

CONSENT

II.A.1.



AGENDA REPORT
November 21, 2017

SUBJECT:

Post-Irma Muck Removal Dredging from the Turkey Creek Project Area.

FISCAL IMPACT:

\$214,901 from the Save Our Indian River Lagoon Trust Fund to leverage \$1,504,305 in FEMA and State emergency assistance. Total project cost is \$1,719,206

DEPT/OFFICE:

Natural Resources Management

REQUESTED ACTION:

It is requested that the Board of County Commissioners: (1) authorize the Chairman to execute a Change Order with Waterfront Property Services, LLC to remove up to 35,300 cubic yards of muck material from the Turkey Creek Project Area, subject to approval by the County Attorney and Risk Management; (2) authorize the Chairman to execute a Task Order with Tetra Tech, Inc. to provide engineering services; (3) approve inclusion of this work in the 2018 Save Our Indian River Lagoon Project Plan Update; and (4) Approve associated budget change requests.

SUMMARY EXPLANATION and BACKGROUND:

On July 22, 2014, the Board authorized execution of a grant agreement between the County and the State of Florida accepting \$10,000,000 in Legislative funding to initiate the Brevard County Muck Dredging Project. Additionally, the Board of County Commissioners authorized the County Manager to execute task orders, contracts, agreements, and change orders. The first County project to begin construction with this funding was at the mouth of Turkey Creek. On December 31, 2015, the County Manager authorized a construction contract with Waterfront Property Services, LLC to dredge, dewater and dispose of about 236,000 cubic yards of muck from the Turkey Creek Project Area.

On September 17, 2013 the Board of County Commissioners (BOCC) approved entering into a continuing services agreement with Tetra Tech, Inc. for engineering consulting services. On January 6, 2016, the County Manager authorized a task order with Tetra Tech, Inc. for construction phase engineering services pertaining to the Turkey Creek Muck Removal Project.

Waterfront Properties Services, LLC completed dredging of Turkey Creek in January 2017 but dewatering and disposal of the dredged material is still underway at the nearby dredge material management area (DMMA). On September 21st 2017, following the passage of Hurricane Irma, a survey of the Turkey Creek Project Area was conducted to assess impacts. The survey indicated that significant amount of muck material had accumulated within the project area as a result of Hurricane Irma. The cost to remove this material is \$1,545,522.12 for dredging, dewatering and disposal plus \$173,684 in engineering services for a total of \$1,719,206.12. Cost efficiencies are attained by completing the work while the dredge crew and pipeline are still set up within the DMMA, but this is only true if dredging can begin in January 2018.

County staff is seeking FEMA reimbursement for this work as the impacts to this project are directly related to Hurricane Irma. The County share of FEMA projects conducted in response to Irma will be 12.5%, or for this project \$214,900.

This project was presented to the Save Our Indian River Lagoon Citizen Oversight Committee (COC) in an October 13, 2017 memo (Attachment C). On October 20, 2017 the COC passed a motion recommending that the County Commission move forward with this project to remove muck from Turkey Creek with the local share coming from the Lagoon Trust Fund. If approved by the Board, this project will be included in the next Save Our Indian River Lagoon Project Plan update.

Staff: Walker Dawson or Virginia Barker, NRM
Phone: 321-633-2016

CLERK TO THE BOARD INSTRUCTIONS:

Execute 3 originals – one for the Clerk of Courts, one for NRMD, and one for Waterfront Property Services and Tetra Tech

ATTACHMENTS:

Description

- ▣ [Waterfront Property Services Change Order](#)
- ▣ [Tetra Tech Task Order](#)
- ▣ [Oct. 13 2017 Memo](#)

REVIEWERS:

Department	Reviewer	Action
Natural Resources Management	McGarry, Mike	Approved
Natural Resources Management	Barker, Virginia	Approved
ACM Devopment and Environmental Scvs.	John Denninghoff	
County Manager	Frank Abbate	

Virginia Barker
[Signature]
Frank Abbate





Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

November 22, 2017

MEMORANDUM

TO: Virginia Barker, Natural Resources Management Director Attn: Walker Dawson
RE: Item II.A.1., Change Order with Waterfront Property Services, LLC for Post-Irma Muck Removal Dredging from Turkey Creek Project Area

The Board of County Commissioners, in regular session on November 21, 2017, authorized the Chairman to execute a Change Order with Waterfront Property Services, LLC to remove up to 35,300 cubic yards of muck material from the Turkey Lake Project Area, subject to approval by the County Attorney and Risk Management; authorized the Chairman to execute a Task Order with Tetra Tech, Inc. to provide engineering services; approved inclusion of the work in the 2018 Save Our Indian River Lagoon Project Plan Update; and approved associated budget change requests. Enclosed are three executed Change Orders and three executed Task Orders.

Upon execution by Waterfront Property Services, LLC and Tetra Tech, Inc, please return a fully-executed Change Order and a fully-executed Task Order to this office for inclusion in the official record.

