

BUILDING STRONGER SALT MARSHES: USING NATURE-BASED TECHNIQUES TO ENABLE MARSHES TO KEEP PACE WITH SEA-LEVEL RISE

Russ Hopping, The Trustees

rhopping@thetrustees.org

2022 Martha's Vineyard Coastal Conference



Significant Resource

**IMPORTANT ENVIRONMENTAL SERVICES INCLUDING
BIODIVERSITY**





History collection, Nova Scotia Museum
Artist Azor Vienneau
accession number 87.120.2

Marsh subsidence – Agricultural Legacy

OXIDATION TRAJECTORY



Marsh Subsidence

WATERLOGGED TRAJECTORY - MEGAPOOLS

Embankment



Dead Grass

Clogged Ditch



Waterlogged Marsh and Mega Pool Formation



Poucha Pond, Martha's Vineyard

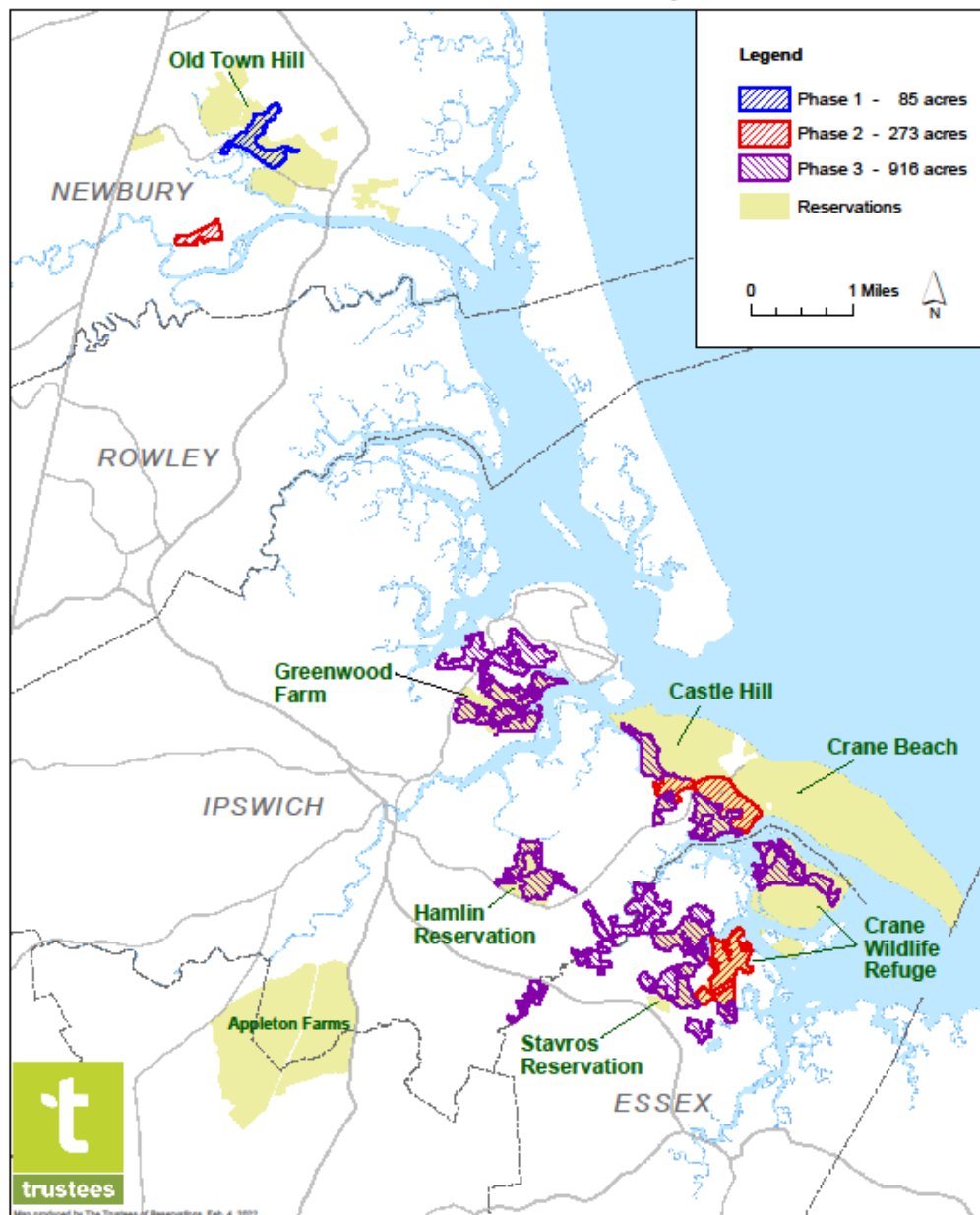
PLATFORM MARSH DEGRADATION



Restore marsh-sustaining hydrology to a heavily ditched marsh in order to:

