate nests from the Project Area beginning 65 days prior to the start of construction. Surveys will continue until November 30th. All nests will be relocated before 9:00 AM and will be moved to an adjacent beach location with conditions appropriate for sea turtle nest incubation and hatching (no known erosion or lighting problems).

J. Reporting (Task 10). The following reports will be furnished to the City in support of regulatory permitting requirements.

Delray Beach Sea Turtle Monitoring
Scope of Work and Cost Proposal – December 15, 2020

1. **Monthly summary reports** will tabulate the dates and times of monitoring, names of monitoring personnel, numbers of sea turtle emergences by species, and numbers of nests marked and evaluated for reproductive success, as applicable. Monthly reports will be submitted to the City no later than the last day of the month following delivery of services (e.g., March report due no later than April 30).
2. **A year-end report** will include a summary of methods, numbers of sea turtle emergences by species, nest fates of all marked nests, reproductive success of evaluated nests, and an assessment of sea turtle nesting and reproductive success, including interpretive analyses and graphic representations, as applicable. The annual summary report will be submitted to the City no later than 90 days following completion of monitoring activities.
3. **Permit-related reports** will be prepared following the completion of monitoring and relocation activities. The Statewide Nesting Beach Survey and Nest Productivity Assessment reports required of all marine turtle permit holders by FWC will be submitted to FWC and to the City by November 30, 2021. All nesting activity and reproductive success, including data on any late season relocations, will be submitted to the City on standard nourishment Excel spreadsheets, as required by the FDEP permit, by December 31, 2021.

K. Public Outreach (Task 11).

EAI, in cooperation with the City, will perform five public outreach events. The public outreach is expected to include five daytime public nest excavations. EAI will provide one Field Technician to perform each excavation of a marked nest and one Biologist to answer questions from the public during each excavation.

EAI will submit its monthly billings for the services described above to the City in accordance with the rates and fees set forth in Attachment A. No deposit or advance mobilization fees are required.

Ecological Associates, Inc. appreciates the opportunity to be of continued service to the City of Delray Beach. Should you have any questions regarding the enclosed Scope of Work or associated costs, I can be reached at (772) 334-3729.

Sincerely,



Niki Desjardin
Director of Operations

c: Stan DeForest/President

ATTACHMENT A
ECOLOGICAL ASSOCIATES, INC.
P.O. BOX 405
JENSEN BEACH, FLORIDA 34958

COST PROPOSAL – December 15, 2020

PROJECT NAME: Delray Beach Sea Turtle Monitoring – 2021 (Project No. 21-2086)

CLIENT: Ms. Ilyse Triestman
City of Delray Beach
100 N.W. 1st Avenue
Delray Beach, FL 33444
Phone: (561) 243-7351 Email: triestmani@mydelraybeach.com

PROJECT DESCRIPTION: Sea turtle monitoring in support of the City of Delray Beach’s Sea Turtle Monitoring Program and the Delray Beach Nourishment Project (FDEP permit 0303553-001-JC), as described in EAI’s Scope of Work dated December 15, 2020.

PROJECT DURATION: March 2021 – February 2022

TOTAL ESTIMATED COST: The estimated cost for this project, inclusive of all personnel time and materials needed to perform the Scope of Services, less discounts, is **\$95,927.92**.

All services will be provided at the fixed rates specified below (*except where noted*), inclusive of all time and materials required to perform the Scope of Work.

Task	Description	Cost
1	Mobilization	\$730.00
2	Project management	\$3,915.00
3	Pre-season compaction and scarp monitoring (<i>Optional</i>)	\$1,094.25
4	Daily sea turtle monitoring and data management (<i>Daily rate; estimate 275 days at \$152.93 per day</i>)	\$42,055.75
5	Nest marking and monitoring and determination of nest fate and reproductive success (<i>Per nest rate; not to exceed 400 nests at \$57.15*includes 25% discount on nest marking supplies</i>)	\$22,860.00
6	Weekly escarpment surveys (<i>Weekly rate; estimate 35 weeks at \$73.89 per week</i>)	\$2,586.15
7	Monthly lighting evaluations (<i>Per survey rate; \$1,338.94 per survey*includes \$250 equipment discount</i>)	\$10,711.52
8	Post-season lighting meeting with FWC-virtual (<i>if required</i>)	\$375.00
9	Late season nest relocations (<i>Per nest rate; not to exceed 10 nests at \$150.00</i>)	\$1,500.00
10	Reporting	\$8,285.25
11	Public outreach	\$1,815.00
TOTAL ESTIMATED COST		\$95,927.92

PRICES FIRM: The prices quoted above are offered for a period of 30 days. Once an agreement is entered into with EAI for the services described herein, costs will remain fixed through project completion.

BILLING: Charges will be invoiced at the end of each calendar month during which services are performed.

TERMS: 30 days from receipt of invoice.

EARLY TERMINATION: EAI's services may be terminated at any time by providing seven (7) days written notice. There is no penalty for early termination. Only charges accrued to the effective date of termination will be assessed.

LATE PAYMENT: Invoices shall be considered **PAST DUE** if payment is not received by EAI within 30 calendar days of the invoice date. Any unpaid balances for other than disputed charges will draw interest at the rate of one and one-half percent (1½ %) per month commencing 30 days after the date of invoice.

DISPUTED CHARGES: EAI shall be notified in writing of any disputed amount within 10 calendar days after receipt of invoice; otherwise all invoice charges will be considered acceptable and correct.

ENTITLEMENT: EAI is entitled to all reasonable costs, including attorney's fees, associated with the collection of past due charges.