Agenda Item: **3L-1**

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

AGENDA ITEM SUMMARY

Meeting Date:	April 12, 2022	(X) Consent ( ) Workshop	( ) Regular ( ) Public Hearing
Department:	Environmental Resources Management		

I. EXECUTIVE BRIEF

Motion and Title: Staff recommends motion to approve Task Order No. 1543-15 to a continuing Contract with Olsen Associates, Inc. (Olsen) in the amount of $179,163 to provide professional engineering, environmental surveys, reporting, and documentation to be used in permit required monitoring.

Summary: On October 8, 2019, the Board of County Commissioners approved the Contract (R2019-1543) with Olsen, a Jacksonville company. Task Order No. 1543-15 authorizes Olsen to conduct yearly topographic and hydrographic surveying required by project permits. The Task Order also contains optional tasks for post-hurricane surveys and damage assessment reports to aid in securing disaster assistance funding. Costs will be paid from the Beach Improvement Fund. The Contract requires Olsen to adhere to 20% mandatory Small Business Enterprise (SBE) subcontracting goal as the Affirmative Procurement Initiative. Olsen has agreed to 24% SBE participation. The SBE participation for this Task Order is 70.6%. Districts 1 and 4 (YBH)

Background and Justification: Yearly physical monitoring surveys are required as permit conditions for existing beach and dune restoration projects located throughout the County. Post disaster surveys and damage reports are critical to securing funding assistance from the Federal Emergency Management Agency and the United States Army Corps of Engineers.

Attachment:
1. Task Order No. 1543-15 with Exhibits A – D

Recommended by: JOB ybh _____ 3/17/22
Department Director **Date**

Approved by: _____ 4/1/22
Assistant County Administrator **Date**

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2022	2023	2024	2025	2026
Capital Expenditures	$179,163				
Operating Costs					
External Revenues					
Program Income (County)					
In-Kind Match (County)					
NET FISCAL IMPACT	$179,163				
No. ADDITIONAL FTE POSITIONS (Cumulative)					

Is Item Included in Current Budget? Yes X No ____

Does this item include the use of federal funds? Yes ____ No X

Budget Account No.: Fund 3652 Department 381
Unit M015, M028, M037, M040, M044, M045, and M046
Object 3120 Program ____

B. Recommended Sources of Funds/Summary of Fiscal Impact:
Beach Improvement Fund

C. Department Fiscal Review:

III. REVIEW COMMENTS

A. OFMB Fiscal and /or Contract Dev. and Control Comments:

3/28/22 3/30/22
OFMB JA 32822

3-31-22 TW 3/31/22
Contract Development and Control

B. Legal Sufficiency:

Assistant County Attorney

C. Other Department Review:

Department Director

ATTACHMENT 1

TASK ORDER (CONSULTANT SERVICES AUTHORIZATION)

TASK ORDER: 1543-15 CONSULTANT: Olsen Associates, Inc.

ACCOUNT: various CONTRACT: R2019-1543; R2021-1436

[Fiscal approval of Budget Availability: See attached BAS (Exhibit A)]

PROJECT MANAGER: Reubin Bishop PHONE: 561-233-2519

CONTRACT MANAGER: Juan Cueto PHONE: 561-233-2431

PROJECT NAME: 2022 Regional Monitoring Surveys - Beach Profiles, Post-Storm Beach Profiles, and Damage Assessment Report

LOCATION/DISTRICT #: Countywide Coastline and Atlantic Ocean / Districts 1 and 4

TASK DESCRIPTION (use additional pages if necessary): The Consultant shall conduct and prepare surveys and provide data, as described in the attached Olsen proposal dated February 4, 2022 (Exhibit C). OEBO Schedules 1 and 2 (Exhibit B) and the Contract History (Exhibit D) are attached hereto and made part of this Task Order. *Execution of Tasks 9 through 16 will require separate written Notice to Proceed from the County.*

DELIVERABLES: See Olsen's proposal dated 2/4/2022 (Exhibit C).

TASK ORDER TYPE: FIXED PRICE DUE DATE: January 31, 2023

TOTAL AMOUNT $179,163.00

(Check where appropriate)
for Contract and Subcontract Amounts:

		Black	Hispanic	Women	Other (specify)	White Male
M/WBE (State)	☐	$_____	$_____	$_____	$_____	
SBE-M/WBE*	☐	$_____	$_____	$_____	$_____	
SBE	☒	$_____	$_____	$_____	$_____	$126,555.00

*certified as both an SBE and a State MBE
TOTAL SBE PARTICIPATION: $126,555.00

(REMAINDER OF PAGE LEFT INTENTIONALLY BLANK)

CONSULTANT REP: _____ DATE: March 4, 2022
Christopher G. Creed, Vice President

APPROVED AS TO TERMS AND CONDITIONS:

ERM DIRECTOR: _____ DATE: 3-24-2022
Deborah Drum

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

ASSISTANT COUNTY ATTORNEY: */s/Yelizaveta B. Herman* DATE: *3.1.2022*
Yelizaveta B. Herman

ATTEST: JOSEPH ABRUZZO
CLERK & COMPTROLLER: _____ DATE: _____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS: _____ DATE: _____
Robert S. Weinroth, Mayor

Exhibit A
page 1 of 1

Palm Beach County
Environmental Resources Management

INTERDEPARTMENTAL BUDGET AVAILABILITY STATEMENT

REQUEST DATE: 3/2/22

REQUESTED BY: Reubin Bishop

PHONE: 233-2519

PROJECT TITLE: R2019-1543 Annual Contract

PROJECT NO: TO 1543-15

SITE: County Coastline and Atlantic Ocean Dist 1 & 4

ACTIVITY: Monitoring

CONTRACTOR/CONSULTANT NAME: Olsen Associates, Inc

SCOPE OF SERVICES: 2022 Regional Monitoring Surveys- Beach Profiles, Post-Storm Beach Profiles, and Damage Assessment Reports

