

Longboat Key, FL (Additional) North End Stabilization



DEC 2018
Photos from the Air

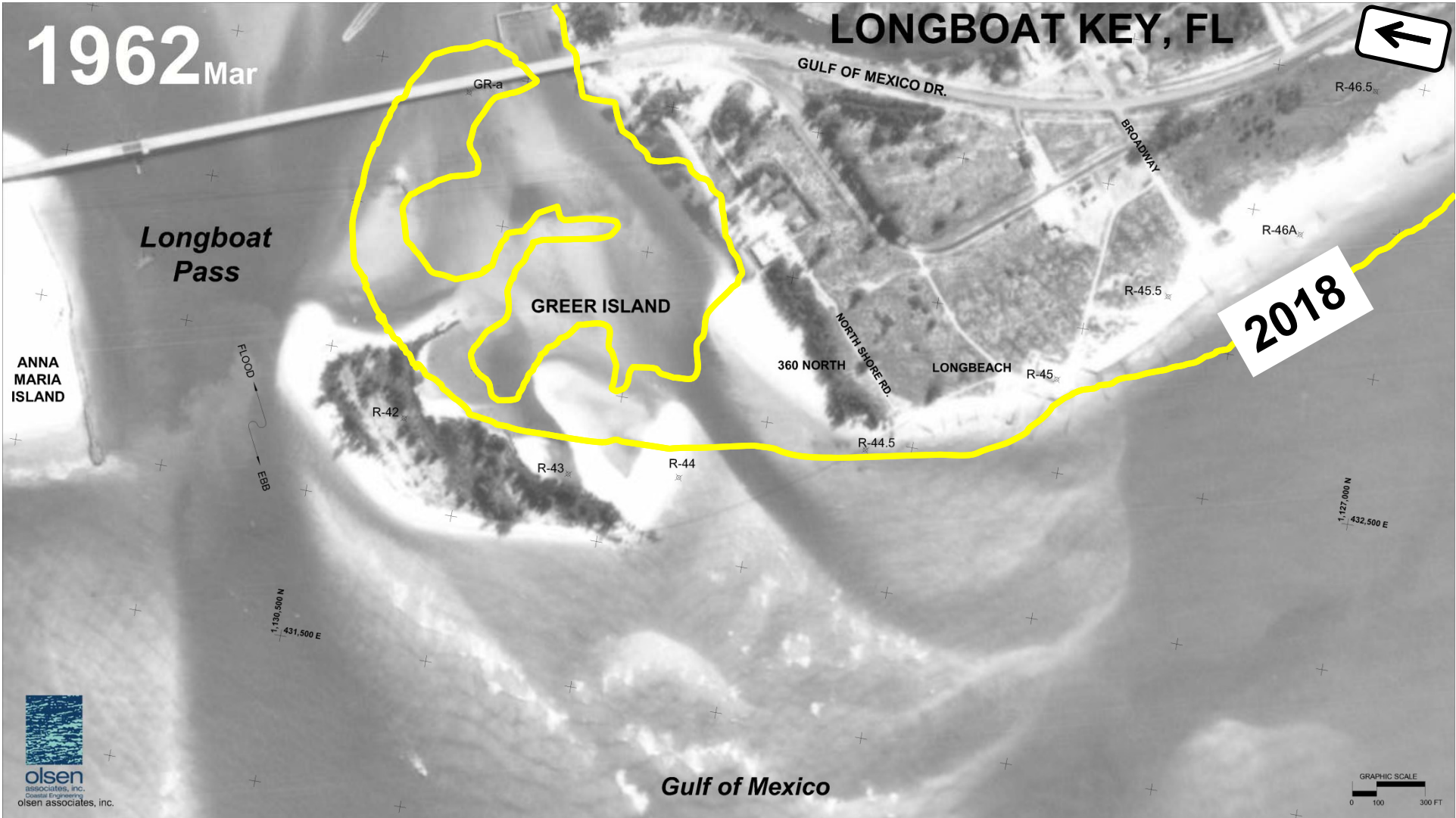
Krista J. Egan, P.E.
Albert E. Browder, Ph.D., P.E.



