



**SARASOTA COUNTY**  
*"Dedicated to Quality Service"*

***INTEROFFICE MEMORANDUM***

To: Board of County Commissioners  
Through: Robert Patten, Executive Director, ESBC *RP*  
From: *for E.S.W.* Eric Sutton, General Manager, Natural Resources, ESBC  
Subject: Board Assignment #05032 – Status of Beach Erosion and Nourishment  
in South Siesta Key  
Date: March 24, 2005

**BACKGROUND AND EXECUTIVE SUMMARY**

Homeowners at south Siesta Key raised serious concerns over an acceleration of the beach erosion problem that directly threatens their coastal properties and private portions of Blind Pass Road. The Board of County Commissioners requested that Coastal Resources (CR) staff submit a report on recent shoreline changes, effects on the remaining homes, and status of the County's beach restoration project to seek possible solutions. This report addresses these issues.

In summary, CR staff has concluded the following after this study:

- The acceleration of beach erosion and coastal property damages result from the adverse impacts of existing rigid coastal armoring structures, and the unstable nature of the beach after Midnight Pass closing in that region. Demolition of the Burns' second residence did not contribute to this problem.
- Sarasota County's South Siesta Key Beach Nourishment Project is the best long-term solution. However, as significant timeline uncertainties exist in the State and Federal permitting processes, the project may not serve as a short-term solution.
- Beach erosion is expected to continue in the future. Staff has outlined options that are currently available for local residents under the State and County regulatory programs.

**SHORELINE EROSION AND COASTAL ARMORING**

South Siesta Key beach (Fig.1) has undergone continuous erosion ever since the closure of Midnight Pass in 1983. The Florida Department of Environmental Protection (FDEP) estimated that an average of 5.3 feet of beach has eroded every year from 1987 to 2001 in this area. During this past winter, an acceleration of beach erosion was observed at the end of the Blind Pass bulkhead, north of 9250 (Plodzien) and 9200 (Fassy) Blind Pass Road (#3 & #4 in Fig.1). Over

a two-month period, about 40-50 feet of beach width and 3-5 feet of beach elevation is estimated to have been eroded at this location (Fig.2), causing a direct threat to the road (Fig.3). Waves also undermined both pile-supported residences, threatening their entryways, garages and septic systems (Figs.4&5).

Shoreline erosion on south Siesta Key has resulted in shoreline hardening as a response. Figure 1 shows three existing rigid shore protection structures (A, B, & C in Fig.1) in this area. In addition to a 1,100-foot long rock revetment in front of Fisherman's Cove and Fisherman's Haven Condominiums, a 510-foot long steel sheet-pile bulkhead along a portion of Blind Pass Road was constructed immediately south of the rock revetment in 2001. A U-shaped aluminum sheet-pile bulkhead was installed at 9230 (Colkitt) Blind Pass Road to protect a non-pile supported gulf front residence in May 2003. The County also has authorization to build a temporary 432 feet long aluminum bulkhead at Turtle Beach Public Park.

### **PROPERTY DAMAGES**

Coastal armoring did provide protection for some of the coastal properties in the region [e.g. Fisherman's Cove and Haven Condominiums (#1 & #2 in Fig.1)], but the armoring appears to have adversely affected neighboring properties by interrupting the littoral drift (alongshore sand transport) to the south and north. In March 2003, the seaward portion of a residence at 9210 (Burns) Blind Pass Road collapsed into the Gulf and was subsequently condemned and removed by the County (Fig.6). Last winter, portions of Blind Pass Road at the end of the bulkhead were eroded and not passable (Fig.3a). Residents were forced to reopen the road further north. During the 2004 Florida hurricane season, portions of the Colkitt's (9230 Blind Pass Road) aluminum bulkhead, pool, wood deck, and about 275-feet long concrete cap of the Blind Pass bulkhead were destroyed by storm waves (Figs.3b&7). Burns' remaining residence also sustained structural damage and was condemned and demolished by the County in late October 2004 (Fig.6f).