BUDGET ACCOUNT NUMBER(S):

Fund	Dept	Unit	Obj	SObj	Program	(Proj) Task	(Site) Sub Task	(Activity) Task Ord	Amount
3652	381	M015	3120		E015	S040	COCR	014	$19,070.00
3652	381	M028	3120		E028	S032	CJUB	014	$31,744.40
3652	381	M100	3120		E100	S015	CSII	014	$28,048.20
3652	381	M040	3120		E040	S011	CCOC	014	$32,163.20
3652	381	M044	3120		E044	S023	CSPB	014	$5,740.90
3652	381	M045	3120		E045	S037	CJUC	014	$29,136.40
3652	381	M046	3120		E046	S017	CSLW	014	$33,259.90

BAS APPROVED BY: L. Neary **DATE:** 3/2/22

ENCUMBRANCE NUMBER: _____

OEBO SCHEDULE 1

LIST OF PROPOSED CONTRACTOR/CONSULTANT AND SUBCONTRACTOR/SUBCONSULTANT PARTICIPATION

SOLICITATION/PROJECT/BID NAME: 2022 Regional Monitoring Surveys
SOLICITATION/PROJECT/BID No.: Task Order No. 1543-15
NAME OF PRIME RESPONDENT/BIDDER: Olsen Associates, Inc.
ADDRESS: 2618 Herschel Street, Jacksonville, FL 32204
CONTACT PERSON: Steven C. Howard, P.E.
PHONE NO.: 904-387-6114 **E-MAIL:** showard@olsen-associates.com
SOLICITATION OPENING/SUBMITTAL DATE:
DEPARTMENT: Environmental Resources Management

PLEASE LIST THE DOLLAR AMOUNT OR PERCENTAGE OF WORK TO BE COMPLETED THE PRIME CONTRACTOR/CONSULTANT ON THIS PROJECT. PLEASE ALSO LIST THE DOLLAR AMOUNT OR PERCENTAGE OF WORK TO BE COMPLETED BY ALL SUBCONTRACTORS /SUBCONSULTANTS ON THE PROJECT.

Name, Address and Phone Number	(Check all Applicable Categories) Non-SBE	M/WBE Minority/Women Business	SBE Small Business	DOLLAR AMOUNT OR PERCENTAGE OF WORK Black	Hispanic	Women	Caucasian	Other (Please Specify)
1 Olsen Associates, Inc.	☑	☐	☐				$52,608.00	
2. Terraquatic, Inc.	☐	☐	☑				$126,555.00	
3.	☐	☐	☐					
4.	☐	☐	☐					
5.	☐	☐	☐					
Total							$179,163.00	

(Please use additional sheets if necessary)

Total Bid Price $ $179,163.00

Total SBE - M/WBE Participation $126,555.00

Note:

1. **The amount listed on this form for a Subcontractor/subconsultant must be supported by price or percentage listed on the properly executed Schedule 2 or attached signed proposal.**
2. **Firms may be certified by Palm Beach County as an SBE and/or and M/WBE. If firms are certified as both an SBE and/or M/WBE, please indicate the dollar amount under the appropriate category.**
3. **Modification of this form is not permitted and will be rejected upon submittal.**

REVISED 12/31/2018

Exhibit B
Page 1 of 2

Exhibit B
page 2 of 2

OEBO LETTER OF INTENT – SCHEDULE 2

A completed Schedule 2 is a binding document between the Prime Contractor/consultant and a Subcontractor/subconsultant (for any tier) and should be treated as such. The Schedule 2 shall contain bolded language indicating that by signing the Schedule 2, both parties recognize this Schedule as a binding document. **All Subcontractors/subconsultants, including any tiered Subcontractors/subconsultants, must properly execute this document. Each properly executed Schedule 2 must be submitted with the bid/proposal.**

SOLICITATION/PROJECT NUMBER: Task Order No. 1543-15

SOLICITATION/PROJECT NAME: 2022 Regional Monitoring Surveys and Post-Storm Damage Assessment

Prime Contractor: Olsen Associates, Inc. Subcontractor: Terraquatic, Inc.

(Check box(s) that apply)

☒SBE ☐WBE ☐MBE ☐M/WBE ☐Non-S/M/WBE Date of Palm Beach County Certification (if applicable): 4/28/2020.

The undersigned affirms they are the following (select one from each column **if applicable**):

Column 1	Column 2				Column 3
☒Male ☐Female	☐African-American/Black	☐Asian American	☒Caucasian American	☐Supplier	
	☐Hispanic American	☐Native American			

S/M/WBE PARTICIPATION – S/M/WBE Primes must document all work to be performed by their own work force on this form. Failure to submit a properly executed Schedule 2 for any **S/M/WBE** participation may result in that participation not being counted. Specify in detail, the scope of work to be performed or items supplied with the dollar amount and/or percentage for each work item. S/M/WBE credit will only be given for the areas in which the S/M/WBE is certified. A detailed proposal may be attached to a properly executed Schedule 2.

Line Item	Item Description	Unit Price	Quantity/ Units	Contingencies/ Allowances	Total Price/Percentage
	Professional Surveying Services				$126,555.00

The undersigned Subcontractor/subconsultant is prepared to self-perform the above-described work in conjunction with the aforementioned project at the following total price or percentage: $126,555.00

If the undersigned intends to subcontract any portion of this work to another Subcontractor/subconsultant, please list the business name and the amount below accompanied by a separate properly executed Schedule 2.

