Policy, Politics & the Challenges of Using Upland Sand Sources

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(an engineer)
Policy
State Policy – Florida Statutes 161.088

Declaration of public policy respecting beach erosion control and beach restoration and nourishment projects

- a necessary governmental responsibility to properly manage and protect Florida beaches

- the Legislature make provision for beach restoration and nourishment projects

- beach restoration and nourishment projects … are in the public interest

- beach restoration and nourishment projects shall be funded
State Policy – Florida Statutes 161.091
Beach management; funding; repair and maintenance strategy

(1) Subject to such appropriations as the Legislature may make therefore from time to time, disbursements ... in order to carry out the proper state responsibilities in a comprehensive, long-range, statewide beach management plan for erosion control; beach preservation, restoration, and nourishment; and storm and hurricane protection....

(2) The department shall develop a multiyear repair and maintenance strategy that:

(a) Encourages regional approaches to ensure the geographic coordination and sequencing of prioritized projects;
(b) Reduces equipment mobilization and demobilization costs;
(c) Maximizes the infusion of beach-quality sand into the system;
(d) Extends the life of beach nourishment projects and reduces the frequency of nourishment; and
(e) Promotes inlet sand bypassing to replicate the natural flow of sand interrupted by improved, modified, or altered inlets and ports.
Indian River County

**Beach Preservation Plan**

- 1998 - initially developed
- 2007 – updated
- 22.4 miles in 8 sectors
- 15.4 miles designated “critically eroded”
Indian River County

**Beach Preservation Plan**

**Beach Management Strategies**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Recommended Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Natural Beach</td>
</tr>
<tr>
<td>1b</td>
<td>Sand Transfer Re-nourishment</td>
</tr>
<tr>
<td>2</td>
<td>Sand Transfer Re-nourishment</td>
</tr>
<tr>
<td>3a</td>
<td>Sand Transfer</td>
</tr>
<tr>
<td>3b</td>
<td>Minimal Beach Restoration</td>
</tr>
<tr>
<td>4</td>
<td>Dune Maintenance</td>
</tr>
<tr>
<td>5</td>
<td>Minimal Beach Restoration</td>
</tr>
<tr>
<td>6</td>
<td>Natural Beach</td>
</tr>
<tr>
<td>7</td>
<td>Re-nourishment</td>
</tr>
<tr>
<td>8</td>
<td>Natural Beach</td>
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</tbody>
</table>
“Sand Rule”

“only beach compatible fill shall be placed on the beach …

Such material shall be predominately of carbonate, quartz or similar material with a particle size distribution ranging between 0.062mm (4.0φ) and 4.76mm (-2.25φ) … shall be similar in color and grain size distribution …to the material in the existing coastal system at the disposal site and shall not contain:

1. Greater than 5 percent, by weight, silt, clay or colloids passing the #230 sieve (4.0φ);
2. Greater than 5 percent, by weight, fine gravel retained on the #4 sieve (-2.25φ);
3. Coarse gravel, cobbles or material …greater than found on the native beach;
4. Construction debris, toxic material or other foreign matter; and
5. Not result in cementation of the beach.

…If the natural beach exceeds any of the limiting parameters listed above, then the fill material shall not exceed the naturally occurring level for that parameter.”
Indian River County – Offshore Borrow Area
Native Sand vs. Borrow Area – Grain Size Distribution

![Grain Size Distribution Graph]

- **Native Beach Sand**
- **Offshore Borrow Area**
Indian River County

Native Beach
R-44 mid berm

Native Beach
R-32 -3’

Offshore
Borrow Area
IRS-17 9.0’

Offshore
Borrow Area
IRS-25 3.0’

Native Beach & Offshore Borrow Area
State Policy - FDEP Rules - F.A.C. 62B-41.005

Policy and Eligibility Criteria for Coastal Construction Permits

(17) If the Department determines that the proposed coastal construction has the potential for adverse impacts to the coastal system, then the Department shall require the applicant to revise the project design to *avoid or minimize those impacts*. After all practicable revisions have been made to minimize impacts; any remaining adverse impacts or other impacts shall be *offset* by the applicant.
Political Climate
Political Climate