Location

1962 Mar

LONGBOAT KEY, FL



Longboat Pass

GREER ISLAND

2018

ANNA MARIA ISLAND

360 NORTH

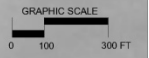
LONGBEACH

GULF OF MEXICO DR.

BROADWAY

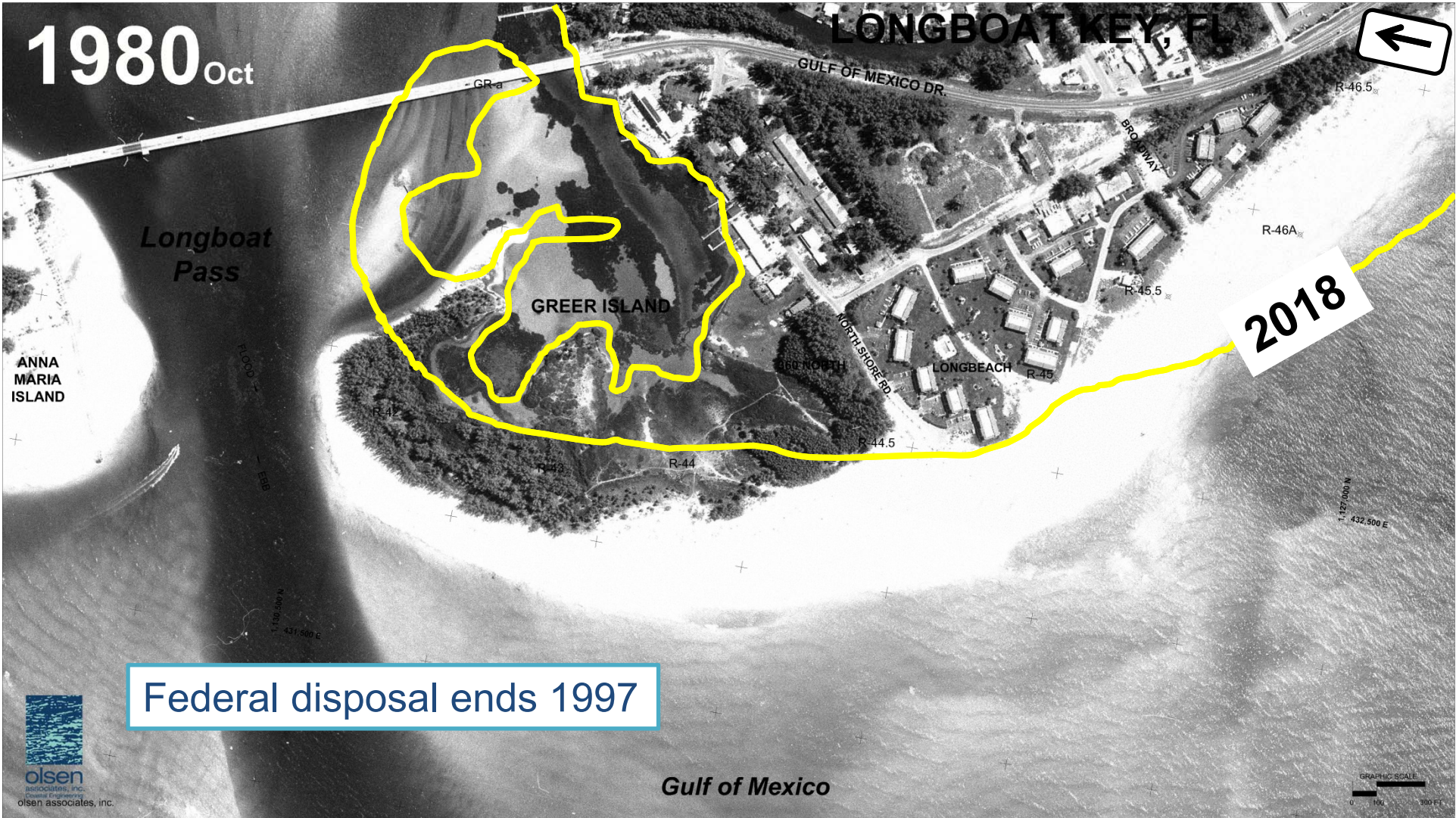
NORTH SHORE RD.