_____ **Price or Percentage:** _____

Name of 2nd/3rd tier Subcontractor/subconsultant

Olsen Associates, Inc.
Print Name of Prime

By: _____
Authorized Signature

CHRISTOPHER G CREED
Print Name

Vice President
Title

Date: March 1, 2022

Terraquatic, Inc.
Print Name of Subcontractor/subconsultant

By: _____
Authorized Signature

KENNETH C JACKSON
Print Name

PRESIDENT
Title

Date: MARCH 1, 2022

olsen
associates, inc.
Coastal Engineering

February 4, 2022

Reubin Bishop, Environmental Analyst
Palm Beach County Department of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411-2743

Re: Annual Coastal Engineering Contract
Task Order 1543-15 Proposal
2022 Beach Physical Monitoring Surveys & Post-Hurricane FEMA Project Worksheet Assistance; Palm Beach County, Florida

Dear Mr. Bishop,

Attached please find supporting documentation for proposed Task Order 1543-15 of our existing contract with Palm Beach County.

Palm Beach County Department of Environmental Resources Management (County) has requested Olsen Associates, Inc. (OAI/Consultant), to provide a proposal for the 2022 Beach Physical Monitoring. All surveying and mapping work will be conducted by OAI's sub-consultant Terraquatic, Inc. OAI's role in collection of the survey data will be limited to contract management, coordination, and limited QA/QC. A detailed summary of total proposed costs and Terraquatics' statement of work and cost proposal are attached to this letter.

The County has additionally requested OAI to provide a proposal for completing post-hurricane surveys, engineering analyses, and providing limited coordination with FEMA in order to develop a FEMA Category G Project Worksheet(s) for the County's existing, non-Federal coastal projects. For these tasks, all surveying and mapping work will be conducted by OAI's sub-consultant Terraquatic, Inc., and all engineering analyses and post-storm report development will be conducted by OAI. A detailed summary of the statement of work follows herein, and a statement of the total proposed costs is attached to this letter. Each of these tasks is to be completed on a contingency basis and requires written Notice to Proceed from the County.

Summary of Work (Tasks 1 through 8: 2022 Annual Physical Monitoring)

Task 1: R1 to R8 (8) Onshore/offshore profiles
Task 2: R1.5 to R7.5 (7) Wading depth profiles at ½ monuments
Task 3: R13 to R23 (11) Onshore/offshore profiles
Task 4: T24 to R45 (22) Onshore/offshore profiles
Task 5: R61 to R66 (6) Onshore/offshore Profiles
Task 6: R61.5 to R66.5 (6) Wading depth profiles at ½ monuments
Task 7: R134 to R151 (18) Onshore/offshore profiles
Task 8: T152 to R164 (13) Onshore/offshore profiles

Tasks 9 through 16: Post-storm beach survey

Task 9: Post-Storm R1 to R8 (8) Onshore/offshore profiles
Task 10: Post-Storm R1.5 to R7.5 (7) Wading depth profiles at ½ monuments
Task 11: Post Storm R13 to R23 (11) Onshore/offshore profiles
Task 12: Post-storm T24 to R45 (22) Onshore/offshore profiles
Task 13: Post-Storm R61 to R66 (6) Onshore/offshore Profiles
Task 14: Post-Storm R61.5 to R66.5 (6) Wading depth profiles at ½ monuments
Task 15: Post-Storm R134 to R151 (18) Onshore/offshore profiles
Task 16: Post-Storm T152 to R164 (13) Onshore/offshore profiles

A description of the proposed means and methods to be used for completion of each survey task is included in the attached statement of work from Terraquatic, Inc. Execution of Tasks 9 through 16 will require written Notice To Proceed (NTP) from County.

Deliverables and Project Timeline (Tasks 1 through 16)

Final deliverables are described in the attached proposal from Terraquatic, Inc. Beach profiles field data collection will be completed within forty days (40) of the notice to proceed (NTP). The processing and preparation of final (draft) deliverables shall be submitted with ninety days (90) of the NTP. Weather permitting.

Summary of Work (Tasks 17 and 18: FEMA Project Worksheet Assistance)

Tasks 17 and **18** will provide for professional coastal engineering services to assist the County in preparing engineering damage reports and cost analyses required to support the preparation of FEMA Category G Project Worksheets for five (5) County projects that have established engineered beach or dune sections following hurricane impacts. Execution of Tasks 17 and 18 will require written Notice To Proceed from County. These projects are,

- Coral Cove (R-1 to R-7.5). Eligible infrastructure is a non-Federal engineered dune.
- South Jupiter (aka North County Comprehensive Shore Protection Project (NCCSPP) Segment II; R-19 to R-26). Eligible infrastructure is a non-Federal engineered dune.
- Juno Beach (aka NCCSPP; R-26 to R-38) Segment III. Eligible infrastructure is a non-Federal engineered beach and dune project.
- Singer Island (R-60.9 to R-67). Eligible infrastructure is a non-Federal engineered dune.
- Southern Palm Beach County / Lantana (R-135+450' to R-137+500'). Eligible infrastructure is a non-Federal engineered dune.

Task 17: Post-Storm Damage Assessment

Following the Federal disaster declaration associated with the impacts from a declared disaster (i.e., a hurricane), Palm Beach County is eligible to seek reimbursement for a portion of the cost to repair storm related damages to non-Federal engineered beaches and dunes through the FEMA Public Assistance Program. Such reimbursement is for the beaches and dunes that are

eligible as Category G facilities. The Consultant shall document the locations of the qualifying engineered beaches and dunes and quantify the extent of storm related damages that may be eligible for reimbursement.