Your continued cooperation is always appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe, Deputy Clerk

/kp

Encls. (6)

cc: Contracts Administration
County Manager
Finance
Budget



Change Order #4 Back-Up

DATE: October 30, 2017

SERVICE PROVIDER

Waterfront Property Services, LLC DBA
Gator Dredging
 13630 50th Way North
 Clearwater, FL 33760
 Phone: (727) 527-1300
 Fax: (727) 527-1303
 Email: bill@gatordredging.com

CUSTOMER

Mike McGarry - Project Manager
Brevard County
 2725 Judge Fran Jamieson Way
 Bldg C., 3rd Floor, Government Center
 Viera, FL 32940

PROJECT DESCRIPTION: Turkey Creek Muck Removal Project - Additional Services for Dredging of additional accumulated sediments caused by Hurricane Irma:

Description: Gator Dredging has identified up to 35,300 cy of accumulated sediment that was shoaled in the Turkey Creek dredge template Sections: 4, 5, 6, 11 after the Hurricane Irma storm event as shown on attached survey prepared by Bruce Lindh PLS, hereby considered the scope of work for the additional services. Gator Dredging is proposing to hold the original contract unit prices or equivalent proportion of lump sum items for items: A2, A5, A6, A7. The removal of dissolved phosphorus to less than 100 ppb is included in this change order. Item J3A will need to be paid in full regardless of volume dredged due to significantly reduced unit cost offered. In order to complete this additional work, a contract extension to October 1, 2018 is required.

ID	DESCRIPTION	UNIT	QTY	\$ PER UNIT	TOTAL
A1A	Mobilization and Demobilization	LS	1	\$ 397,500.00	\$ 397,500.00
A2	Environmental Protection	LS	1	\$ 6,000.00	\$ 6,000.00
A4A	Progress and As-Built Surveys	LS	1	\$ 10,000.00	\$ 10,000.00
A5	Dredging	CY	35,300	\$ 9.25	\$ 328,525.00
A6	Dredged Material Excavation and Transportation	LS	1	\$ 504,297.12	\$ 504,297.12
A7	Dredged Material Disposal	LS	1	\$ 141,200.00	\$ 141,200.00
TOTAL					\$ 1,385,522.12
J Items - P Removal					
J1A	Mobilization/Demob P-Removal Equipment	LS	1	\$ 16,500.00	\$ 16,500.00
J3A	P - Removal Program	LS	1	\$ 108,500.00	\$ 108,500.00
Optional J Total					\$ 125,000.00
M Items - Flow Channel Construction					
M1	Mobilization/Demob Equipment	LS	1	\$ 15,000.00	\$ 15,000.00
M2	Construct Flow Channel in Section 11 (approx 300' x 75' x 2' deep)	LS	1	\$ 20,000.00	\$ 20,000.00
Optional M Total					\$ 35,000.00
Total:					\$ 1,545,522.12

WGC
 11/30/17

CHANGE ORDER

PROJECT:
Turkey Creek Muck Removal Project

CHANGE ORDER #: 4
DATE: November 21, 2017
PROJECT NO: Bid No. 3-15-86
CONTRACT DATE: December 31, 2015

CONTRACTOR:
Waterfront Property Services, LLC dba Gator Dredging

The Contract is changed as follows:

Up to 35,300 cubic yards of additional dredging services are added at the request of the County to capture accumulated muck associated with Hurricane Irma. Total cost for the additional work, including dredging and all associated costs, is \$1,545,522.12 with detail provided on attached Gator Dredging proposal.

Other than this amendment including attached 10/30/2017 proposal, all other terms and conditions of the original contract continue to apply.

Not valid until signed by the Owner and Contractor

The original Contract Sum was	\$7,107,372.75
Net change by previously authorized Change Orders.....	\$ 1,213,727.93
The Contract Sum prior to this Change Order was	\$8,321,100.68
The Contract Sum will be increased by this Change Order in the amount of.....	\$1,545,522.12
The new Contract Sum including this Change Order	\$9,866,622.80



William Coughlin, III President

13630 50th Way North

Clearwater, FL 33760

Date 11/30/17



Curt Smith, Chairman

2725 Judge Jamieson Way,

Viera, FL 32940

As approved by the Board on 11/21/17

Attest:


Scott Ellis, Clerk

**AGREEMENT TO FURNISH PROFESSIONAL
ENGINEERING SERVICES FOR:**

**REMOVAL OF HURRICANE IRMA STORM-INDUCED SEDIMENT DEPOSITION IN
PALM BAY, FLORIDA**

TASK ORDER NO. IRMA-02

This Agreement is made this 21 day of November, 2017, by Tetra Tech, Inc., hereinafter referred to as the ENGINEER, and the COUNTY OF BREVARD, FLORIDA, hereinafter referred to as the COUNTY, and

WHEREAS, on July 23, 2014, the ENGINEER and the BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY entered into an AGREEMENT, wherein the ENGINEER agreed to furnish engineering services to the COUNTY as referred to in the AGREEMENT, and

WHEREAS, under SECTION II of the PROFESSIONAL SERVICES CONTRACT, the ENGINEER agrees to provide certain professional engineering services which shall be implemented by TASK ORDERS;

NOW, THEREFORE, the parties do mutually agree as follows:

Summary

The COUNTY is undertaking an effort to remove additional muck deposits from Palm Bay; these deposits (in areas previously dredged in conjunction with the Turkey Creek Muck Removal Project) are attributed to the passage of Hurricane Irma. Services include physical sampling and evaluation of the muck sediments within Palm Bay, preparation of construction drawings to be utilized by the County's dredge contractor for the Turkey Creek Muck Removal Project, review of contractor submittals, and providing construction phase services while dredging is underway. Inspections, certifications and an as-built survey of the completed project will additionally be performed. The COUNTY desires to contract with the ENGINEER for professional engineering services to support the COUNTY's efforts to facilitate the removal of the muck deposits in Palm Bay.