Gulf of Mexico



1980 Oct

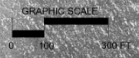
LONGBOAT KEY, FL



Federal disposal ends 1997



Gulf of Mexico



2011 Jan

LONGBOAT KEY, FL



Longboat Pass

GREER ISLAND

2018

ANNA MARIA ISLAND

GULF OF MEXICO DR

BROADWAY

360 NORTH

LONGBEACH

FLOOD
EBB

R-42

R-43

R-44

R-44.5

R-45

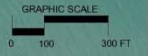
R-45.5

R-46A

1,127,000 N
432,500 E

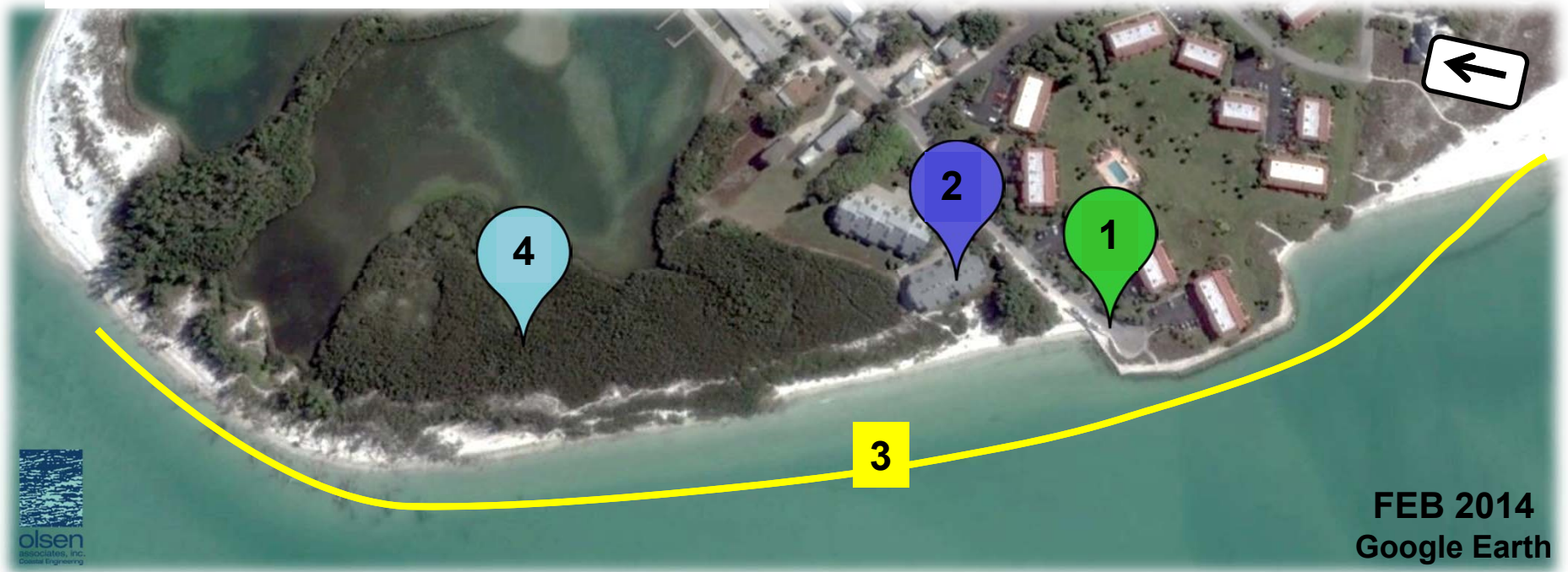
1,130,000 N
431,500 E

Gulf of Mexico



Project Objectives

1. Protect road
2. Storm protection for condo
3. Recreational amenity
4. Preserve natural resources



Options

- Beach nourishment (sand fill)
 - High erosion rates
 - Sand availability and cost
- Structures (breakwaters & groins)