- *reverse* trends of marsh *subsidence*
- *re-establish* and retain *high marsh* habitat
- *support* obligate marsh *species* (saltmarsh sparrow)
- allow marsh to *keep pace with SLR* more effectively

Trustees Salt Marsh Restoration Projects



Phase 1 85 acres

Phase 2 273 acres

Phase 3 916 acres

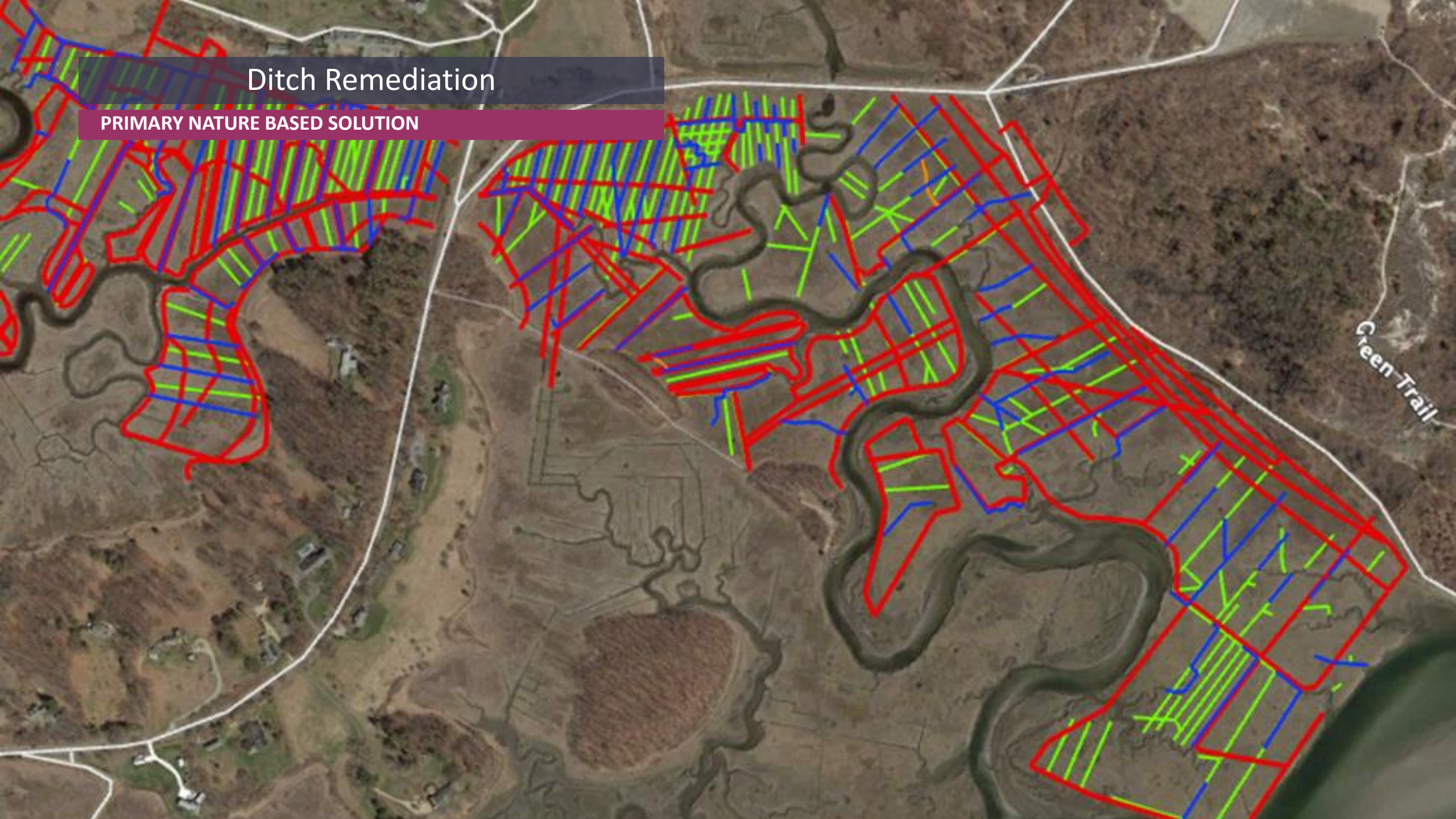
Phase 1 & 2 \$1 Million

Phase 3 \$1 Million



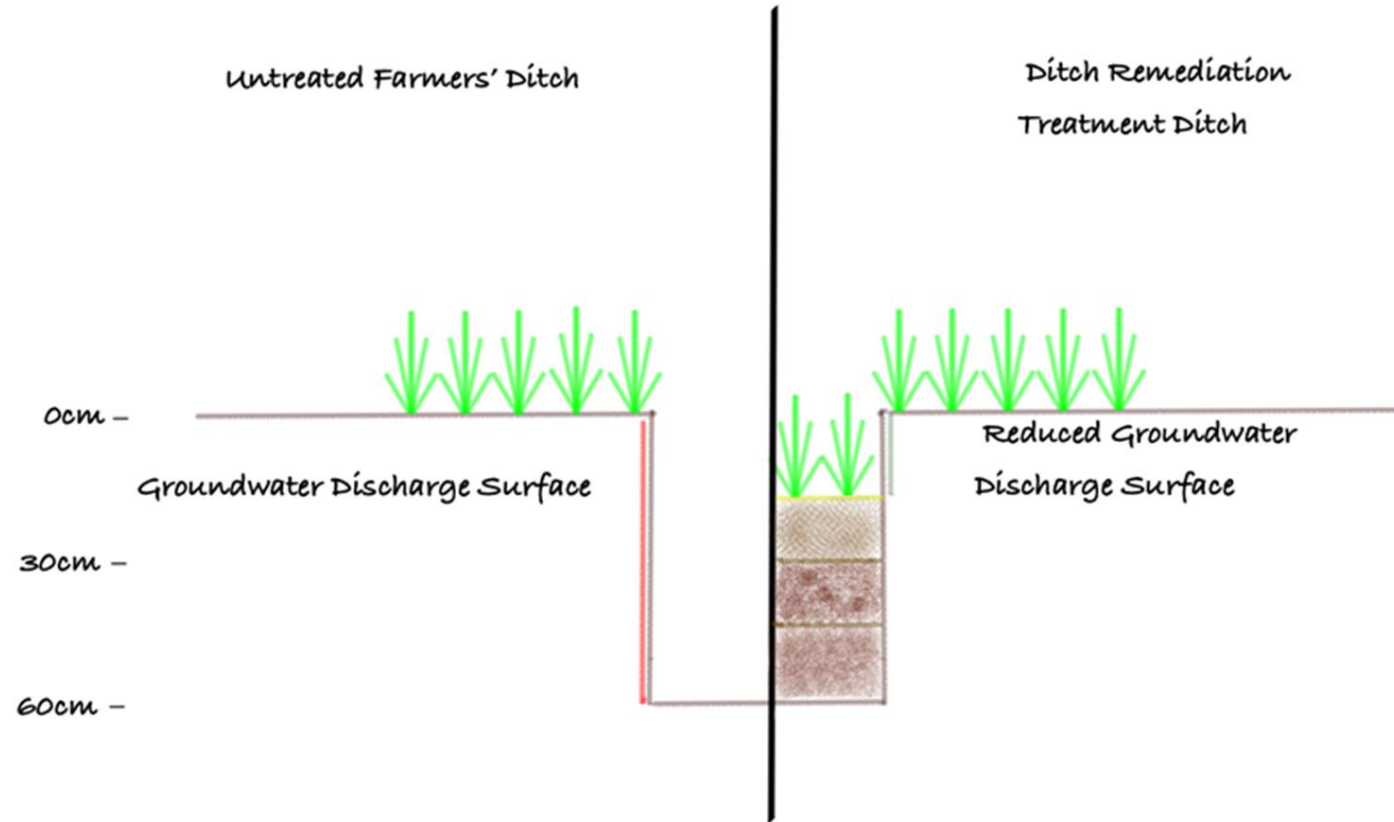
Ditch Remediation

PRIMARY NATURE BASED SOLUTION



Ditch Remediation*

LOW IMPACT – NATURE-BASED SOLUTION

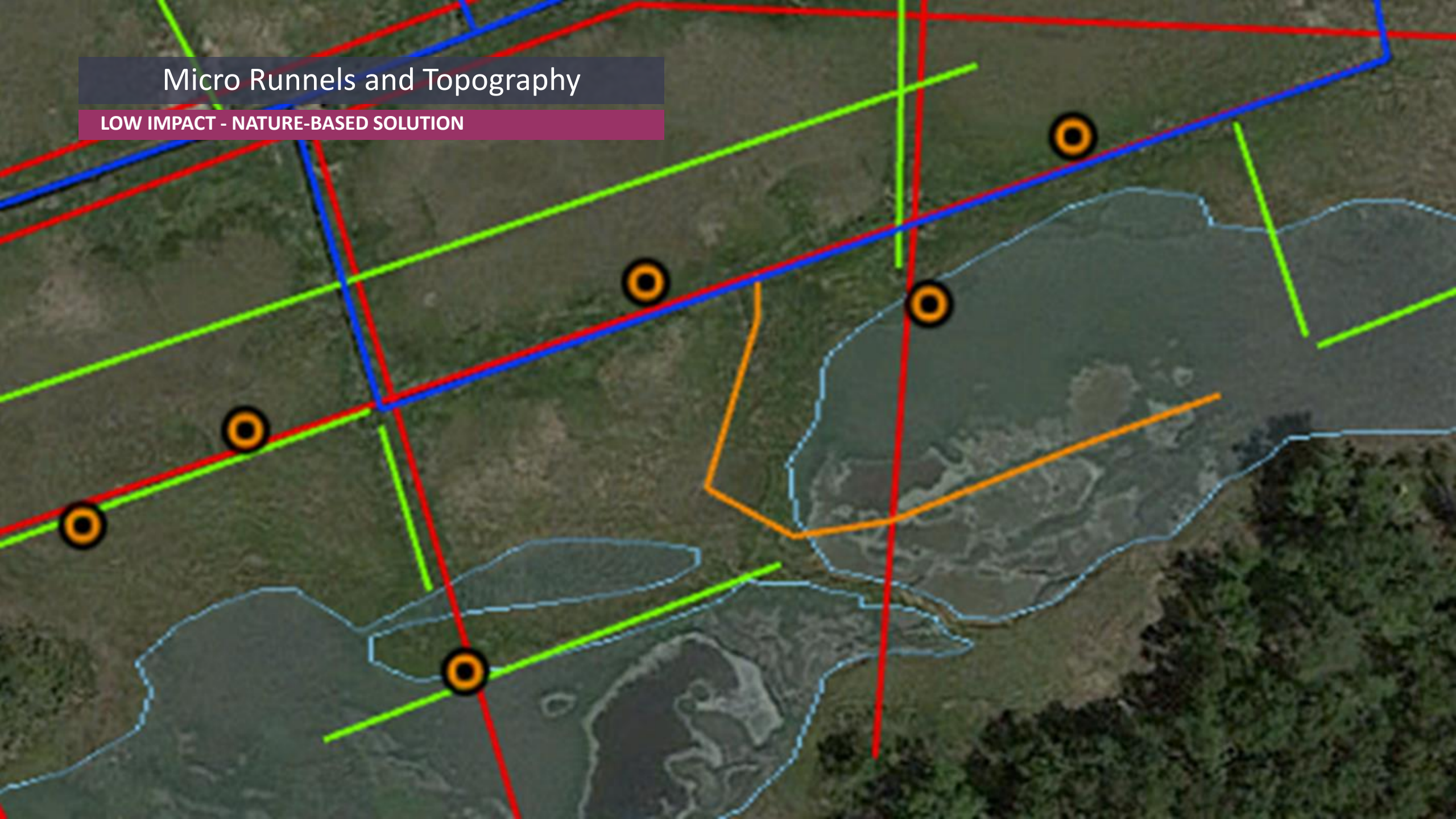


Graphic produced by Geoff Wilson. * Ditch remediation is based on work pioneered by Burdick, D. M. et.al., 2019 *Mitigating the Legacy Effects of Ditching in a New England Salt Marsh*. Estuaries and Coasts, SPECIAL ISSUE: HURRICANE SANDY IMPACTS AND RESPONSES