Section I, Scope of Work

See Exhibit A

Section II, Schedule

See Exhibit A

Section III, Deliverables

See Exhibit A

Section IV, Compensation

For the scope of work described in Section I of this agreement, compensation from the COUNTY to the ENGINEER shall be on an hourly basis as indicated in the attached Exhibit B (actual expenses by category and tasks may vary from those indicated during the course of work), not to exceed **\$173,684** unless authorized by a written Change Order executed by the COUNTY. Upon submittal of deliverables as described in Section III of this agreement, the COUNTY will be invoiced only for actual work performed. The County shall pay such invoices in accordance with Florida's Prompt Payment Act. The County reserves the right to refuse payment for or deduct from any invoice, fees for incomplete or defective work. The following is a summary of the fee breakdown:

Section V, Other Terms and Conditions

All of the terms and conditions of the Agreement shall apply to this Task Order as fully set out herein unless such terms and conditions are specifically superseded by the Terms and Conditions of this Task Order. It is hereby acknowledged that this Task Order is prepared based upon the master contract approved by the COUNTY on July 23, 2014 for engineering services, and such, this Task Order is subject to all conditions and stipulations contained in said contract, as amended.

PURSUANT TO FLORIDA STATUTE SECTION 558.0035, AN INDIVIDUAL EMPLOYEE OR AGENT OF TETRA TECH, INC. MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.

Section VI, Effective Date and Authorized to Proceed

This Task Order shall be effective on the date specified in the Notice to Proceed from the COUNTY'S designated representative. This task order will expire one (1) year from the date of issuance of the Notice to Proceed unless otherwise extended through a subsequent change order.

IN WITNESS WHEREOF, the parties hereto set their hands and seals the date and year above written.

BREVARD COUNTY BOARD OF
COUNTY COMMISSIONERS

By: 
Curt Smith, Chairman
As approved by the Board on 11/21/17

TETRA TECH, INC.

By: 
Eric T. Dohner
Vice President, Resource Management

Date: 11/21/17

Attest:

By: 
Scott Ellis, Clerk

EXHIBIT A
SCOPE OF WORK



November 2, 2017

Mr. Mike McGarry
Program Manager, Boating, Beaches and Waterways
Brevard County Natural Resources Management Department
2725 Judge Fran Jamieson Way
Building A Room 219
Viera, Florida 32940

Subject: Proposal for Services to Support Removal of Hurricane Irma Storm-Induced Sediment Deposition in Palm Bay, Florida - Task Order Two

Dear Mr. McGarry:

On behalf of the Tetra Tech Team (comprised of Tetra Tech and specialty services subconsultants Ardaman & Associates, Inc., Sea Diversified, Inc., and TestAmerica, Inc.), we are pleased to transmit a proposal to Brevard County to facilitate the evaluation of sediments deposited in Palm Bay, development of construction documents to support supplemental dredging by Brevard County's contractor for the Turkey Creek Muck Removal Project, the provision of appropriate construction phase services in support of the dredging, and development and preparation of a summary report. The scope of services (Exhibit A) provides a detailed description of the services to be provided to Brevard County by the Tetra Tech Team. A labor hour projection for the identified tasks is provided as Exhibit B to this Proposal.

Proposed Fee and Contract

This work will be performed under Contract 260070-14-005, executed July 23, 2014. The rates and other conditions of the contract will conform to the approved rate schedule and contract requirements specified therein. This time and materials price proposal shall not exceed the amount of **\$173,684**, as reflected in Exhibit B.

We appreciate this opportunity to provide the herein described services to Brevard County. Please do not hesitate to call if you should have any questions regarding the enclosed exhibits.

Sincerely,

For Tetra Tech

Handwritten signature of Eric T. Dohner in blue ink.

Eric T. Dohner
Vice-President/Project Principal

Handwritten signature of Michael R. Barnett in blue ink.

Michael R. Barnett, P.E., D.CE
Senior Coastal Engineer/Project Manager

Exhibit A – Scope of Work

Exhibit B – Fee Proposal (Overall Project Summary and Subconsultant Proposals)

ATTACHMENT A

Brevard County

Services in Support of Hurricane Irma-induced Sediment Deposition in Palm Bay

Task Order Two – Scope of Services

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Task 1 - Initial Evaluation of Regulatory Authorization Requirements

Tetra Tech will coordinate teleconference calls with staff of the Florida Department of Environmental Protection's Central District Office and the Jacksonville District office of the U.S. Army Corps of Engineers to obtain an understanding of regulatory approvals needed to undertake additional dredging operations in Palm Bay. Although dredging operations appeared to be complete in early 2017, the County's Contractor, Gator Dredging, continues to manage dredged sediments in Florida Inland Navigation District Dredged Material Management Area (DMMA) BV-52; therefore, construction operations continue to be in force and effect. This fact will be presented to the agencies as evidence that the project work authorized by the currently-issued permit authorizations is still, technically, underway. Meeting summary notes will be prepared by Tetra Tech and distributed to Brevard County and the regulatory agencies within 72 hours of conduct of the call(s).

This scope of services assumes that the FDEP and USACE will require Brevard County (with Tetra Tech continuing to act as an authorized Agent for the County) to prepare and process (minor) permit modification requests. These modifications (if required) would appear to be largely administrative in nature, with the same considerations given for resource protection (seagrasses, oyster beds, manatees) as applies in the currently-issued permits. Owing to expedited timelines desired by Brevard County for preliminary work, this effort will be discussed later as a separate task element.