Proposed Stabilization 2012



Longboat
Pass

GREER ISLAND

FLOOD
EBB

R-42

R-43

R-44

R-44.5

Terminal Groin

Permeable
Adjustable Groins
(PAGs)



APTIM/CPE 2015

1,130,500 N
431,500 E



JAN 2011



2015 Stabilization



SEP 2015

SEP 2018

North End Conditions



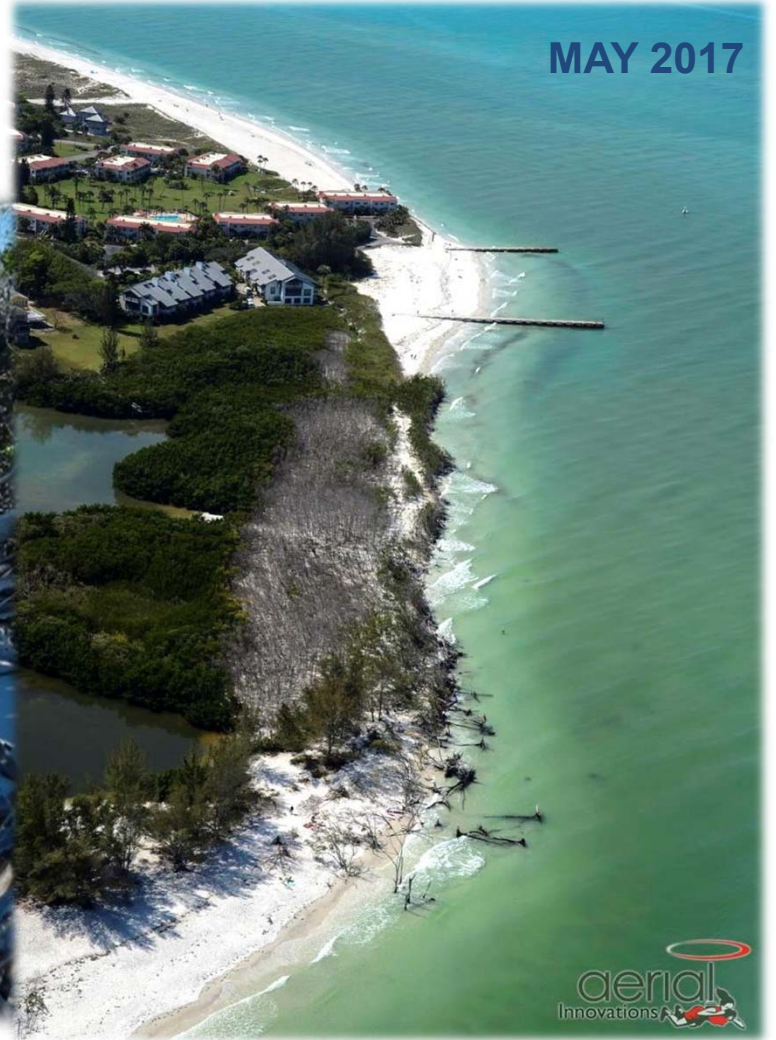
elsen
associates, inc.
Coastal Engineering