As directed by the County, the Consultant shall prepare two reports; the first will be for the Juno Beach project and the second will be for the four dune projects, as mentioned above. Should pre- and post-storm survey data be unavailable, estimations of storm losses produced by the County shall be relied upon, where available. For each reach, the report shall include the following information:

- Description of the previously constructed engineered beach or dune project limited to quantification of the historical alongshore limits of sand placement and the project description included in the permit(s) for the project.
- A summary of the storm event which resulted in the claimed losses.
- Quantification of volumetric losses due to the storm event.
- Where available, storm losses shall be based upon analysis of the pre- and post-storm surveys completed in conjunction with the County's annual physical monitoring efforts. Volume losses shall extend seaward to the point of profile closure or as required by updated guidance from FEMA representatives. Measured volumes shall be adjusted for background erosion potential between pre- and post-storm surveys, as applicable.
- Where pre- and post-storm beach profile survey data are available, volume losses along dune only segments shall be computed as measured volume change above mean high water (MHW) or as required by updated guidance from FEMA. Computations shall utilize an average-end-area methodology based upon the alongshore footprint of the engineered project and surveyed volume change.
- For projects where no pre- and post-storm profile surveys are available, storm-related volume change will be reported according to field observations made by County staff and provided to Olsen Associates.
- Preparation of an Engineer's opinion on probable cost to construct storm repairs for each segment.

As directed by the County, the Consultant shall prepare a separate memorandum summarizing post-storm volumetric change along the Ocean Ridge (T152 to R159) and North County Comprehensive Shore Protection Project, Segment I (AKA Jupiter/Carlin, R13 to R19) reaches. Volume change computations shall extend seaward to the point of profile closure, where available.

The Consultant assumes the following with respect to completion of Task 17:

- No additional survey data will be required.
- In the absence of other supporting documentation, quantification of storm-related losses to shorelines and vegetation shall be based upon data supplied by Palm Beach County.

- Quantification of background erosion losses, as applicable, shall be based upon data supplied by Palm Beach County.

Deliverables (Task 17)

As directed by the County, the Consultant shall prepare two draft summary reports, one for the Juno Beach project and a combined report for all of the dune only project segments as well as a memorandum of volume changes along the Ocean Ridge and NCCSPP Segment I shorelines, as described herein, within 45 days of receipt of a Notice to Proceed and all necessary project documentation from Palm Beach County. Final copies of each report shall be completed within 15 working days of receipt of Palm Beach County comments.

Task 18: Post-Storm Agency Coordination

As directed by the County, the Consultant shall coordinate with the Client and the Federal Emergency Management Agency (FEMA) for purposes of finalizing a Project Worksheet (PW) to secure FEMA funding assistance for the repairs to the eligible engineered beaches and dunes. Such coordination shall be limited to six (6) teleconferences with FEMA representatives. Coordination shall include one (1) revision to the draft report submitted to the County which incorporates additional FEMA guidance. Any additional coordination that may be required shall be considered additional work.

Any additional work required as a result of agency coordination is not included in this proposal. In the event that additional work is required, modifications to this proposal shall be required.

Deliverables (Task 18)

The Consultant shall provide to the County, in writing, periodic updates regarding the coordination efforts with FEMA.

Summary of Costs

Costs by task are detailed in the attached cost itemization table. The total proposed lump sum cost for all tasks is $179,163.00. Of this amount, $126,555.00 or 70.6% is allocated to Terraquatics, Inc., a SBE certified firm. This total lump sum amount is broken down between 2022 Annual Physical Monitoring and post-storm contingency tasks, as follows:

Summary of Costs (Tasks 1 through 9)

The total proposed lump sum cost for Tasks 1 through 9 is $62,695.00.

Summary of Costs (Tasks 10 through 18)

The total lump sum cost for Tasks 10 through 18 is $116,468.00. All work proposed under Tasks 10 through 18 shall be completed on a contingency basis and requires written Notice To Proceed from the County.

Should you have any questions, please do not hesitate to contact me at ccreed@olsen-associates.com or (904) 387-6114 ext. 312.

Sincerely,

Christopher G. Creed
Vice President/Principal Engineer

Attachments
- Cost details
- Terraquatic Proposal

cc: File

Palm Beach County, Florida

ANNUAL COASTAL ENGINEERING CONTRACT
TASK ORDER 1543-15

COST SUMMARY

Task	Olsen Associates, Inc.	SBE Sub	CEG ODC's (WBE)	ODC's (non-SBE/ WMBE firm)	Total
Task 15: 2022 Beach ProfileSurveys for Annual Physical Monitoring & FEMA Project Worksheet Assistance					
Task 1 (R-1 to R-8)	$ 402.50	$ 5,320.00			$ 5,722.50
Task 2 (R1.5 to R7.5)	$ 402.50	$ 4,095.00			$ 4,497.50
Task 3 (R-13 to R-23)	$ 402.50	$ 7,315.00			$ 7,717.50
Task 4 (R-24 to R-45)	$ 402.50	$ 14,630.00			$ 15,032.50
Task 5 (R-61 to R-66)	$ 402.50	$ 3,990.00			$ 4,392.50
Task 6 (R-61.5 to R-66.5)	$ 402.50	$ 3,510.00			$ 3,912.50
Task 7 (R-134 to R-151)	$ 402.50	$ 11,970.00			$ 12,372.50
Task 8 (R-152 to R-164)	$ 402.50	$ 8,645.00			$ 9,047.50
Subtotal (2022 Annual Physical Monitoring, Non-contingency)	**$ 3,220.00**	**$ 59,475.00**			**$ 62,695.00**
Task 9 (Post-Storm R-1 to R-8)	$ 402.50	$ 5,920.00			$ 6,322.50
Task 10 (Post-Storm R1.5 to R7.5)	$ 402.50	$ 5,040.00			$ 5,442.50
Task 11 (Post-Storm R-13 to R-23)	$ 402.50	$ 8,140.00			$ 8,542.50
Task 12 (Post-StormR-24 to R-45)	$ 402.50	$ 16,280.00			$ 16,682.50
Task 13 (Post-Storm R-61 to R-66)	$ 402.50	$ 4,440.00			$ 4,842.50
Task 14 (Post-Sotrm R-61.5 to R-66.5)	$ 402.50	$ 4,320.00			$ 4,722.50
Task 15 (Post-Storm R-134 to R-151)	$ 402.50	$ 13,320.00			$ 13,722.50
Task 16 (Post-Storm R-152 to R-164)	$ 402.50	$ 9,620.00			$ 10,022.50
Subtotal (Post-Storm Physical Monitoring, Contingency)	**$ 3,220.00**	**$ 67,080.00**			**$ 70,300.00**
Task 17 (Post-Storm Damage Assessment)	$ 27,276.00	$ -			$ 27,276.00
Task 18 (Agency Coordination)	$ 18,892.00	$ -			$ 18,892.00
Subtotal (FEMA Project Worksheet Assistance, Contingency)	**$ 46,168.00**	**$ -**			**$ 46,168.00**
Total (All Tasks, Lump Sum)	**$ 52,608.00**	**$ 126,555.00**	**$ -**	**$ -**	**$ 179,163.00**
				SBE Participation (All Tasks)	70.6%