Total estimated fees for Task 1 services are \$6,940.

Task 2 - Pre-Construction Engineering Services

Task 2.A. Sediment Characterization of Palm Bay Deposition Areas. The Tetra Tech Team will collect up to twelve undisturbed sediment core samples (vibracores) of between 3 and 6 feet in length (vertically) to verify the characteristics of the sediment deposits in those areas within Palm Bay previously subjected to dredging. Sea Diversified, Inc. will provide the coring vessel, equipment and crew as well as all navigational software and any attendant water-based support vessel(s) and personnel to ensure a safe field operation of two days' duration. SDI will record date of sample, an accurate horizontal position 'fix' of each collected vibracore (X,Y in the State Plane Coordinate System), as well as instantaneous indications of water depth and top of sediment elevation (Z value) at the actual vibracore stations occupied by the vessel. Ardaman & Associates will accompany the SDI field crew for the entirety of the operation to observe the work. The field-acquired cores will be transported to AAI's Orlando Laboratory for subsequent evaluations to be performed. The analyses will enable the Tetra Tech Team to document to the regulatory agencies (as well as to inform the dredge Contractor) the nature and character of the sediments to be dredged. The collected cores will be extruded from the liners, split longitudinally and photographed. Samples will be extracted from a sample half of the core at visually evident sediment horizons, and placed in sealed containers for subsequent laboratory analyses.

Sediment samples collected for physical analysis will be analyzed at Ardaman & Associates, Inc. laboratory in Orlando, Florida. Samples collected for chemical analysis will be mixed on-site, placed in

laboratory prepped jars and shipped in iced coolers to a NELAC Certified laboratory. Additional sediment samples will be collected and retained in unpreserved jars for bench scale testing and polymer clarification testing, as needed.

For budgeting purposes, it is assumed that up to twelve (12) individual vibracores will be collected. It is assumed that up to four samples will be extracted from each collected core; each of the samples will be subjected to index testing for moisture content. Two samples per core will be subjected to Atterberg limits, one sample per core tested for organic content. All individual vibracores will be composited to a single sample which will be tested for particle size distribution (sieve analysis), moisture content, organic content, specific gravity and Atterberg limits. Results of the logging, photography and laboratory testing will be compiled into a Geotechnical Report and transmitted to the County for review and approval. In addition, composite samples from each of three select locations (replicate stations at three of the twelve vibracore sites) and one replicate will be collected strictly for analysis of RCRA eight metals via USEPA Method 6020A.

Task 2.B. Construction Drawings. Tetra Tech will utilize the results of the bathymetric survey (collected in October 2017 by SDI under Task Order Number 1) and the geotechnical investigation/findings from Task 2.A above, to generate a plan view overview of the areas to be dredged. Detailed plan and cross-section sheets will be prepared for each of the cut Sections to be subjected to dredging; at this writing it is assumed that portions of cuts SEC-4 through -11, inclusive, will be subjected to some level of dredging. This, coupled with the need for a general notes page, pipeline corridor and staging area sheets (the latter particularly if a site other than Pospisil is utilized) would suggest that up to 12 sheets will need to be generated to submit to Gator Dredging (along with the geotechnical report, described in Task 2.A) for formal pricing and ultimately execution of the work. Vertical dredging tolerances and side-slope sloughing allowances from the shallower, adjacent cuts to cuts SEC-6 and -11 in particular will be included in the drawings. Should the County elect to pursue the 'notch' (trench) element, whereby an approximately 75' wide by 300' long by 2' deep cut will be incised in a north-south orientation from cut SEC-11 to near the south boundary of cut SEC-6, Tetra Tech will include this plan and section drawing as part of the construction drawing set.

The technical and environmental specifications utilized for the initial dredging contract are expected to be in full force and effect. Should additional specifications be required based either on modified means and methods of dredging and disposal employed by the Contractor and/or agency requirements, these elements will be considered additional services and will be scoped under a separate task order authorization.

Task 2.C. Review of Contractor Submittals. Tetra Tech will review Gator Dredging's scope and fee proposal to Brevard County and will provide a written recommendation to proceed with the contracting if all costs and scope items appear to be in order. Following County issuance of a contract to Gator Dredging, Tetra Tech will provide review, revision recommendations as necessary, and approval, of the following anticipated documents: Environmental Protection Plan; Dredging Plan (including discussion as to means and methods of excavation of the 'trench' component and placement of the dredge spoil from

that feature onto adjacent bottom); Staging Area Management and Restoration Plan; DMMA Management Plan; Dredged Material Removal Plan; and, Dredge Pipeline Plan. It is likely that Gator Dredging will utilize the prior (Turkey Creek Muck Removal Project) submittals with dates and other specific elements revised, updated and/or supplemented accordingly.

Total estimated fees for Task 2 services are 78,434.

Task 3 – Construction Phase Services

For scope and budgeting purposes, the assumed duration of dredging of deposited sediments in Palm Bay will be conducted in approximately five (5) weeks, and that sediment management (dewatering, processing, excavation, disposal and transport off-site to County-approved locations) will comprise approximately three months.

Task 3.A. Construction Phase Meetings and Periodic Site Inspections.