North End Conditions

SEP 2018



MAY 2017

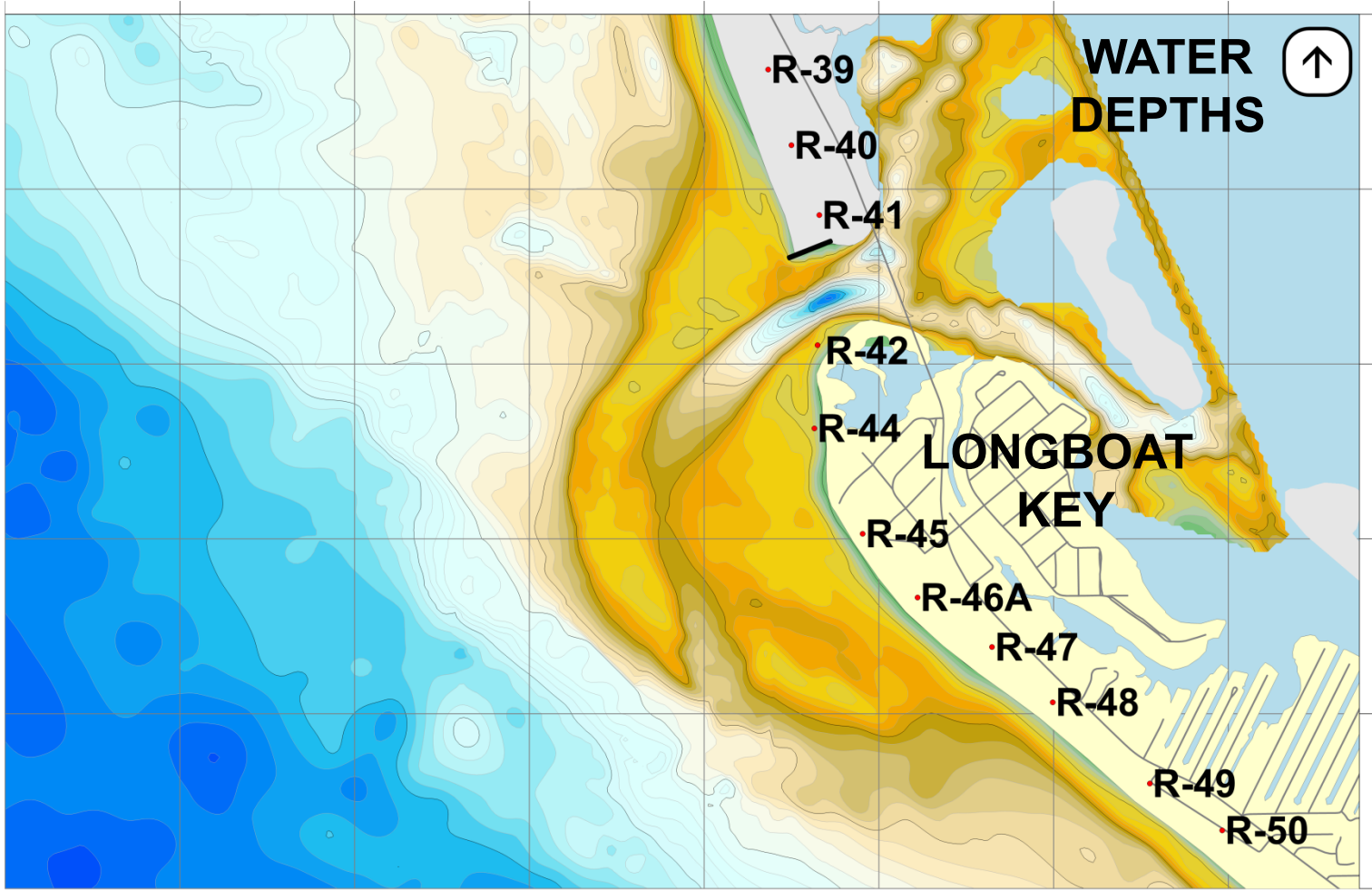
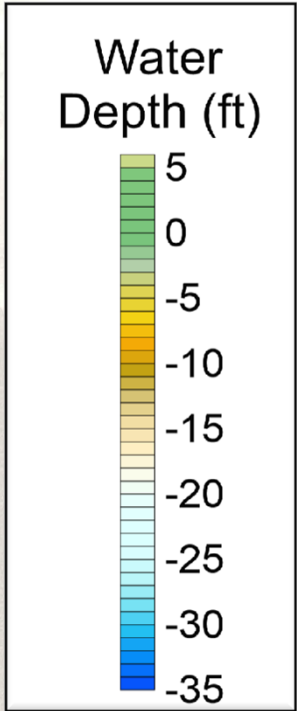


