

## MEMORANDUM

Date: 07 August 2018

To: B. Glassen – FEMA  
J. Drake – FL DEM

Cc: J. Stankiewicz – Nassau County  
W. Moore – SAISSA

From: Albert E. Browder, Ph.D., P.E. <sup>AEB</sup> Senior Engineer

Re: Opinion of probable cost for Hurricane Irma repairs to engineered beach  
South Amelia Island Shore Stabilization Project – Nassau County, FL  
FEMA DR-4337

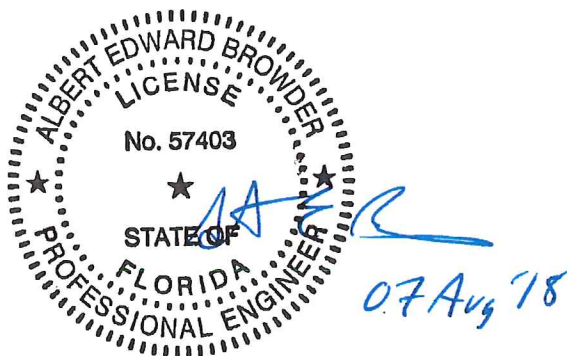


In support of the report entitled “*South Amelia Island Shore Stabilization Project - HURRICANE IRMA (FEMA DR-4337) POST-STORM DESIGN SURVEY & ANALYSIS*,” submitted previously, an opinion of the probable cost to construct the repairs is provided herein. The opinion of cost is based upon recent beach nourishment projects of similar scope publicly bid in Florida and the southeast U.S. in the last 6-9 months. The portion of the costs assigned to Hurricane Irma damages is based upon a pro-rated share of the projected placement volume, 2 million cubic yards.

**Table 1** provides a line item explanation of the expected bid items for the next renourishment project, and a calculation of the Hurricane Irma-related portion.

Please do not hesitate to contact us regarding this information should you have any questions. I can be reached at (904) 387-6114 or by e-mail at [abrowder@olsen-associates.com](mailto:abrowder@olsen-associates.com). Thank you.

Attachments: **Table 1** – Updated opinion of probable cost (pg 2)



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**Table 1** Updated opinion of probable cost to replace sand lost due to Hurricane Irma storm damage from the South Amelia Island Shore Stabilization Project, Nassau County, FL. Opinion assumes that the storm losses will be replaced as part of a larger renourishment of the engineered beach fill project.

					7-Aug-18
Item #	Item	Quantity	Unit	Unit Price	Subtotal
1	Mobilization/Demobilization	1	job	\$ 3,500,000.00	\$ 3,500,000.00
2	Beach Fill Sand - in place	2,000,000	cubic yards	\$ 8.15	\$ 16,300,000.00
3	Turbidity Monitoring	1	job	\$ 60,000.00	\$ 60,000.00
4	Beach Tilling/Decompaction	1	job	\$ 40,000.00	\$ 40,000.00
5	Environmental Protection/Monitoring	1	job	\$ 100,000.00	\$ 100,000.00
					\$ 20,000,000.00
construction all-in cost per cubic yard:					\$ 10.00
expected engineering, permitting, construction mgmt/obsv.					\$ 1,884,000.00
ALL-IN UNIT COST PER CY					\$ 10.94
<b>PRELIMINARY</b>					
<b>IRMA DAMAGES - If pro-rated as part of a larger beach nourishment project</b>					
Item #	Item	Quantity (cy)	Unit	Unit Price	Subtotal
1	Sand loss from engineered beach (SAISSA project segment: 15,840 ft)	126,050	cubic yards	\$ 10.94	\$ 1,379,239.10
2	Sand loss from engineered beach (AISP project segment: 3,420 ft)	8,050	cubic yards	\$ 10.94	\$ 88,083.10
					\$ 1,467,322.20