Weekly Progress Meetings. On the basis of estimated time to dredge and dispose of the (preliminary estimate) quantity of 35,000 cubic yards of muck deposit into FIND DMMA BV-52 of five (5) weeks, Tetra Tech will participate in six (6) construction progress meetings. Meetings will ideally be held on either Monday or Tuesday morning each week. Generally, the meetings will include discussions under the general topical headings of safety, schedule, environmental compliance, submittals, contract/pay requests, problem prevention and administrative matters/general discussion. Tetra Tech will prepare the weekly meeting agenda and will run the meeting. Meeting minutes will be prepared and transmitted to attendees within 48 hours.

Periodic Site Inspections. Tetra Tech will conduct weekly site observation/inspection visits to the Project for the presumed five week construction dredging operation – which is assumed at this writing will be a continuous operation by the Contractor once dredging commences. Construction progress will be observed at sufficient intervals to verify that the work is progressing in general accordance with the intent of the construction documents. At this juncture, we anticipate Tetra Tech site presence will be required the first two (2) days of dredging and disposal operations, followed by once weekly (periodic) site visits; these site visits may be timed to coincide with one or more of the weekly construction progress meetings, at Tetra Tech's option.

The Tetra Tech engineer or scientist conducting the inspection/observation will note personnel and equipment on the job site (both the dredge area and the disposal operations at the DMMA will be visited), weather conditions, and the general progression of the work (e.g., which dredge Section the Contractor is dredging). Digital photographs representative of the site conditions at the Contractor staging area, the dredge area, DMMA BV-52, and the outfall pipe/discharge location at the Indian River Lagoon will be taken, with date stamp encoding of the photographs for archival and documentation purposes. Any noted or observed deviations from the construction documents will be documented in Non-Compliance Reports and will be followed up until corrective actions are taken by the Contractor and accepted by Tetra Tech and the County.

Every two weeks during active dredging, an Ardaman & Associates' (AAI) engineer/scientist will conduct a site inspection of DMMA BV-52, noting the condition of the containment berms, the perimeter ditches, underdrains, and loading and access ramps utilized by excavators and heavy construction equipment as well as truck transport of dredged material offsite. Should water levels in the DMMA reach 25', the site inspection frequency will be increased to weekly. For the purposes of this task order authorization, it is assumed that AAI will perform a total of up to five (5) site inspections during dredging, and three (3) separate monthly inspections of the DMMA while . A written report of observations, inclusive of site photographs taken to document various elements of the inspection, will be prepared and transmitted to the County within one week of the date of the inspection.

During construction, Tetra Tech will also assist the County with permit compliance. This will include review of items and issues encountered during the previous weeks' efforts at each weekly progress meeting, and discussion of resolution as may be deemed appropriate. In addition, Tetra Tech will coordinate directly with the entities chosen by the County to perform water quality monitoring and manatee observations to ensure the appropriate reports and logs are submitted to the regulatory agencies per the specific conditions of the permits. Tetra Tech will compile and transmit water quality reports to the FDEP weekly as stipulated in Specific Conditions 6-8 of Permit Number ERP05-331191-001 EI, and any subsequent modifications or amendments that may be issued by the FDEP.

Task 3.B Review of Contractor Payment Applications.

Tetra Tech will assist the County in the review of periodic payment application requests from the dredging contractor. It is assumed that we will review and evaluate (and assuming appropriately transmitted, recommend processing/payment) of up to eight (8) distinct Application and Certification for Payment requests from the Contractor. Included in this task will be a verification (quality assurance/quality control) evaluation of Contractor-submitted progress survey(s) that may be conducted during the conduct of the dredging operations. Tetra Tech Team member Sea Diversified Inc. will not conduct any independent progress surveys unless specifically authorized by Brevard County.

Task 3.C Substantial and Final Completion Inspections/Project Closeout.

At Substantial Completion, Tetra Tech will assist the County by participating in an inspection of the Project work along with the Contractor's representative. Any deficiencies or items requiring corrective action will be identified in a compiled Punch List prepared by Tetra Tech and furnished to the Contractor for corrective action(s) as necessary. A final inspection of the Project will be conducted by Tetra Tech (with accompaniment by the County) following reported completion of Punch List corrections by the Contractor. This will include the DMMA and the staging area (presumed to be either Pospisil Avenue or the southwest side of the Melbourne Causeway - Kiwanis Park at Geiger Point). Not included in this scope is an in-water investigation of the pipeline corridor crossing location.

Task 3.D As-Built Hydrographic Survey.

Following completion of the dredging and in advance of final certification of the Project to the regulatory agencies, SDI will conduct a single-event survey of the dredge area to serve as the final (as-built) determination of the post-Project bathymetry. A final dredge quantity will be computed based on

- changes documented between the pre- and post-dredge surveys. Tetra Tech will certify to the completion of the Project to regulatory agencies in accordance with permit requirements.

Total estimated fees for Task 3 services are \$74,800.

Task 4 – Summary Report of Project

Following completion of the supplemental dredging, Tetra Tech will prepare and transmit a concise summary report of both the supplemental activities and, upon restoration of DMMA grades to pre-project, for the Turkey Creek Muck Removal Project in its entirety. The final report will contain approximately 10 to 12 pages of text, 8 supporting figures, and will specifically address the following items:

- **Project Background**: including location, size, funding source, project stakeholders, project goals, and overall project schedule.
- **Existing Conditions**: including Palm Bay and Turkey Lake bathymetry, environmental resources, geotechnical data, and DMMA topography.
- **Permitting Conditions**: including a brief summary of specific conditions that affected construction (i.e., no work during peak manatee activity).
- **Design**: including dredging plan (box cuts) and estimated volume of removal (inclusive of sloughing).
- **Change Orders**: including concise summaries of the weir failure, additional (“clean-up”) dredging, and addition of nutrient removal (polymers).
- **Project Summary**: including a comparison of the estimated vs. actual volume removed, project cost, and project schedule.
- **Lessons Learned**: including a list of items that may benefit future muck removal projects in Brevard County.