Right after Mrs. Burns' residence was demolished, local residents observed an acceleration of erosion and perceived that these two events were more than a coincidence. Staff strongly believes that this perception is incorrect for the following reasons: Burns' storm damaged residence, when demolished, was at least 20 feet away from the mean high water line. It never acted as a "groin" or a shore protection structure. It did not reflect any wave energy, nor interrupt the currents and sand transport in that region. The acceleration of the erosion is most likely a result of the adverse impacts of existing shoreline protection structures, in addition to the unstable nature of the beach after the closure of Midnight Pass in this area. North of this area, the rock revetment and the Blind Pass Bulkhead interrupt most of the sand transport from the north to south. South of this area, the location of Colkitt's bulkhead not only reflects wave energy, but also blocks sand transport from south to north, leaving this particular area as the most susceptible place for shoreline erosion. This trend is expected to continue in the future until the beach can be nourished.

### **AVAILABLE OPTIONS TO AFFECTED RESIDENTS**

Staff has outlined options that are currently available under the provisions of Sarasota County Coastal Setback Code and FDEP administered regulations:

- (1) Seek an administratively authorized *Emergency Class I* Coastal Setback Variance from the County for the use of temporary sand bags to protect ground-level residential entryways, garages and septic systems at the Plodzien and Fassy residences and any portions of the roadway that are directly and immediately anticipated to be damaged or destroyed. The preliminary feedback on this proposal that CR staff has received from the FDEP field engineer, Steve West, is that the agency would probably support such a project, but that it may require more formal authorization from their Tallahassee office.
- (2) Seek an *Emergency Class II* Coastal Setback Variance from the Board of County Commissioners for the use of a more substantial *temporary* shore protection structure to protect "vulnerable" portions of the road until beach nourishment occurs. Both the FDEP and CR staff would require that a professional coastal engineer be hired to prepare this application. FDEP would require a Coastal Construction Control Line (CCCL) Permit for such a project.

With regard to the protection of the Plodzien and Fassy residences, it should be noted that due to the adverse effects of permanent shore protection structures on coastal processes, the Sarasota County Coastal Setback Code and Chapter 62B-33 of the Florida Administrative Code (FAC) prohibit their use to protect structures that are neither "eligible" nor "vulnerable" under 62B-33 FAC. Both residences are located on a deep-pile supported foundation system and are therefore not eligible. For this reason, permanent coastal armoring may not be authorized by either the FDEP or the County to protect both residences.

- (3) Continued placement of beach compatible sand along the shoreline in a manner that is consistent with the County's beach and dune restoration guideline sheet. A Field Permit will be required from Steve West at FDEP for this option.
- (4) It has recently been suggested that sand-fill for shore protection at Blind Pass Road might be made available by maintenance dredging of the Turtle Beach lagoon channel. The West Coast Inland Navigation District currently holds a permit for such dredging. In order for this strategy to be effective, there must be sufficient beach-compatible sand in the dredge spoil. If sufficient material exists, it may only be extractible by mechanical or hydraulic sorting. This would place an additional cost burden on a dredging project. Finally, disposing of the dredge spoil on the beachfront would require the use of submerged sovereign State lands. According to the FDEP, this action will require a Joint Coastal Permit (JCP), the same type of permit required for both the South Siesta Beach Nourishment Project and the Midnight Pass Reopening Project. Consequently, the timeframe for such an option may render it unfeasible.

## **A LONG-TERM SOLUTION – BEACH NOURISHMENT PROJECT**

### **PROJECT HISTORY**

On January 9, 2001 the BCC executed a contract with Charlotte County and the Florida Department of Environmental Protection (FDEP) to conduct the Sarasota-Charlotte County Beach Restoration Feasibility Study. Coastal Technology Corporation submitted the Feasibility Study on July 22, 2003. On December 16, 2003 the BCC executed a contract with Coastal Planning & Engineering, Inc. (CPE) for design and permitting of the South Siesta Key Beach Restoration Project. CPE submitted a Joint Coastal Permit application to the FDEP for the aforementioned beach restoration on November 19, 2004. FDEP issued “Request for Additional Information #1” (or RAI #1) on December 22, 2004.