Micro Runnels and Topography

LOW IMPACT - NATURE-BASED SOLUTION

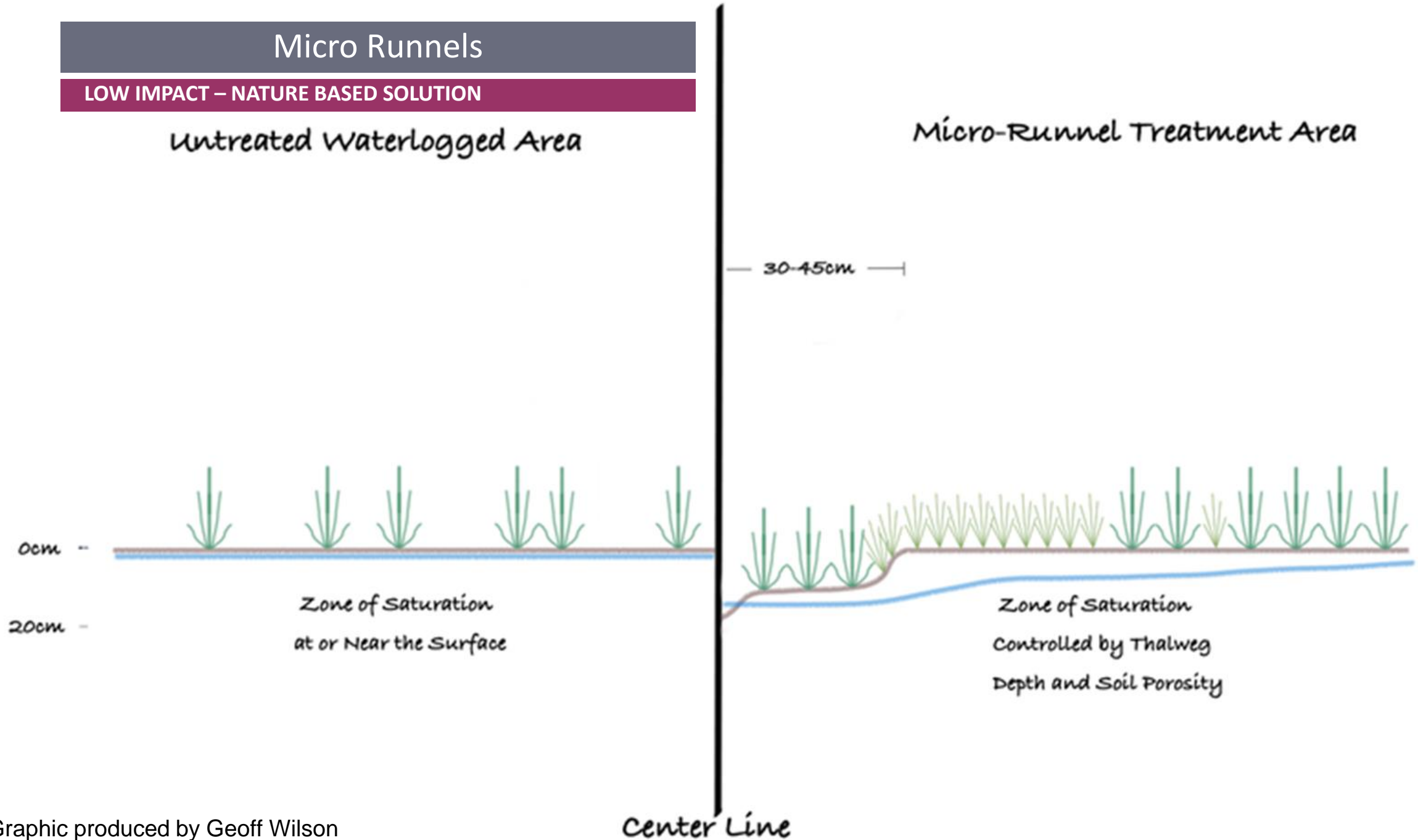


Micro Runnels

LOW IMPACT – NATURE BASED SOLUTION

Untreated Waterlogged Area

Micro-Runnel Treatment Area



Runnels and Bird Nesting Islands

WORK DURING WINTER



Crane Runnel and Nesting Is

MAY



Crane Runnel and Nesting Is.

