

## EXECUTIVE SUMMARY

**Recommendation to recommend approval of a Work Order with Atkins North American, Inc. for Physical Monitoring under Contract 09-5262-CZ for a not to exceed Time and Material amount of \$135,200 and make a finding that this item promotes tourism.**

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**OBJECTIVE:** To move forward with Physical Monitoring in Collier County.

**CONSIDERATIONS:** This monitoring will take place on the following inlets of Collier County:

- Barefoot beach/Wiggins State Park Beach Physical monitoring and report performed in July-August this year.
- Vanderbilt Beach physical beach monitoring and report performed in July-August this year
- Clam Pass Beach physical monitoring and report performed in July-August this year
- Park Shore Beach physical beach monitoring and report performed in July-August this year
- Naples Beach physical monitoring and report performed in July-august this year
- South Marco Beach physical monitoring and report performed in July-August this year
- Hideaway Beach physical monitoring and report performed in July-August this year
- Doctors Pass inlet and interior channel performed in July-August this year.

**ADVISORY COMMITTEE RECOMMENDATIONS:** At the May 11, 2012 CAC this item was unanimously recommended for approval by a 6 to 0 vote.

**FISCAL IMPACT:** Funding for this project will be from Tourist Development Tax, Fund 195. Current funding for this work Order is available in Project 90536

**GROWTH MANAGEMENT IMPACT:** There is no impact to the Growth Management Plan related to this action.

**ADVISORY COMMITTEE RECOMMENDATIONS:** Staff is recommending approval of this item.

**LEGAL CONSIDERATIONS:** This item has been reviewed by the County Attorney's Office, requires majority vote, and is legally sufficient for Board action. –

**RECOMMENDATION:** To recommend approval of a Work Order with Atkins North American, Inc. for Physical Monitoring under Contract 09-5262-CZ for a not to exceed Time and Material amount of \$135,200 and make a finding that this item promotes tourism.

**PREPARED BY:** J. Gary McAlpin, P.E., Director, Coastal Zone Management Department

**Professional Engineering Services  
for  
Fixed Term Physical Monitoring Services for Coastal Management**

**Contract Number 09-5262-CZ**

**May 7, 2012**

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**ATKINS NORTH AMERICAN, INC.** is pleased to provide a scope of work for Collier County Coastal Zone Management Department. The intention of this Work Assignment is to provide professional guidance, preparation of project documentation (monitoring reports) and expert review of project information for the Physical Monitoring of the Collier County coastline. In accordance with Collier County Contract Number 09-5262-CZ the following scope of work is presented herein.

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**SCOPE OF SERVICES**

This monitoring will take place on various beaches and inlets of Collier County as indicated below. The following is a list of expected monitoring locations. These locations are inclusive but may vary from year to year depending on permit conditions. Please refer to previous monitoring reports for exact boundaries, survey locations, ranges and control monuments. Consistency with previous surveys is extremely critical and significant to Collier County. Contractors/consultants will have the responsibility to complete monitoring for the respective beach segment during the times indicated for each segment. Locations and monitoring timing is as follows

- Barefoot Beach/Wiggins State Park Beach physical monitoring and report performed in July-August this year.
- Vanderbilt Beach physical beach monitoring and report performed in July-August this year.
- Clam Pass Beach physical monitoring and report performed in July-August this year.
- Park Shore Beach physical beach monitoring and report performed in July-August this year.
- Naples Beach physical monitoring and report performed in July-August this year.
- South Marco Beach physical monitoring and report performed in July-August this year.
- Hideaway Beach physical monitoring and report performed in July-August this year.
- Doctors Pass inlet and interior channel performed in July-August this year.

**Beach and Nearshore Hydrographic Survey**

All work shall be conducted in accordance to Section 01000 (Beach Profile Topographic Surveying) and 01100 (Offshore Profile Surveying) of the March 2004 Bureau of Beaches and Coastal Systems Monitoring Standards for Beach Erosion Control Projects including field methodology and final deliverables. <http://www.dep.state.fl.us/beaches/publications/pdf/standard.pdf>

Prior to the start of the survey a reconnaissance of FDEP second order monuments is required to confirm that survey control is in place and undisturbed using Real Time Kinematic Global Positioning System (RTK GPS). In order to achieve required accuracy, the survey shall be controlled using FDEP 2nd order monuments. All assessable 2nd and 3rd order FDEP control monuments in the project area shall be located using RTK GPS.