### **CURRENT STATUS**

As of this report date, the following work elements are being performed on the Beach Restoration: completing the Geotechnical and Borrow Area Reports; modeling the north-end project performance; drafting responses to FDEP comments; contracting and executing fieldwork mandated by RAI #1; completing the MSBU study fieldwork; and exploring a lateral pedestrian access easement. CPE will submit a response to RAI #1 by the end of March.

### **CURRENT CHALLENGES**

Throughout the life of the project, the target date to begin construction of the beach restoration has been November 2005. At present, several significant challenges to the desired schedule exist. First, the US Army Corps of Engineers (Corps) has not yet issued a Public Notice of Permit Application. This is an early step in the Corps’ permit review process whereby they not only begin the public comment period, but also alert their partner agencies to the existence of the permit application. Consultation with the other Federal agencies cannot begin until the Public Notice is issued. The Corps received our application in early December. Since that time, the Corps has requested additional information, and CPE has provided responses. However, the Corps will not issue its Public Notice until it has decided whether or not to require an Environmental Impact Statement (EIS) on the project. This decision is usually made within about 60 days of receiving the application.

The Corps has stated it may require an EIS for the beach restoration project. This is apparently the standard approach to initial beach restorations in the Jacksonville District of the Corps. An EIS is a major study through which the applicant is required to document alternative approaches and collect public input. This process will impose significant additional time and cost on the project. An EIS takes two years on average to complete.

Several other Federal review requirements must be met during the permitting of the beach restoration. One of the more noteworthy is the issuance of a Biological Opinion by the US Fish and Wildlife Service. The Biological Opinion documents both potential impacts of the project to listed species, and sets forth requirements to prevent or manage those impacts. It can take four to six months or longer, after the Corps’ Public Notice, to receive a Biological Opinion.

Finally, the FDEP’s own permit-review process and timeline will create challenges for the project. The FDEP is required to respond to an application submittal within 30 days of receipt.

The FDEP commonly issues three or four RAIs during the course of a permit review. Applicant responses may take several months to compile, but the response time declines as the review progresses. Once an application is deemed complete, the FDEP may take 90 days to issue a permit after completing their review.

### STILL TO COME

The following additional permitting and preparation elements must be completed in order for construction to begin on the beach restoration (in addition to acquiring the permits, and assuming no EIS): create and adopt the MSBU; create and adopt the construction easements; create the construction bid package; advertise and award the bid; negotiate the construction contract; satisfy all preconstruction permitting requirements; and mobilize the dredge.

### CONCLUSIONS AND RECOMMENDATIONS

The likelihood of starting construction on the South Siesta Key Beach Restoration Project in November 2005 is small. The best-case scenario is that construction would begin in January 2006, but only if everything falls into place. Even this schedule might not be realized, especially if the County is required to prepare an Environmental Impact Statement. As noted above, several other areas of timeline uncertainty exist in the State and Federal permitting processes.

It might be possible to shorten our response times somewhat during the permit review process if the County Administrator were delegated signature authority on any amendments to our contract with CPE for additional work necessary to address agency comments. Also, during the time period leading up to the construction of the beach restoration, it is recommended that the County support/facilitate interim emergency sand-fill projects initiated by the homeowners at the most severely eroded portion(s) of the project area.