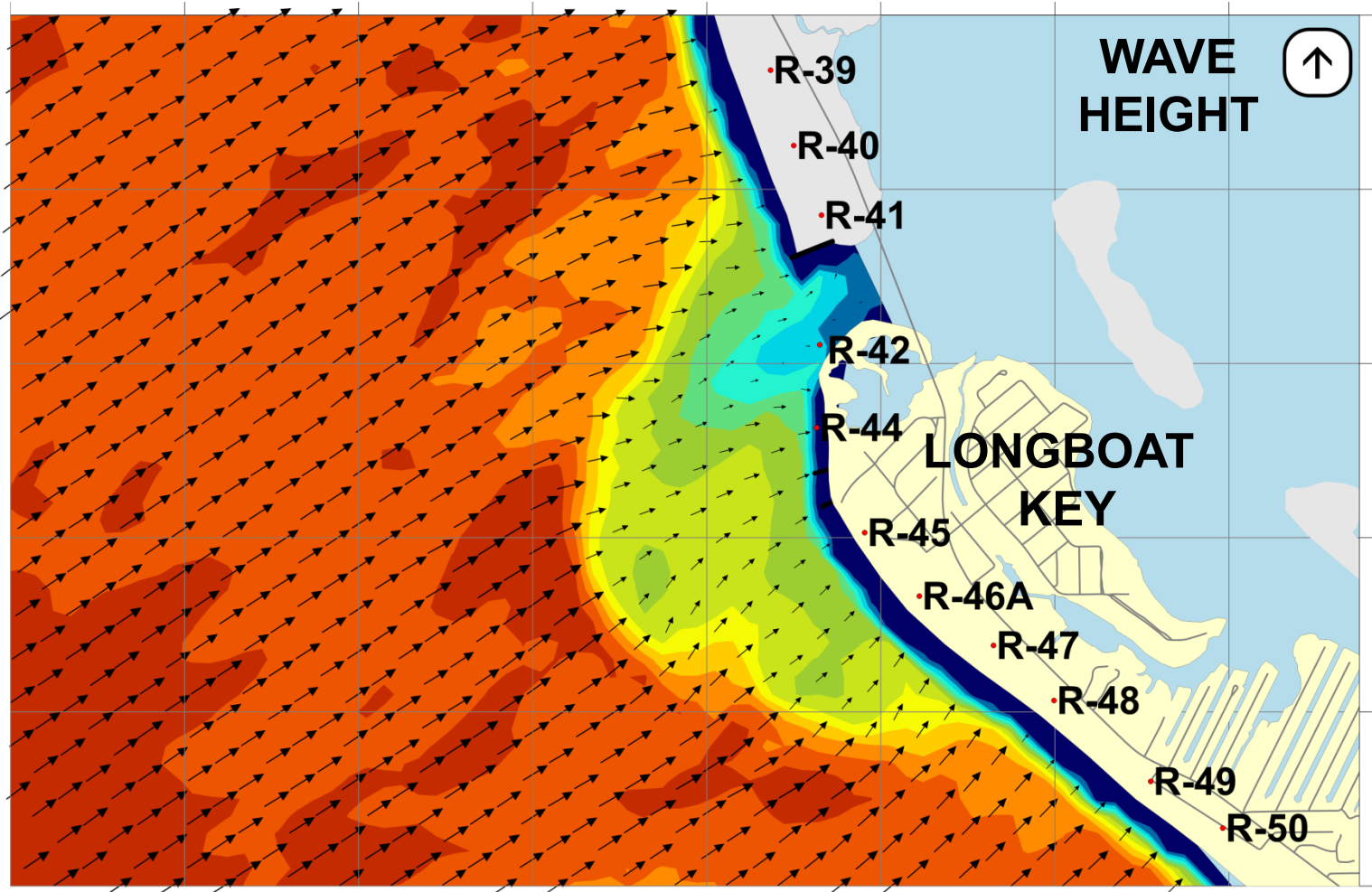
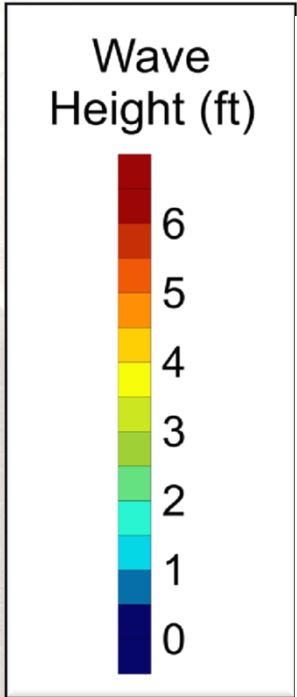
SEP 2018