Tetra Tech will provide a draft of the report, inclusive of figures, for County review and comment. County comments/edits will be addressed/incorporated, and five (5) hard copies and one digital version of the final report will be transmitted to the County.

Total estimated fees for Task 4 services are \$13,510.

Total fees for Tasks 1 through 4, inclusive are estimated at \$173,684.

EXHIBIT B
FEE ESTIMATE

EXHIBIT B - FEE SCHEDULE

Brevard County - Post-Hurricane Irma Sediment Deposition in Palm Bay

Contract Approved Rate Description	Project Role	Staff	Hours Projected	Approved Rate	Fee Sub-Total
Principal	Project Principal	E. Dohner	8	\$196.10	\$1,568.80
Sr. Professional/ Sr. PM	Project Manager	M. Barnett	184	\$196.10	\$36,082.40
Assist. Proj. Manager	Sediment Chemical Testing Lead; Local Tt Office Lead	M. Shelton	20	\$146.56	\$2,931.20
Assist. Proj. Manager	Lead Dredging Design Engineer	R. Czapinski	128	\$146.56	\$18,759.68
Assist. Proj. Manager	Permitting Lead	E. Hague	48	\$146.56	\$7,034.88
Engineer III	Project Engineer	J. Davis	296	\$129.01	\$38,187.70
Sr. Environmental Scientist	Environmental Permitting & Compliance Support	R. Baron	24	\$103.21	\$2,477.04
GIS Technician	GIS & Production Support	A. Rinne	36	\$82.57	\$2,972.52
Grant Coordinator	Sediment Chemical Testing Coordination and Reporting	K. Smith	6	\$72.25	\$433.50
Admin. Support	Admin. Support	L. Monter	16	\$61.93	\$990.88
	Professional Services Subtotal		766		\$111,438.60
Ardaman & Associates, Inc.	Geotechnical field & laboratory services (w/no markup)				\$ 41,203.00
Sea Diversified, Inc.	Geotechnical (vibracore) acquisition & post-dredge bathymetric survey				\$ 18,460.00
Sea Diversified, Inc.	w/10% fee			10.00%	\$ 20,306.00
TestAmerica	Sediment chemical testing, analysis and reporting				\$ 260.00
TestAmerica	w/10% fee			10.00%	\$ 286.00
ODCS	with no markup			0.00%	\$ 450.00
	Reimbursable Expenses Allowed By Contract				\$ 450.00
Note: Actual Expenditures between Labor and Expense Categories May vary					
TOTAL FEE PROPOSAL - POST-IRMA SEDIMENT DEPOSITION IN PALM BAY TASK ORDER TWO					\$173,683.60



Ardaman & Associates, Inc.

Geotechnical, Environmental, and
Materials Consultants

A Tetra Tech Company

October 30, 2017

Tetra Tech
61 St. Joseph Street, Suite 550
Mobile, Alabama 36602

Attention: Mr. Michael R. Barnett, P.E. - Senior Coastal Engineer

Subject: Scope and Cost Estimate to Provide Vibracore Monitoring and Additional Visual Inspection Services, Brevard County, Florida.

Dear Mr. Barnett:

As requested, we are pleased to present the following scope and cost estimate to perform vibracore monitoring at Turkey Creek and additional visual inspections after filling of the FIND DMMA BV-52 in Brevard County, Florida.

We understand that after Hurricane Irma, some sediments may have moved into areas that were previously dredged at Turkey Creek. Subsurface exploration of the sediments using a vibracore will be performed by Sea Diversified, Inc. Monitoring during sampling as well as testing of the representative samples of sediments will be required. One vibracore sample will be obtained from 9 locations and 2 vibracore samples (1 for geotechnical and 1 for environmental) will be obtained from 3 locations. In addition, visual inspections of the FIND DMMA BV-52 will be needed during and after dredging. It is estimated that dredging will take about 5 weeks and the whole project, i.e., dredging and hauling operations would take about 3 months. The proposed scope of services includes:

- Vibracore monitoring by a Geologist for up to 2 days to collect 15 samples from 12 locations. After sampling, the 12 cores will be brought to Ardaman's Orlando laboratory for extrusion and testing. Each of the 3 environmental samples will be extruded by SDI on board the vessel. The samples will be thoroughly mixed and representative samples will be placed in containers for testing. The containers for environmental samples will be provided to us and testing will be performed by others.
- Index testing on each of the 12 samples which includes moisture content (4 per core), Atterberg limits (2 per core) and organic content (1 per core). In addition, all the contents in each vibracore will be combined to a composite sample wherein it will be tested for moisture content, organic content, particle size distribution, specific gravity and Atterberg limits.
- Provide a summary report of the vibracore sampling monitoring and laboratory testing.
- Bi-weekly visual inspection of the dikes by a technician assuming the water level in the DMMA is below El. 25 feet. The frequency of the visual inspection will be increased to weekly if the water level in the DMMA is at or above El. 25 feet. We have budgeted 8 inspections for this proposal.
- Monthly visual inspections of the dikes by an Engineer during and after filling operations of the DMMA. We have budgeted 3 one-day inspections for this proposal.