### CONCLUSIONS

CR staff concluded the following:

- (1) Both the adverse impacts of existing rigid coastal armoring structures and the unstable nature of the beach after the closure of Midnight Pass contribute to the shoreline erosion and property damage at south Siesta Key. Demolition of the Burns residence is a result of shoreline erosion, not a cause.
- (2) Given the significant uncertainties in obtaining State and Federal permits for the County's South Siesta Key Beach Project in a timely manner, the project should not be considered a short-term solution.
- (3) Currently, some options are available under the County and State regulatory programs. Affected residents are encouraged to seek temporary protections for the upcoming storm season because the erosion trend is expected to continue in the near future.
- (4) In order to evaluate the feasibility of using maintenance-dredge spoil for sand fill on South Siesta Key, further exploration of the material compatibility, timing and cost

implications of this concept is warranted. This option will be more fully examined pursuant to Board Assignment #05040 (due on April 14, 2005).

c: James L. Ley, County Administrator  
David R. Bullock, Deputy County Administrator  
Susan M. Scott, Deputy County Administrator  
Laird Wreford, Manager, Coastal Resources  
Weiqi Lin, Senior Technical Associate, Coastal Resources  
Curtis Smith, Project Scientist, Coastal Resources



**Fig.1** An aerial view (August 12, 2004) shows the location of the subject South Siesta Key area. The listed gulf front properties are: (1) Fisherman's Cove Condominium; (2) Fisherman's Heaven Condominium; (3) Plodzien; (4) Fassy; (5) Burns' remaining house (No longer exists, demolished by the County in late October 2004); (6) Colkitt; and (7) Palmer Point Park. The listed shore protection structures are: (A) a 1100-foot long rock revetment; (B) a 510-foot long steel sheet-pile bulkhead; (C) a U-shaped aluminum bulkhead at Colkitt's gulf front house. The whole region is covered in the range of Sarasota County proposed beach nourishment project.





**Fig.2** An acceleration of beach erosion occurred at the end of the Blind Pass bulkhead, north of 9250 Blind Pass Road (Plodzien). From December 16, 2004 to February 18, 2005, an estimate of 40-50 feet wide and 3-5 feet height of beach erosion was observed in a two-months period, undermining the pile-supported house and threatening its entry way, septic system and the road.



**Fig.3** Damage to the Blind Pass Road. (3a) Local scouring at the end of the bulkhead made the road un-passable last winter. (3b) Storm waves like this one destroyed a 275-foot concrete cap of the 510 feet long steel bulkhead (photo was taken on September 16, 2004 after Hurricane Ivan). (3c) Storm wave over-topped the bulkhead and washed portions of the road (photo was taken on September 16, 2004). (3d) The tree was washed out and the road is under direct threat.





**Fig.4** Due to shoreline erosion, wave action undermined Mr. Plodzien's (#3 in Fig.1) pile-supported residence this winter. 4a, 4b&4c showed the pile caps were undermined by wave actions. (4d) The breakaway fence was damaged.



**Fig.5** Dr. Fassy's pile-supported residence was undermined by wave actions. (5a) & (5b) Former garage area was completely washed away, the entryway was directly under threat. (5c) Sewage pipes were washed out. (5d) Septic tank was exposed and under threat.



**Fig.6** As a result of beach erosion, one of the two Mrs.Burns' residences collapsed into the Gulf of Mexico in March 2003. Her second residence sustained structural damage in Hurricane Ivan and was demolished by the County in late October 2004. (6a) Burns' two residences before collapsed. (6b) Undermining of the foundation by wave action. (6c) The west portion of the residence collapsed, and the County removed the debris in March 2003. (6d) Storm waves washed out a portion of the front wall in Hurricane Ivan. (6e) Waves undermined the foundation. (6f) Pursuant to Sarasota County Building Code Section 22-34(3), the County demolished the second Burns' residence.





**Fig.7** Property damages at Colkitt's gulf front residence (#6 in Fig.1). (7a) Colkitt's residence at 9230 Blind Pass Road. (7b) An aluminum bulkhead, pool and wood deck were damaged during Tropical Storm Frances on September 3<sup>rd</sup>, 2004. (7c) House foundation was undermined by wave action. (7d) Aftermath after storm season.