Historical Residential Building Permit Activity
(Unincorporated Indian River County)

Adapted From: Indian River County Community Development Report, July 2010
Political Climate

Historical Unemployment Pattern

From: Indian River County Community Development Report July 2010
Indian River County
Beach & Shore Preservation Advisory Committee
February 16, 2009

Upland Sand Source “in situ” Evaluation
(as requested by Committee)

All assessed upland sand sources – “in situ” meet the FDEP Sand Rule.
### Indian River County
**Beach & Shore Preservation Advisory Committee**
**February 16, 2009**

#### Upland Sand Source “in situ” Evaluation

<table>
<thead>
<tr>
<th>Sand Characteristic</th>
<th>Offshore Borrow Area</th>
<th>Upland Sand Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Grain Size</td>
<td>0.46 mm</td>
<td>0.36 mm</td>
</tr>
<tr>
<td>Overfill Ratio</td>
<td>1.02</td>
<td>2.33</td>
</tr>
<tr>
<td>Re-Nourishment Interval</td>
<td>10 years</td>
<td>4.4 years</td>
</tr>
</tbody>
</table>
Indian River County Beach & Shore Preservation Advisory Committee
February 16, 2009

Upland Sand Source “in situ” Evaluation

Percent Fines

Native Beach = 0.21%
Offshore Borrow Source = 0.11%
Upland Borrow Source = 0.49%

Greater percent fines = greater potential for:

• adverse siltation upon nearshore hardbottom
• exceeding turbidity threshold (29NTU’s) during construction causing delays
• compaction of beach fill
Indian River County Beach & Shore Preservation Advisory Committee
February 16, 2009

Upland Sand Source “in situ” Evaluation

Color

Native Beach

Offshore Borrow Source

Upland Borrow Source - 1

Upland Borrow Source - 2
Upland Sand Source “in situ” Evaluation

Offshore Sand

Upland Sand

Offshore Borrow Source – Fill Density = 30.0 cy/ft

Upland Sand Source – Fill Density = 26.3 cy/ft

Fill Volume Reduction = 3.7 cy/ft

Equilibrated Fill Template at R27
• **Under Public Comment, local upland sand suppliers request:**

  “Please pass a resolution that instructs your staff and outside consultant to **amend the Sector 3 Permit in order to allow upland sources of sand (i.e. LOCALS) to be considered by the DEP as part of the permit process. Currently, upland sources are specifically NOT considered in the permit. Locals cannot even bid on the project as it is drafted.”

• **Commission directs County staff**

  to explore, via input from FDEP staff, what efforts would be necessary to allow for upland sand source contractors to bid on the Sector 3 Project
RFQ INFORMATION PACKAGE

INDIAN RIVER COUNTY, FLORIDA

REQUEST FOR QUALIFICATIONS

TO PROVIDE

BEACH COMPATIBLE UPLAND SOURCE SAND
FOR BEACH EROSION CONTROL PROJECT
CONSTRUCTION

FOR

INDIAN RIVER COUNTY, FLORIDA

RFQ No. 2009044

Prepared by

INDIAN RIVER COUNTY
DEPARTMENT OF PUBLIC WORKS
COASTAL ENGINEERING DIVISION

April 2009

Advertise
April 22, 2009

Submission Deadline
May 13, 2009
Appeal by Local Upland Sand Suppliers

April 30 2009 and May 1 2009:

local sand suppliers send letters directly to County Commission
To provide economic stimulus to the local economy, Board of County Commissioners directed County staff to solicit bids for construction of the Project via use of the offshore sand source or via use of an upland sand source.
Indian River County

Sector 3 Beach & Dune Restoration

Opinion

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OUR VIEW

Go slow on sand mining

More controversy swirls around program for renourishment of county beaches

Although proponents say 200 jobs could be created via an expanded mining venture, its biggest impact will be more than 30,000 dump-truck loads pounding county roads and bridges. Whatever jobs result from this exercise will be temporary — while taxpayers pay the freight.

The county’s $12 million investment at the Sexton Ranch could be at stake if the neighboring Wild Turkey Mine wins approval to use up to 676,800 gallons of water per day for its operations. That’s more than four times its current permitted use.