Palm Beach County, Florida

TASK ORDER 1543-15

DIRECT LABOR									OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	Principal	Sr Engineer	Coastal Engr III	Coastal Engr II	Coastal Engr I	CAD	Admin. Asst.	COST	SERVICE	COST	
Rate ($/hr)	$ 209.00	$ 154.00	$ 111.00	$ 99.00	$ 95.00	$ 81.00	$ 85.00				
Task 1 (R-1 to R-8)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 5,320.00	$ 5,722.50
Task 2 (R1.5 to R7.5)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 4,095.00	$ 4,497.50
Task 3 (R-13 to R-23)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 7,315.00	$ 7,717.50
Task 4 (R-24 to R-45)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 14,630.00	$ 15,032.50
Task 5 (R-61 to R-66)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 3,990.00	$ 4,392.50
Task 6 (R-61.5 to R-66.5)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 3,510.00	$ 3,912.50
Task 7 (R-134 to R-151)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 11,970.00	$ 12,372.50
Task 8 (R-152 to R-164)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 8,645.00	$ 9,047.50
Subtotal (Tasks 1-8, Direct Labor)								**$ 3,220.00**	**subtotal**	**$ 59,475.00**	**$ 62,695.00**
Task 9 (Post-Storm R-1 to R-8)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 5,920.00	$ 6,322.50
Task 10 (Post-Storm R1.5 to R7.5)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 5,040.00	$ 5,442.50
Task 11 (Post-Storm R-13 to R-23)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 8,140.00	$ 8,542.50
Task 12 (Post-StormR-24 to R-45)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 16,280.00	$ 16,682.50
Task 13 (Post-Storm R-61 to R-66)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 4,440.00	$ 4,842.50
Task 14 (Post-Solrm R-61.5 to R-66.5)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 4,320.00	$ 4,722.50
Task 15 (Post-Storm R-134 to R-151)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 13,320.00	$ 13,722.50
Task 16 (Post-Storm R-152 to R-164)	0.50	0.75			1.25		0.75	$ 402.50	Terraquatic	$ 9,620.00	$ 10,022.50
Subtotal (Tasks 9-16, Direct Labor)								**$ 3,220.00**	**subtotal**	**$ 67,080.00**	**$ 70,300.00**
Task 17 (Post-Storm Damage Assessment)											
Admin. / Management	4.00	10.00					5.00	$ 2,801.00			$ 2,801.00
Engineering / Design								$ -			$ -
Analysis / Modeling		30.00			8.00			$ 5,380.00			$ 5,380.00
Fieldwork								$ -			$ -
Travel								$ -			$ -
Liason	12.00	12.00						$ 4,356.00			$ 4,356.00
Report Preparation		80.00	8.00			6.00		$ 13,694.00			$ 13,694.00
QA/QC	5.00							$ 1,045.00			$ 1,045.00
Subtotal (Task 17, Direct Labor)								**$ 27,276.00**	**subtotal**	**$ -**	**$ 27,276.00**
Task 18 (Agency Coordination)											
Admin. / Management	2						2.00	$ 588.00			$ 588.00
Engineering / Design		30.00						$ 4,620.00			$ 4,620.00
Analysis / Modeling		30.00						$ 4,620.00			$ 4,620.00
Fieldwork								$ -			$ -
Travel								$ -			$ -
Liason	8	24.00						$ 5,368.00			$ 5,368.00
Report Preparation		24.00						$ 3,696.00			$ 3,696.00
QA/QC								$ -			$ -
Subtotal (Task 18, Direct Labor)								**$ 18,892.00**	**subtotal**	**$ -**	**$ 18,892.00**
SUBTOTAL (Tasks 1 through 9, non-contingency)								**$ 3,220.00**		**$ 59,475.00**	**$ 62,695.00**
SUBTOTAL (Tasks 10 through 16, contingency)								**$ 3,220.00**		**$ 67,080.00**	**$ 70,300.00**
SUBTOTAL (Tasks 17 and 18, contingency)								**$ 46,168.00**		**$ -**	**$ 46,168.00**
TOTAL (Tasks 1 through 18)								**$ 52,608.00**		**$ 126,555.00**	**$ 179,163.00**

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

TERRAQUATIC
SURVEYING AND MAPPING

January 25, 2022

Chris Creed, P.E.
Olsen Associates, Inc.
2618 Herschel Street
Jacksonville, Florida 32204

RE: Professional Surveying and Mapping Proposal
Hydrographic / Topographic Surveying & Mapping
Onshore / Offshore Profiles
2022 Annual Monitoring & Post-Storm Events
Palm Beach County, Florida

Dear Chris,

In accordance with your request, Terraquatic Inc. is pleased to provide the following proposal for professional services pertaining to the above referenced project. The scope of work shall encompass collecting a total of seventy-eight (78) onshore / offshore FDEP profile lines and thirteen (13) intermediate or half-monument wading depth profiles, as follows:

- Task 1 = R1 to R8 (8) Onshore/offshore profiles
- Task 2 = R1.5 to R7.5 (7) Wading depth profiles at intermediate monuments
- Task 3 = R13 to R23 (11) Onshore/offshore profiles
- Task 4 = T24 to R45 (22) Onshore/offshore profiles
- Task 5 = R61 to R66 (6) Onshore/offshore Profiles
- Task 6 = R61.5 to R66.5 (6) Wading depth profiles at intermediate monuments
- Task 7 = R134 to R151 (18) Onshore/offshore profiles
- Task 8 = T152 to R164 (13) Onshore/offshore profiles
- Task 9 = Post-Storm R1 to R8 (8) Onshore/offshore profiles
- Task 10 = Post-Storm R1.5 to R7.5 (7) Wading depth profiles at intermediate monuments
- Task 11 = Post Storm R13 to R23 (11) Onshore/offshore profiles
- Task 12 = Post-storm T24 to R45 (22) Onshore/offshore profiles
- Task 13 = Post-Storm R61 to R66 (6) Onshore/offshore Profiles
- Task 14 = Post-Storm R61.5 to R66.5 (6) Wading depth profiles at intermediate monuments
- Task 15 = Post-Storm R134 to R151 (18) Onshore/offshore profiles
- Task 16 = Post-Storm T152 to R164 (13) Onshore/offshore profiles

The scope of this survey task shall be consistent with that described in the scope of services you requested via electronic mail dated January 24, 2022. All survey operations will be conducted under the direct responsible charge of a Florida Licensed Professional Surveyor and Mapper and will be in accordance with the "Standards of Practice" set forth in Florida Statue 472, Administrative Code 5J17.

Beach Profiles:
Terraquatic, Inc. (TI) shall follow the above described scope of services for the beach profiles as follows:

- ***Planning and compiling historic profile information***
  - Obtain all necessary profile and beach information needed to assist in survey planning and scheduling, such as recent aerial images, previous monitoring report containing all profile control dates, photographs, positions, elevations and historical azimuths

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

- ***Reconnaissance of profile monuments and controlling survey stations***
  - Upload all profile and control station positions into the GPS data collector.
  - All profile data shall be positioned using the second-order control monuments found in the field and calibrated into the network using the Trimble Virtual Reference Station (VRS), which is a subscription service broadcasting RTK corrections state wide.
  - Once a network is established it will be used to navigate to each profile control station at which time a photograph will be taken along with verification of monument stamping, condition and completeness of to reach description.
  - Results of field profile control reconnaissance information will be inserted into the FDEP control spreadsheet for both profile control and survey second-order control stations.

- ***Upland profile data collection***
  - Upland profile data shall be collected using whatever necessary survey methods are needed, such as rod, level and measuring tape, total station or RTK GPS methods and combinations depending on the environmental conditions.
  - Data shall be collected in accordance with the "Physical Monitoring Manual" prepared by FDEP and edited October 2014.
  - Upland data shall commence from each profile control station and extend landward to the limits as defined in the FDEP manual and extend seaward defining all material changes, such as vegetation, dunes, boardwalks, pavement, sand or rock and changes in grade greater than six-inches (6").
  - Profile data shall extend into the water to yield a depth sufficient to establish continuity with the offshore profile data.

- ***Wading Depth-Half Monument Profiles***
  - Shall be conducted following the same guidelines as the upland profile data collection methodologies and techniques.
  - These "Half Monument" profiles shall be collected along profiles placed at a mid-point between adjacent historic profiles and an azimuth either on an average of the adjacent profiles or on a preapproved azimuth directed by the client.
  - Half monument profiles shall extend seaward from the hypothetical profile control point to a minimum depth of approximately minus four feet (-4 foot), NAVD, 88.

- ***Offshore Profile***
  - Horizontal and vertical control of the offshore profile shall be measured using the network previously established for the upland data collection in conjunction with a dual antenna RTK Differential GPS. This GPS (Trimble SPS 461 or similar) has manufacturers horizontal and vertical accuracy tolerances of 2cm.
  - Horizontal and vertical checks shall be conducted at the start and end of each day to confirm position and tide or vertical control accuracies.
  - Horizontal checks will be conducted using existing or established control points set or verified relative to the project GPS network
  - Vertical or tide checks will be conducted using vertical control points either existing or established points set or verified relative to the project GPS network. This check is conducted by measuring to the existing water level (from stated network control) and monitor to the tide level being calculated on the vessel's navigation computer. Adjustments are made to the antenna offset to dial-in the correct tide readings.
  - The GPS unit is also used to aid an inertial navigation sensor that provides vessel motion such as heave, pitch and roll. The SBG model "Ekinox2 "E" unit can also be used to post-

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

process vessel positioning and provide real-time inertial guidance during weak or poor GPS periods or near unsuitable GPS conditions, such as pier, bridges or large ships.

- To measure depths a fully digital dual frequency survey grade sounder will be used in conjunction with a 200kHz narrow beam (3°) transducer. The sounder records an interactive digital trace of the seafloor for archive and post-processing purposes.
- The sounders draft and speed of sound are calibrated at the start and end of each survey day using standard bar-check calibration and sound velocity casts. The bar check is conducted using a flat plate or disc suspended by a graduated cable or chain incremented at five-foot intervals. The bar is then suspended below the sounder transducer for calibration. The bar check is conducted from a minimum depth of (5 feet) to a depth within five-feet of the maximum survey depth or a maximum of sixty-feet (60'). The sound velocity casts are conducted using a velocity probe (Castaway or similar) which records water continuity, temperature and depth (CTD) throughout the water column.
- The sound velocity profile of the water column is applied prior to data collection as needed or during post-processing.