Topographic and Hydrographic profile surveys will be collected. All data seaward of the dune shall be collected using RTK GPS technology. Upland areas inaccessible to RTK GPS shall be collected using standard differential leveling techniques. Upland topography shall extend approximately 150 feet landward of the vegetation line or until an obstacle is encountered.

An ACSM Certified Hydrographer shall oversee all hydrographic surveys for nearshore, offshore and inlet surveys. Hydrographic portions of the profile line shall be collected from a survey vessel equipped with RTK GPS technology and a dynamic motion sensor to provided instantaneous tide and motion corrections. Standard hydrographic procedures shall be followed including all necessary quality control checks. Horizontal and vertical positioning checks will be conducted at the beginning and end of each day using second order FDEP monuments located in the project area. The fathometer will be calibrated via bar-checks and a sound velocity probe at the beginning and end of each day. The DIGIBAR PRO sound velocity meter or equivalent which provides a fast additional calibration for sound velocity as compared to the traditional bar check shall be used. More specifically, bar checks will be performed from a depth of five feet to a maximum depth of twenty-five feet. Analog data showing the results of the bar check calibration will be displayed on the fathometer charts at five foot increments during descent and ascent of the bar.

In order to maintain the vessel navigation along the profile lines HYPACK navigation software or equivalent shall be used. This software shall provided horizontal position to the sounding data allowing real-time review of the profile data in plan view or cross section format. The navigation software shall also provided navigation to the helm to control the deviation from the online azimuth. The landward limits of the hydrographic survey shall be based on a minimum of fifty feet beyond the seaward extent of the beach profile. Profiles shall extend seaward beyond the depth of closure, or 2,500 feet offshore, whichever is further.

A Professional Surveyor and Mapper (PSM) shall sign and seal the required FDEP survey reports which shall included field survey notes, profile plots, GIS plan view maps, photographs in both directions along the beach and towards the dune also a close-up of the monument when found as well as all other required deliverables included in Section 0100 and 01100 of the FDEP Monitoring Standards for Beach Erosion control Projects <http://www.dep.state.fl.us/beaches/publications/pdf/standard.pdf>. Two copies of the report along with a CD version will be provided to the County.

### **Navigation Channel and Interior Inlet Hydrographic Survey**

Nearshore cross-sections will be surveyed as per the previous post-construction survey events. An ACSM Certified Hydrographer shall oversee the hydrographic survey. All work will be conducted in accordance to Section 01200 (Borrow Site, Shoal and Other Bathymetric Surveying) of the March 2004 Bureau of Beaches and Coastal Systems Monitoring Standards for Beach Erosion Control Projects.

Cross-sections will be collected from a survey vessel equipped with RTK GPS technology and a dynamic motion sensor to provided instantaneous tide and motion corrections. Standard hydrographic procedures shall be followed including all necessary quality control checks. Horizontal and vertical positioning checks will be conducted at the beginning and end of each day. The fathometer will be calibrated via bar-checks and a sound velocity probe at the beginning and end of each day. The DIGIBAR PRO sound velocity meter or equivalent which provides a fast additional calibration for sound velocity as compared

to the traditional bar check shall be used. More specifically, bar checks will be performed from a depth of five feet to a maximum depth of twenty-five feet or a depth representing the maximum potential depth of the survey area. Analog data showing the results of the bar check calibration will be displayed on the fathometer charts at five foot increments during descent and ascent of the bar. In order to maintain the vessel navigation along the profile lines HYPACK navigation software or equivalent shall be used. This software provided horizontal position to the sounding data allowing real-time review of the profile data in plan view or cross section format. The navigation software will also provided navigation to the helm to control the deviation from the online azimuth.