8008 S. Orange Avenue (32809), Post Office Box 593003, Orlando, Florida 32859-3003 Phone (407) 855-3860 FAX (407) 859-8121

Louisiana: Alexandria, Baton Rouge, Monroe, New Orleans, Shreveport

Florida: Bartow, Cocoa, Fort Myers, Miami, Orlando, Port St. Lucie, Sarasota, Tallahassee, Tampa, W. Palm Beach

- Provide weekly/bi-weekly and monthly reports summarizing the field inspection findings. If needed, recommendations will also be provided.

The following cost estimate is associated with the Tetra Tech - Ardaman & Associates, Inc. (Tt-AAI) tasks in the scope of work presented above. The total cost will not be exceeded without your prior authorization.

A. Vibracore Monitoring and Laboratory Testing	
1) Vibracore Monitoring	\$2,727.00
2) Laboratory Index Testing	\$12,726.00
3) Report Preparation	<u>\$4,500.00</u>
Sub-Total Budget Estimate	\$19,953.00
B. DMMA BV-52 Inspection	
1) Weekly/biweekly Inspections	\$6,000.00
2) Monthly Inspections	\$6,000.00
3) Project Management and Reports Preparation	<u>\$9,250.00</u>
Sub-Total Budget Estimate	\$21,250.00
Total Budget Estimate \$41,203.00	

The estimated budget of \$41,203.00 is based on our experience with similar projects for the level of effort outlined above. Since our on-site presence is very limited, the on-site project manager and/or contractor should be instructed to perform daily inspections and to notify us if any changed conditions are noted. It is our practice to bill our services based on our time and material fee schedule for actual work performed and to work within an established budget. If, during the course of the work, we realize more information or engineering analyses is needed and the budget will be exceeded, we will notify you prior to performing the additional work. Please note that this scope of work and cost estimate does not include: (i) the cost of performing engineering analyses (e.g., seepage and slope stability analyses, etc.); (ii) the cost of site survey nor checking whether the dikes are returned to the lines and grades prior to dredging; and (iii) inspection of the outlet pipes, spillway pipes and other underground structures that are not visible above ground.

We trust that you will find this scope and cost estimate responsive to your needs. If you have any questions or wish to discuss the proposed scope of work or cost estimate in greater detail, please contact the undersigned.

Very truly yours,
ARDAMAN & ASSOCIATES, INC. - A Tetra Tech Company
Certificate of Authorization No. 5950


M. Aries Cunningham, Ph.D., P.E.
Senior Project Manager


Mohamad Al-hawaree, P.E., P.Eng.
Managing Principal

MH/apc

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Sea Diversified, Inc.

151 N.W. 1st Avenue
Delray Beach, Florida 33444
Phone: 561-243-4920
Facsimile: 561-243-4957

1900 S. Harbor City Blvd, Ste 110
Melbourne, Florida 32901
Phone: 321-984-7268
Facsimile: 321-984-7270

October 17, 2017

Mr. Mike McGarry
Brevard County - Natural Resources Management Department
2725 Judge Fran Jamieson Way, Building A
Viera, FL 32940

c/o Mr. Michael R. Barnett, P.E., D.CE
Tetra Tech, Inc.
11 Riverside Drive, Suite 204
Cocoa, Florida 32922

*Sent via electronic mail 10/20/2017
(Michael.Barnett@TetraTech.com)*

**Re: Proposal / Agreement for Professional Services
Pre- & Post-Dredge Hydrographic Surveys and
Sediment Sampling for Supplemental Dredging of Palm Bay
Turkey Creek Muck Removal Project
Brevard County, Florida
Sea Diversified P.N. 17-2626**

Dear Mr. Barnett:

In accordance with your request, Sea Diversified, Inc. (SDI) is pleased to submit the following proposal for professional services. The scope of work shall include hydrographic (bathymetry and sediment sampling) survey support relating to the proposed Supplemental Dredging of the Brevard County Turkey Creek Muck Removal Project. For purposes of scope planning / development and budgeting, this proposal shall address the following services:

Task One: Pre-Dredge Hydrographic Survey

This shall include a single-event survey of the dredge area to verify conditions in advance of dredging activities. Updated charts shall be prepared and certified by a Professional Surveyor and Mapper registered in the State of Florida. Quantities of dredging shall be computed based upon the new data using the dredge template provided by Tetra Tech.

Task Two: Sediment Core Sampling

SDI, in conjunction with Tetra Tech professionals, shall collect sediment cores from pre-determined locations. Location of sediment cores will be defined by Tetra Tech professionals, based upon the review of the pre-dredge bathymetric survey in Task One. An estimated eight (8) to ten (10) priority core samples shall be collected throughout the project area, with triplicate core samples at an additional two (2) to three (3) sites, for comparative analyses. As time permits, optional supplemental cores will be collected.

Sediment cores will be obtained using a shallow water platform equipped with vibra-core sampler. The vibra-coring device will be capable of collecting undisturbed sediment cores samples between three (3) to six (6) feet, conditioned on the type of sediments. Sediment cores will be collected in clear acrylic tubes, which will be graduated to allow for precise measurements of sediment layers. Core samples will be handled onsite by Tetra Tech and/or Ardaman professionals for all required testing and evaluations. SDI shall record information such as date of the sample, location (X,Y SPCS), water depth, and top of sediment elevation,. All elevations will be recorded in feet relative to the project vertical datum.



