



January 5, 2016

Mark Crosley
Executive Director
Florida Inland Navigation District
1314 Marcinski Road
Jupiter, Florida 33477
mcrosley@aicw.org

Re: SCOPE OF SERVICES & ASSOCIATED FEE ESTIMATE
FIND Intracoastal Waterway (ICWW) Deepening in Broward County
Submerged Resources Surveys
Fort Lauderdale, Broward County, Florida
Scheda Proposal No. 003443.20.P

Dear Mr. Crosley:

Scheda Ecological Associates, Inc. (Scheda) is pleased to submit this scope of services and fee estimate to conduct pre-construction submerged resources assessments for the above referenced dredge project. We understand that the work will consist of identifying all protected resources and resource habitat limits (i.e. seagrasses and hardbottom) along transects that were previously established and surveyed by another consultant. The results of this assessment will be compared to the previous survey results. The project area consists of $\pm 14,400$ linear foot of ICWW from the 17th Street Bridge and to just north of Las Olas Boulevard in Ft. Lauderdale, Florida. We understand that all fieldwork must begin no earlier than March 1, 2016 and all final deliverables must be completed and submitted to Taylor Engineering by March, 29 2016. Scheda will commit to meet this schedule.

SCOPE OF SERVICES

Task Description

1a) SEAGRASS SURVEY & DELINEATION

Scheda will conduct the seagrass survey by identifying areas of submerged resources, by species, size, and coverage, along 158 previously-identified transects (79 transects along the west side of the ICWW channel; 79 on the east side). The transects extend from the edge of the existing channel landward 50 meters or to the shoreline (if less than 50 meters from the channel) and are spaced approximately 50 meters apart along the channel length. The survey will be conducted in accordance with the NMFS Johnson's seagrass survey protocols (specifically the "Recommendations for sampling large project sites (>1 hectare)" of the "Final Recover Plan for Johnson's Seagrass"). The seagrass habitat characterization will include size (square footage) of each identified resource area, species composition, density (approximate percent cover of Johnson's seagrass and other identified species), and relative health of seagrasses. Scheda will also record observations of all other water column and benthic species observed along each transect and the overall abundance characterized as rare, common, or abundant. Locations of any sponges, tunicates, octocorals, and/or hard corals will be located with GPS and the locations provided in tabular and map formats in the final report.

1b) HARDBOTTOM SURVEY & DELINEATION

A previous survey identified 4.42 acres of hardbottom habitat within the project survey area. Scheda will re-survey the previously identified hardbottom habitat areas using the same in situ diver transects and same methodology described in the previous report so that the existing survey can be adequately compared to the new survey. Hardbottom patch boundaries will be mapped with sub-meter accuracy GPS. Any stony corals with a diameter exceeding 10 cm and octocorals in excess of 15 cm will also be located with sub-meter accuracy GPS. The results of the survey effort will be summarized in a report, as detailed in Task 3 below.

2) UMAM DOCUMENTATION REVIEW

Scheda will review previously completed seagrass UMAM impact sheets and compare the UMAM scores to the results of the Task 1a seagrass assessment. If the observations from the Task 1a surveys yield results that differ greatly from the previously completed UMAM scores, Scheda will identify those differences by editing the existing UMAM sheets (via track changes) and provide an Excel spreadsheet listing the current condition of each identified seagrass area and justification for any proposed score changes. Scheda will consult with Taylor Engineering regarding changes to UMAM scores, if needed, via teleconference.

3) SUMMARY REPORTS

Upon completion of the field work, Scheda will provide two summary reports, one for the seagrass surveys and another for the hardbottom surveys, highlighting the results of the submerged resources assessment. The reports will include a description of methods and level of survey accuracy utilized to carry out the submerged aquatic resources survey, general characterization of protected resource conditions, and summaries of survey results including a list of observed flora and fauna. The reports will include graphics that depict the locations of all diver transects, protected resource areas boundaries, seagrass density/coverage, location and limits of Johnson's seagrass beds, and locations of any identified corals that meet the relocation size criteria. The seagrass report will compare the observed seagrass habitat areas to the project dredge footprint and identify any seagrass habitat located within the dredge footprint. Both reports will match the format of the previous reports submitted by another consultant, as best as possible, and be consistent with the requirements of the Johnsons' Seagrass Recovery Plan.

A draft seagrass report will be provided in Word format for initial review. Three hard copies and one digital copy of all written reports will be provided within two working days following receipt of comments/revisions to the draft report. Shapefiles of all graphic features will be provided to FIND and Taylor Engineering in Autocad and ArcGIS formats.

FEE ESTIMATE

The fee estimate totals **\$56,900.00**. This will be considered a lump sum fee estimate, which will not be exceeded without prior written authorization from the Client. The project will be billed monthly based upon the percentage completion of the fee.

Please note that the following assumptions were used in developing this lump sum fee estimate. If additional work time is required due to the inaccuracy of these assumptions or future changes in scope, the client will be notified prior to the work being performed. Written authorization will be obtained from the client prior to performing the work.

1. Survey, engineering, and geotechnical services are to be provided by others.
2. The survey area is generally accessible during typical work hours with advance notice.
3. This scope of services does not include any protected species relocation or mitigation efforts, including coral relocation and permitting. Should corals be observed in the project area that meet the relocation size criteria, a separate cost proposal shall be submitted to FIND within three working days of field work completion to relocate these corals/octocorals.
4. The client shall provide CADD and/or GIS shapefiles for the locations of all diver transects and previously-identified resource area boundaries prior to initiation of the field work.

If these terms and conditions are satisfactory, please authorize the work by signing below and returning one copy to our office. Upon receipt of such signature, this document shall constitute a binding Agreement.

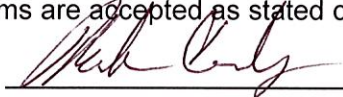
Thank you for the opportunity to provide this scope and fee. Please contact me at (561) 865-7749 if you have any questions or require additional information.

Sincerely,
Scheda Ecological Associates, Inc.



Greg Juszli
Southeast Florida Regional Manager

The above terms are accepted as stated on this 2ND day of FEBRUARY, 2016.

Signature  Title EXECUTIVE DIRECTOR
Printed MARK CROSLY
Witness 