- ***Offshore Data Collection***
  - The vessel operator shall navigate the vessel along the historic profile azimuth using "Hypack" data acquisition and navigation software.
  - Sounding data shall be collected continuously along the profile while recording depth, position, time, date, GPS quality, tide and vessel position relative to the transect.
  - Offshore profiles shall extend from the nearshore limits of the survey vessel, ensuring a depth sufficient to establish continuity with the upland profile data and extend seaward to -32-foot (NAVD, 88) or one-mile whichever is further.
  - Digital sounder records (charts) are recorded simultaneously along with depths to a digital file (*.BIN) which is used for archive records, post-processing and QA/QC purposes.

- **Data Review, Processing and Charting**
  - Upon completion of all field data collection both upland and offshore profile data are reviewed and processed to the project vertical datum, elevations in feet referenced to NAVD, 88. Each profile set (upland and offshore) shall be overlaid prior to merging to confirm vertical closure meets the requirements set forth in the Monitoring Standards.
  - Final merged data sets will be formatted to required Ascii XYZ and FDEP Range-Elevation format.
  - The final XYZ data set shall be imported to a Computer Aided Design (CAD *.DWG) program for production of plan-view, profile, final digital and hard copy charts.

- **Final Deliverables Beach Profiles**
  - AutoCAD format files (*.dwg) showing data in plan and profile view on CD or DVD.
  - One (1) draft copy (24" x 36") of beach profiles surveys. One (1) final signed and sealed copy (24" x 36") of beach profiles surveys.
  - One (1) electronic set of signed and sealed beach profiles in 11" x 17" PDF format with legible seal or an electronic seal.
  - Surveyor Certification
  - Field book copies in PDF format
  - Survey report/monument control report
  - QA/AC Report
  - ASCII raw data file
  - ASCII DEP xyz files
  - DEP DZ formatted files

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

TERRAQUATIC
SURVEYING AND MAPPING

- ASCII monument information file
- Digital photos of monument locations
- Metadata files
- Completed GIS Data Sheet

Cost: Annual Monitoring

Onshore / Offshore Profiles
The cost for the above described services shall be as follows:

• Task 1 = R1 to R8 (8) Profiles	$ 5,320.00
• Task 3 = R-13 to T-23 (11) Profiles	$ 7,315.00
• Task 4 = T-24 to R-45 (22) Profiles	$14,630.00
• Task 5 = R-61 to R-66, (6) Profiles	$ 3,990.00
• Task 7 = R-134 to R-151, (18) Profiles	$11,970.00
• Task 8 = T-152 to R-164, (13) Profiles	$ 8,645.00
Beach Profiles (78), Onshore / Offshore, lump sum fee:	**$51,870.00**

See attached cost breakdown.

Cost: *Upland Wading Depth Half Monument Profiles*
The cost for upland / onshore profiles shall be as follows:

• Task 2 = R1.5 to R-7.5 (7) ½ monument profiles	$ 4,095.00
• Task 6 = R-61.5 to R-66.5, (6) ½ monument profiles	$ 3,510.00
Wading Depth Beach Profiles (13), Onshore, lump sum fee:	**$ 7,605.00**

See attached cost breakdown

Post-Storm Surveys - *Contingency*
Onshore / Offshore Profiles
The cost for the above described services shall be as follows:

• Task 9 = R1 to R8 (8) Profiles	$ 5,920.00
• Task 11 = R-13 to T-23 (11) Profiles	$ 8,140.00
• Task 12 = T-24 to R-45 (22) Profiles	$16,280.00
• Task 13 = R-61 to R-66, (6) Profiles	$ 4,440.00
• Task 15 = R-134 to R-151, (18) Profiles	$13,320.00
• Task 16 = T-152 to R-164, (13) Profiles	$ 9,620.00
Beach Profiles (78), Onshore / Offshore, lump sum fee:	**$57,720.00**

See attached cost breakdown.

Cost: *Upland Wading Depth Half Monument Profiles*
The cost for upland / onshore profiles shall be as follows:

• Task 10 = R1.5 to R-7.5 (7) ½ monument profiles	$ 5,040.00
• Task 14 = R-61.5 to R-66.5, (6) ½ monument profiles	$ 4,320.00
Wading Depth Beach Profiles (13), Onshore, lump sum fee:	**$ 9,360.00**

See attached cost breakdown

**Unit costs per profile are based on a minimum of 8 profiles per work order or a modified cost proposal shall be negotiated.

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

TERRAQUATIC
SURVEYING AND MAPPING

We appreciate the opportunity to provide this proposal and look forward to the opportunity of performing this year's survey for Olsen Associates, Inc. & Palm Beach County.

Sincerely,
Terraquatic, Inc.

Kenneth C. Jackson, PSM
Terraquatic, Inc.

Continued

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

TERRAQUATIC
SURVEYING AND MAPPING

Cost Breakdown

2022 Annual Beach Profile Monitoring

Profiles R-1 to R-8, R-13 to T-23, R-24 to R-45, R-61 to R-66, R-134 to R-151, T-152 to R-164, 78-Profiles

Onshore / Offshore Profiles

Cost Breakdown:

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2- Person GPS Crew	40	$175.00	Crew Hour	$7,000
3-Person GPS Crew	80	$230.00	Crew Hour	$18,400
3-Person Hydrographic Crew	40	$270.00	Crew Hour	$10,800
Computer / Processing CADD	64	$95.00	Per Hour	$6,080
Field Survey Manager / Planning	48	$95.00	Per Hour	$4,560
Project Manager	24	$150.00	Per Hour	$3,600
Professional Surveyor & Mapper	8.17	$175.00	Per Hour	$1,430
Total Cost:				**$51,870**

2022 Annual Beach Profile Monitoring

Half Monument Wading Depth Profile: R1 to R8 & R61 to R66 - 13- Profiles

Onshore Profiles

Cost Breakdown:

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2- Person GPS Crew	0	$175.00	Crew Hour	$0.00
3-Person GPS Crew	24	$230.00	Crew Hour	$5,520.00
3-Person Hydrographic Crew	0	$270.00	Crew Hour	$0.00
Computer / Processing CADD	8	$95.00	Per Hour	$760.00
Field Survey Manager / Planning	4	$95.00	Per Hour	$380.00
Project Manager	4	$150.00	Per Hour	$600.00
Professional Surveyor & Mapper	1.97	$175.00	Per Hour	$345.00
Total Cost:				**$7,605.00**

Terraquatic, Inc.
6836 Bayshore Drive
Lantana, Florida 33462

TERRAQUATIC
SURVEYING AND MAPPING

2022 Post-Storm Beach Profiles

Profiles R-1 to R-8, R-13 to T-23, R-24 to R-45, R-61 to R-66, R-134 to R-151, T-152 to R-164, 78-Profiles

Onshore / Offshore Profiles

Cost Breakdown:

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2- Person GPS Crew	40	$175.00	Crew Hour	$7,000
3-Person GPS Crew	96	$230.00	Crew Hour	$22,080
3-Person Hydrographic Crew	48	$270.00	Crew Hour	$12,960
Computer / Processing CADD	64	$95.00	Per Hour	$6,080
Field Survey Manager / Planning	48	$95.00	Per Hour	$4,560
Project Manager	24	$150.00	Per Hour	$3,600
Professional Surveyor & Mapper	8.23	$175.00	Per Hour	$1,440
Total Cost:				**$57,720**

2022 Post-Storm Beach Profiles

Half Monument Wading Depth Profile: R1 to R8 & R61 to R66 - 13-Profiles

Onshore Profiles

Cost Breakdown:

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2- Person GPS Crew	0	$175.00	Crew Hour	$0.00
3-Person GPS Crew	32	$230.00	Crew Hour	$7,360.00
3-Person Hydrographic Crew	0	$270.00	Crew Hour	$0.00
Computer / Processing CADD	8	$95.00	Per Hour	$760.00
Field Survey Manager / Planning	4	$95.00	Per Hour	$380.00
Project Manager	4	$130.00	Per Hour	$520.00
Professional Surveyor & Mapper	1.94	$175.00	Per Hour	$340.00
Total Cost:				**$9,360.00**

CONTRACT HISTORY
Olsen Associates, Inc.
Continuing Contract for Coastal and Marine Engineering Services

Contract (R2019-1543) dated October 8, 2019 for a period of two years expires on October 7, 2021.
First Amendment (R2021-1436) dated October 5, 2021 extends the contract through October 7, 2022.
SBE-M/WBE Goal 40.0% (16% SBE/White Male; 6% SBE/Woman; 2% SBE/Asian; 16% State certified Woman)

Task Order summary:

TASK NUMBER	TOTAL/ SBE and/or MWBE AMOUNT	TASK DUE DATE	TASK DESCRIPTION	APPROVED BY/DATE
1543-01	10,406.00 0.00	12/31/2019	South Jupiter Dune Restoration Notice to Proceed	ERM 10/28/2019
1543-02	3,674.00 3,065.00	12/31/2019	South Jupiter Dune Restoration Easement Areas	ERM 11/26/2019
1543-03	47,004.00 0.00	9/30/2020	Jupiter/Carlin Shore Protection Project - Post Construction Physical Monitoring	ERM 2/26/2020
1543-04	244,493.00 10,480.00	8/31/2021	North County Comprehensive Shore Protection Project - Segment I (Jupiter/Carlin)	BCC 5/5/2020
1543-05	22,800.00 21,720.00	4/30/2020	Coral Cove Legal Descriptions	ERM 4/1/2020
1543-06	153,904.00 109,920.00	1/31/2021	2020 Regional Monitoring Surveys - Beach Profiles, Post-Storm Beach Profiles, and Damage Assessment Report	BCC 5/5/2020
1543-07	13,206.00 10,480.00	7/31/2020	North County Comprehensive Shore Protection Project – Segment I Design Beach Profile Survey	ERM 4/27/2020
1543-08	9,958.00 8,140.00	10/31/2020	North County Comprehensive Shore Protection Project – Offshore Borrow Area Survey	ERM 6/17/2020
1543-09	178,727.00 128,394.00	1/31/2022	2021 Regional Monitoring Surveys - Beach Profiles, Ebb Shoal Surveys, Post-Storm Beach Profiles, and Damage Assessment	BCC 5/18/2021
1543-10	44,561.00 42,321.00	12/31/2021	2021 Lake Worth Lagoon Seagrass Fixed Transect Monitoring	ERM 5/10/2021
1543-11	15,282.00 14,340.00	8/17/2021	2021 South Lake Worth Inlet Flood Shoal Survey	ERM 5/19/2021
1543-12	38,153.00 20,684.00	10/1/2021	North County Comprehensive Shore Protection Project – Segment I SARBO Coordination	ERM 7/7/2021
1543-13	58,302.00 5,830.00	1/30/2022	North County Comprehensive Shore Protection Project – Segment II Dune Restoration	CRC 8/11/2021
First Amendment			1-Year Contract Extension	BCC 10/5/2021
1543-14	5,194.00 0.00	1/31/2022	North County Comprehensive Shore Protection Project – Segment II Feasibility Study Update	ERM 11/4/2021
1543-13A	8,313.00 7,005.00	4/30/2022	North County Comprehensive Shore Protection Project – Segment II Dune Restoration	ERM 1/31/2022
1543-15	179,163.00 126,555.00	1/31/2023	2022 Regional Monitoring Surveys - Beach Profiles, Post-Storm Beach Profiles, and Damage Assessment Report	BCC

Total: 1,033,140.00
SBE-M/WBE: 508,934.00
SBE-M/WBE Participation: 49.2%
Report Date & Filename: 02/10/22 T:\eer\engser\Consultants\Olsen 2019-2021\[history_1543.xls]Sheet1