**Proposal / Agreement for Professional Services
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Sediment Sampling for Supplemental Dredging of Palm Bay
Turkey Creek Muck Removal Project
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October 17, 2017
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Task Three: Final Post-Dredge (As-built) Hydrographic Survey

This shall include a single-event survey of the dredge area to serve as a final as-built of the dredge project. As-built survey charts shall be prepared and certified by a Professional Surveyor and Mapper registered in the State of Florida. Volumetric-based changes between SDI's final post-dredge and pre-dredge surveys shall be computed considering total change between the survey events, as well as that constrained to within the 3-D limits of the dredge template.

Hydrographic Survey Methodologies:

General:

SDI shall provide supervision, field / office support staff and equipment to perform the scope of work described, herewith. All work shall be conducted to the highest level of industry standards and under the responsible charge of a Professional Surveyor and Mapper registered in the State of Florida. All work shall meet or exceed the Standards of Practice (Standards) set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

Horizontal and Vertical Data:

Horizontal Datum: Feet, relative to the Florida State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD83)
Vertical Datum: Feet, relative to the North American Vertical Datum of 1988 (NAVD88)

Hydrographic Data Collection:

The pre-dredge, interim and/or post-dredge survey events shall be conducted using an automated hydrographic system comprised of a survey launch equipped with a marine grade, single-beam sounder, differential global positioning system and computer-based navigation / data collection system. A differential GPS system shall be used for vessel positioning and navigation. The survey-grade sounder will include a 200 kHz narrow beam (3') transducer. This system, when calibrated to manufacturer's specifications, will yield accuracies of 1 cm plus 0.10% of the water depth when corrected for sound velocity. The sounder shall be calibrated via bar checks at the beginning of each survey day.

Data shall be collected along transects spaced at the same intervals and orientation as previous hydrographic surveys during the Turkey Creek Muck Removal Project. Data shall be collected to the limits of the eastern bay (Palm Bay), specifically SEC-1 through SEC-11, or otherwise directed by Tetra Tech. Sounding data shall be recorded continuously along each survey transect at a minimum interval of six (6) feet along with position, depth, time, date and QA/QC data. As required, SDI will employ conventional poling techniques combined with RTK or DGPS survey methodologies.

Prior to the start of the survey a tide staff will be established in proximity to the project for recording water levels during the course of the data collection activities. The tide staff will be set relative to published control in the project vicinity.

Data Processing and Final Deliverables:

Upon completion of field survey activities, data will be edited and reduced to the project datum and formatted as required for modeling and chart preparation. Final data, reduced to an x,y,z, ASCII format will be imported to a CADD environment and translated to Digital Terrain Model (DTM) for preparation of cross-sections and/or volumetric calculations.

Final deliverables shall include the following:

- Electronic data & CADD files – ASCII, (.xyz) format, MicroStation (.dgn), AutoCAD (.dwg)
- Electronic cross-section charts - Adobe (.PDF) format, if required
- Volumetric Calculations / Estimates (as necessary)
- Certified planview charts (3-sets hardcopy)



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Cost:

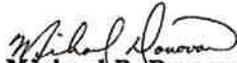
Task One: Pre-Dredge Hydrographic Survey \$ 7,136.00 Lump Sum
(based upon a one-time survey event, including equipment, data collection, processing, and deliverables)

Task Two: Sediment Core Sampling \$ 11,324.00 Lump Sum
(based upon a one-time survey event, including equipment, materials, and field operations)

Task Three: Final Post-Dredge (Asbuilt) Hydrographic Survey \$ 7,136.00 Lump Sum
(based upon a one-time survey event, including equipment, data collection, processing, and deliverables)

Should you have questions or require additional information please do not hesitate to contact us at your convenience. We appreciate this opportunity to assist you with this project and look forward to hearing from you soon.

Best Regards,


Michael P. Donovan, Jr.
Project Manager
Sea Diversified, Inc

Deborah Thomas

From: Donna Scott
Sent: Wednesday, December 06, 2017 3:40 PM
To: Deborah Thomas
Cc: Tammy Rowe
Subject: FW: contracts related to BOCC Nov 21 2017, item II-A-1- Turkey Creek Muck Irma
Attachments: Change Order #4 11-30-17.pdf; TT-Irma-02_signed.pdf; SKMBT_C36017120616240.pdf

Please print for our file.

Donna Scott

Assistant Clerk to the Board
(321) 637-2001 / Ext. 49120



From: McGarry, Michael J [<mailto:Mike.McGarry@brevardfl.gov>]
Sent: Wednesday, December 06, 2017 3:40 PM
To: Donna Scott
Cc: Gerundo, Carol; Tammy Rowe
Subject: RE: contracts related to BOCC Nov 21 2017, item II-A-1- Turkey Creek Muck Irma

Donna,

These two executed contracts were approved by the board, Nov 21 2017, item II-A-1 and have now been executed by all parties. The Clerk's memo is also attached for reference. This should complete the records you need for this agenda item.

Thank You!

Mike McGarry, Program Manager
Beaches, Boating & Waterways
Natural Resources Management Department
2725 Judge Jamieson Way; A-219
Viera, FL 32940

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Fax: 321-633-2029
Cell: 321-537-1779



BOARD OF COUNTY COMMISSIONERS