Clearly, additional stabilization is needed

North End Conditions







Sediment Transport

LONGBOAT
PASS

GREER ISLAND

NORTH SHORE RD.

BROADWAY

360 NORTH

LONGBEACH

R-46A

R-45.5

R-45

R-42

R-43

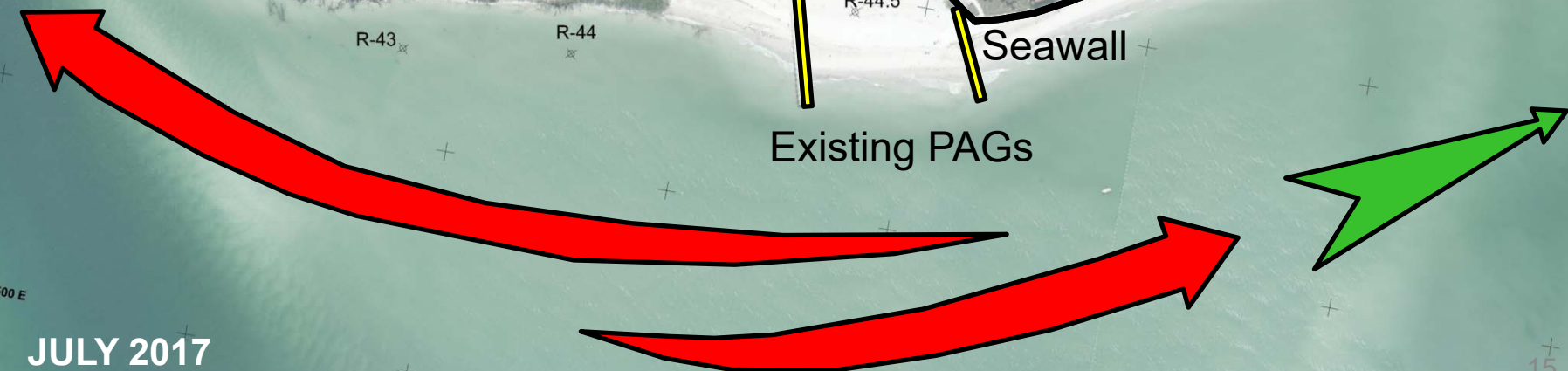
R-44

R-44.5

Seawall

Existing PAGs

FLOOD
EBB



JULY 2017

Modeling Takeaways

1. No significant sand supply for the area of concern
2. Zone of transport reversal
 - Farther north than shown in prior studies
 - Consistent with field observations
3. Existing groins do not span the erosional zone

Project Design

**LONGBOAT
PASS**

GREER ISLAND

360 NORTH

NORTH SHORE RD.