### **Preparation of Post-Project Monitoring Reports**

ATKINS shall prepare the yearly monitoring reports in accordance with the Florida Department of Environmental Protection (FDEP) Bureau of Beaches and Coastal Systems (BBCS) protocol for submittal to Collier County.

Data collected for the monitoring of the project shall include beach profile surveys, and borrow area surveys. These data will be collected by Morgan & Eklund, Inc for the topographic & bathymetric survey information. The purpose of the monitoring reports is to summarize and discuss the data, the performance of the beach fill project, and identify erosion and accretion patterns within the monitored area. In addition, the report shall include a comparative review of adverse impacts attributable to the project(s). Based on the scope of work requested by Collier County, ATKINS will only address Range Monuments R-11 through R-89, T-128, R-139 through R-148, 9 intermediate lines, 30 specified project lines, and 45 specified near-shore lines will also be sampled. ATKINS will review the data and use the information to create a database to identify and characterize trends and current conditions of these reaches of Collier County's coastline. The database will be created to enable visualization and completion of a comparative analysis.

Specific quantities and parameters that will be analyzed, if data are available, include the following:

- Shoreline and volume change rates
- Beach profile evolution
- Bathymetry changes within Doctor's Pass, Capri Pass and Caxambas Pass
- Identifying and quantifying areas of acute erosion
- Bathymetry changes across the borrow areas

The above analyses will provide a qualitative understanding of the project and/or storm-induced topography and bathymetry changes to the beach and borrow area.

All monitoring reports will include a transmittal referring to applicable FDEP permits, the permit condition requiring the report and the period in which the monitoring was conducted. The reports will be submitted as a bound printed report and on a disk in electronic .pdf format.

ATKINS will prepare for, travel to and attend three (3) meetings. The meetings will be held to coordinate the project, meet with County staff, and to provide project updates to the County Project Manager and other stakeholder representatives as deemed necessary and appropriate. One ATKINS senior engineer will attend each of these meetings, again as deemed appropriate.

ATKINS will complete monthly updates to County staff on the schedule, task and present budget of the project. In addition, quarterly progress reports will be prepared that outline project expenses to date and review the budget and schedule.

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**Budget Estimate**

Work for this assignment will be performed for the amount of **\$195,700**. Work will be billed to the County on a monthly basis based on the percentage of work completed for the preceding month. The budget breakdown per project area is as follows:

Task 1 – Barefoot, Wiggins, Vanderbilt, Clam, Park Shore, and Naples Beach Physical Monitoring Beach Profile Surveys, Doctor’s Pass Inlet Survey.....	\$66,000	Yes
Task 2 – Barefoot, Wiggins, Vanderbilt, Clam, Park Shore, and Naples Beach Engineering Monitoring Report.....	\$40,000	Yes
Task 3 – Hideaway Beach Physical Monitoring Beach Profile Surveys.....	\$33,500	
Task 4 – Hideaway Beach Engineering Monitoring Report.....	\$27,000	
Task 5 – South Marco Island Physical Monitoring Beach Profile Surveys.....	\$15,200	Yes
Task 6 – South Marco Island Engineering Monitoring Report.....	\$14,000	Yes
<b>Total.....</b>	<b>\$195,700</b>	

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**Schedule Estimate**

The following schedule of completion is anticipated.

1. Submit draft monitoring reports within **120** calendar days following the Notice-to-Proceed and receipt of all required data (surveys) to complete analysis.

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**Assumptions**

1. All existing information/documentation including, but not limited to, survey data, project permits, environmental information, previous studies, etc. will be provided to ATKINS by the County.
2. This quote is based upon project scope outlined and conversations with County Staff on April 4<sup>th</sup> and May 3<sup>rd</sup>, 2012.
3. No biological monitoring of artificial reefs or hardbottom are included in this scope of work.
4. No side-scan sonar or diver verification of seagrasses, artificial reefs or hardbottom are included in this scope of work.
5. No aerial photography will be flown per County direction.

  
Jeffrey R. Tabar  
Project Director  
Atkins North American, Inc.

May 7, 2012

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Date