SEPTEMBER – FULL GROWING SEASON (60% VEGETATED)



Crane Runnel – no erosion after 8 months



Great Marsh

Restoration Projects

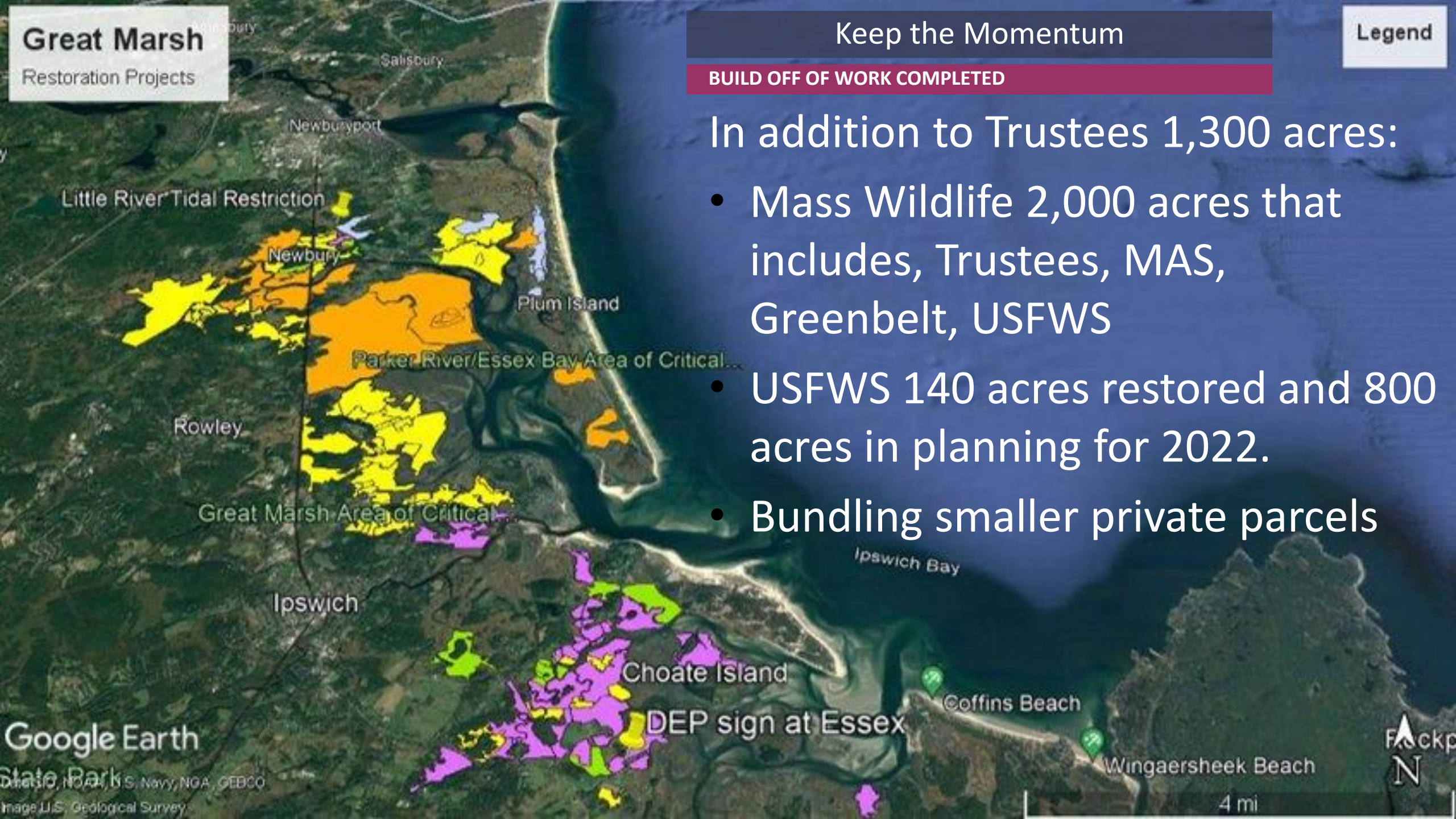
Keep the Momentum

Legend

BUILD OFF OF WORK COMPLETED

In addition to Trustees 1,300 acres:

- Mass Wildlife 2,000 acres that includes, Trustees, MAS, Greenbelt, USFWS
- USFWS 140 acres restored and 800 acres in planning for 2022.
- Bundling smaller private parcels



Google Earth

State Park
Data: NOAA, U.S. Navy, NOAA, GEBCO
Image: U.S. Geological Survey

Thanks to Our Funders

Russ Hopping
Lead Coastal Ecologist
The Trustees
rhopping@thetrustees.org