LONGBEACH

R-45.5

R-46A

R-45

R-44.5

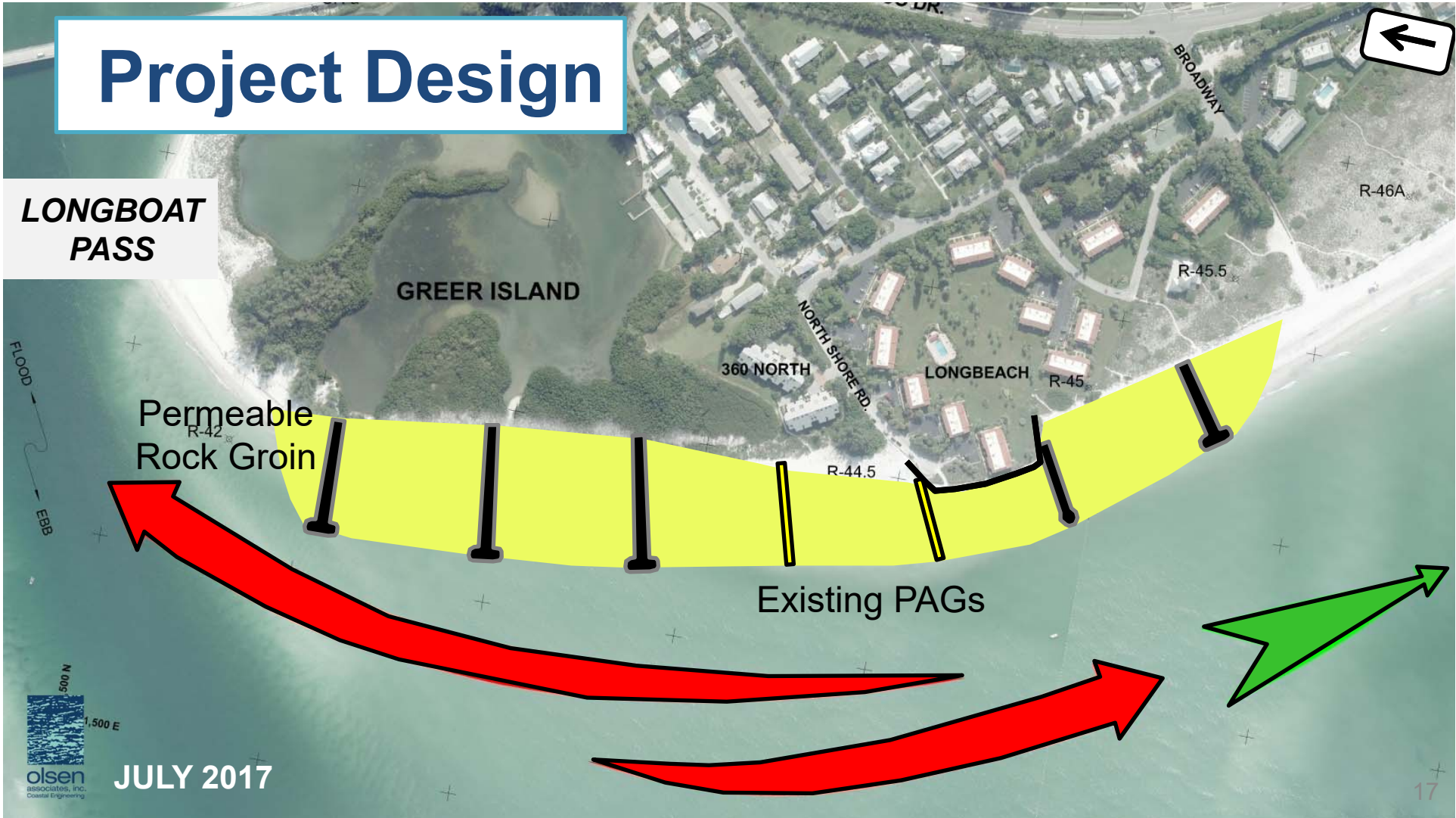
Permeable
Rock Groin

Existing PAGs

FLOOD
EBB



JULY 2017



Project Takeaways

1. Additional structural stabilization is required
 - Expansion of groin field
2. Multiple project objectives
3. No natural sand supply
 - Reversal zone in middle of project shoreline

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