Sean Sexton notes that his ranch is required, by county agreement, to protect “water resources.” Hydrologists have only just begun to study the impact that a large-scale mine next door would have on the ranch’s wells and groundwater, but Sexton says scientific models reveal a drawdown.

Ironically, mining operations in this county appear to enjoy greater protections than a protected ranch. Sexton notes, for example, that an agricultural landowner must win a special exemption to build a church on his property, while a simple administrative approval is all that’s needed to open a mine there.

Whether Wild Turkey can obtain permits from St. Johns River Water Management District and the state Department of Environmental Protection, any inland mine poses potential environmental threats. From increased heavy truck traffic to sharply higher water consumption, excavation comes with a price to the community and its quality of life.

Until all the costs are known and objectively weighed, the county must move carefully ... if it moves at all.
Titusville firm low bidder for sand project

“T’m gratified by all the bid prices we got. I think everyone sharpened their pencils.”

Jonathan Gorham, county coastal resources manager area sand mine owner Brian Davis, brother of County Commission Chairman Wesley Davis, would be providing the sand.

Thornley said Stormwater & Underground has its own mine in Cocoa, but said that would be too far for the Wabasso area project.

“I’m gratified by all the bid prices we got,” county Coastal Resources Manager Jonathan Gorham said. “I think everyone sharpened their pencils.”

The next step is for Gorham and Coastal Technology Corp., the county’s beach-engineering consultant, to go over all the bids and the accompanying sand analyses and make a recommendation Aug. 18 to the County Commission.

Wesley Davis said he wasn’t aware his brother would have a role in any of the bids.

“But if Brian has anything to with this, I’ll certainly abstain,” he said.

Ranch Lake Road Mine owner Stephen Smith and Chuck Cramer, operations manager for Henry Fischer & Sons, didn’t submit bids. They said they had planned to provide sand to other bidders.

But weeks of voicing miners’ issues paid off Monday, they said, with lower bids spawned by competition.

“It’s a win for taxpayers if not for us,” Cramer said.

INSIDE: Complete list of bids, B3
### Bid Tabulation

#### Upland Sand Sources

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Location</th>
<th>Alternate Bid</th>
<th>Base Bid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stormwater &amp; Underground, LLC</td>
<td>Titusville, Florida</td>
<td>$8,548,746</td>
<td>$7,068,022</td>
</tr>
<tr>
<td>CKA, LLC</td>
<td>St. Cloud, Florida</td>
<td>$8,020,214</td>
<td>$8,020,214</td>
</tr>
</tbody>
</table>

#### Offshore Borrow Area

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Location</th>
<th>Alternate Bid</th>
<th>Base Bid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Lakes Dredge &amp; Dock Company, LLC</td>
<td>Oakbrook, Illinois</td>
<td>$9,089,561</td>
<td>$8,938,566</td>
</tr>
<tr>
<td>Manson Construction Co.</td>
<td>Jacksonville, Florida</td>
<td>$18,918,048</td>
<td>$17,949,332</td>
</tr>
<tr>
<td>Weeks Marine, Inc.</td>
<td>Covington, Louisiana</td>
<td>No Bid</td>
<td>$24,536,880</td>
</tr>
</tbody>
</table>
Other related Technical Elements
to be Addressed by Tem Fontaine

- **Design**
  including Construction Contract Negotiations

- **FDEP & Federal Agency Coordination**
  Permit, Turtle Nesting Plan/Project Phasing

- **Construction**
Policy & Political Challenges

• Non-utilization of *proven* offshore Borrow Area
• Independent political effort by upland sand suppliers
• State & Federal Agency – acceptance of “processed sand” from upland sources
Policy & Political

Conclusions

(mostly for my young engineering colleagues)

- **Economics & Politics really do matter!**
  The answer is not necessarily driven by engineering!

- **Elected Officials are pretty smart!**
  They can balance the engineering, economics & politics!

- **Stay Flexible!**
  Honestly address the engineering; respect & accept the reality of economic and political forces.
Thank You!
the end