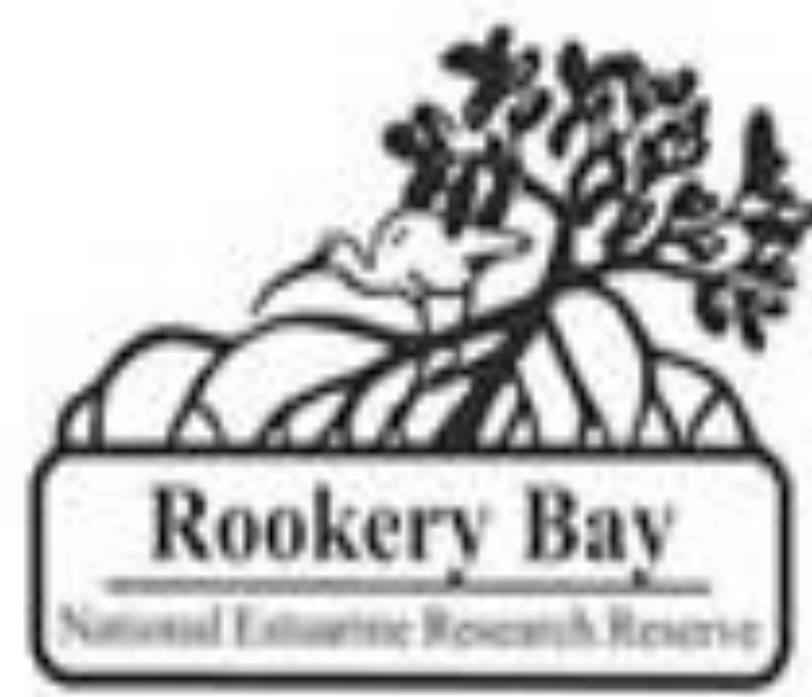
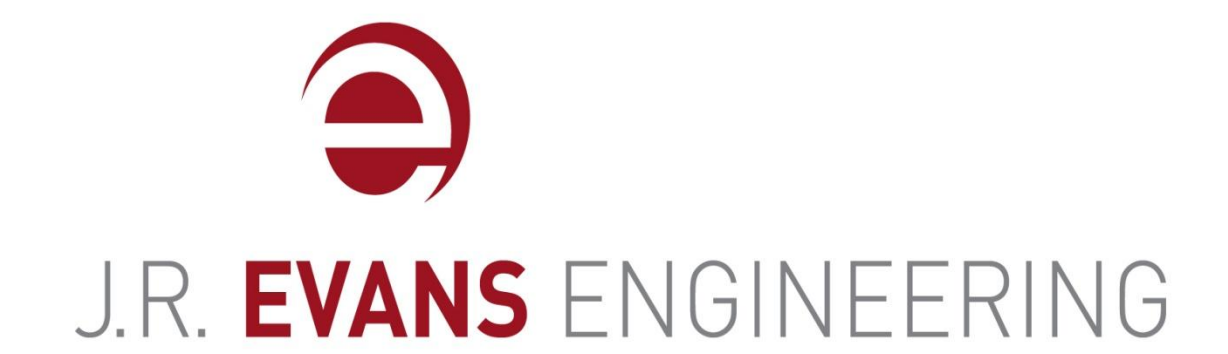




Fruit Farm Creek Mangrove Restoration

Dorothea P. Zysko, C.E., PWS • Joshua R. Evans, P.E.
Roy R. Lewis, III, PWS



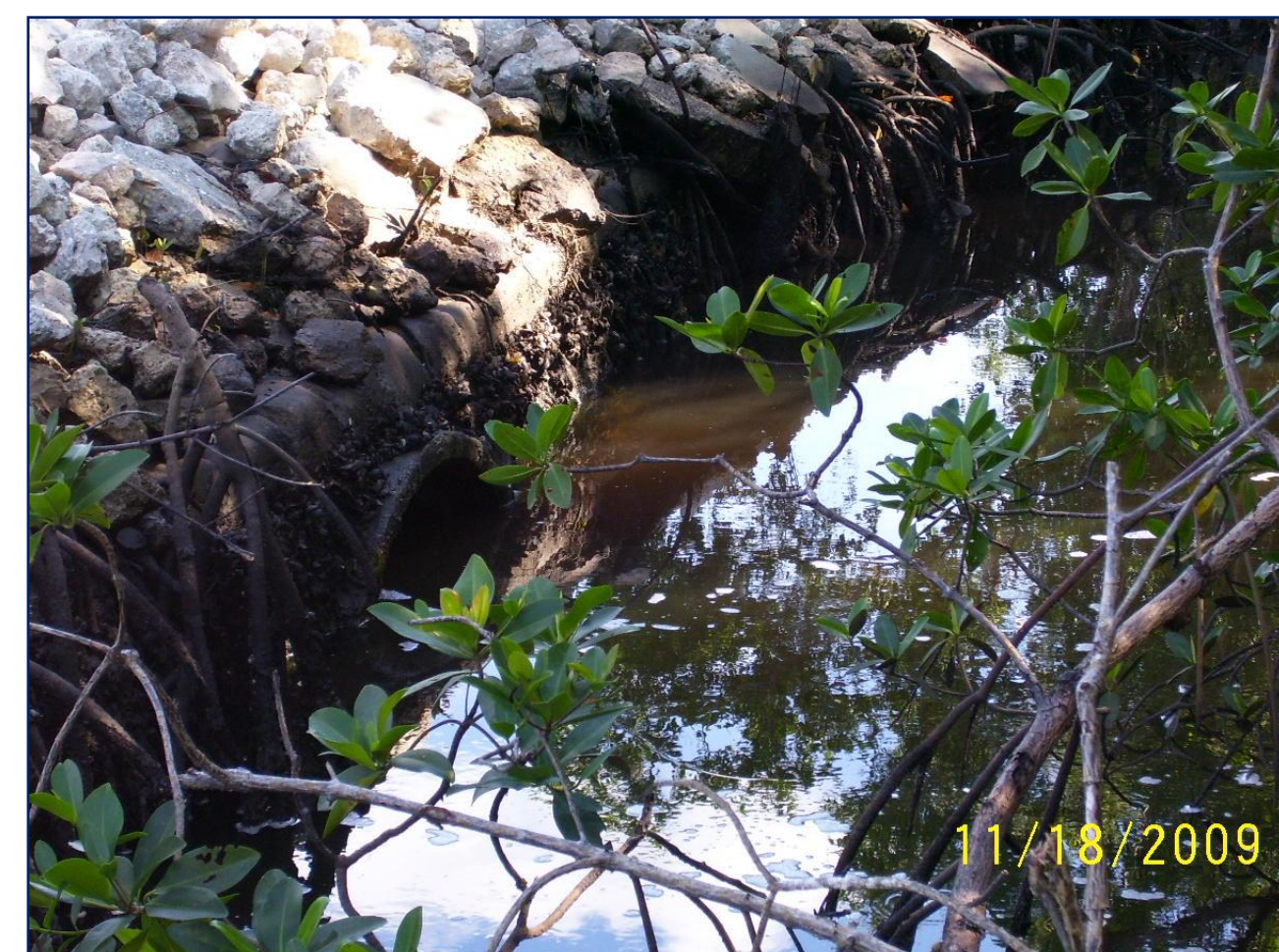
RESTORATION OF A BLACK MANGROVE BASIN FOREST IN MARCO ISLAND, FL



Die-off Area #2



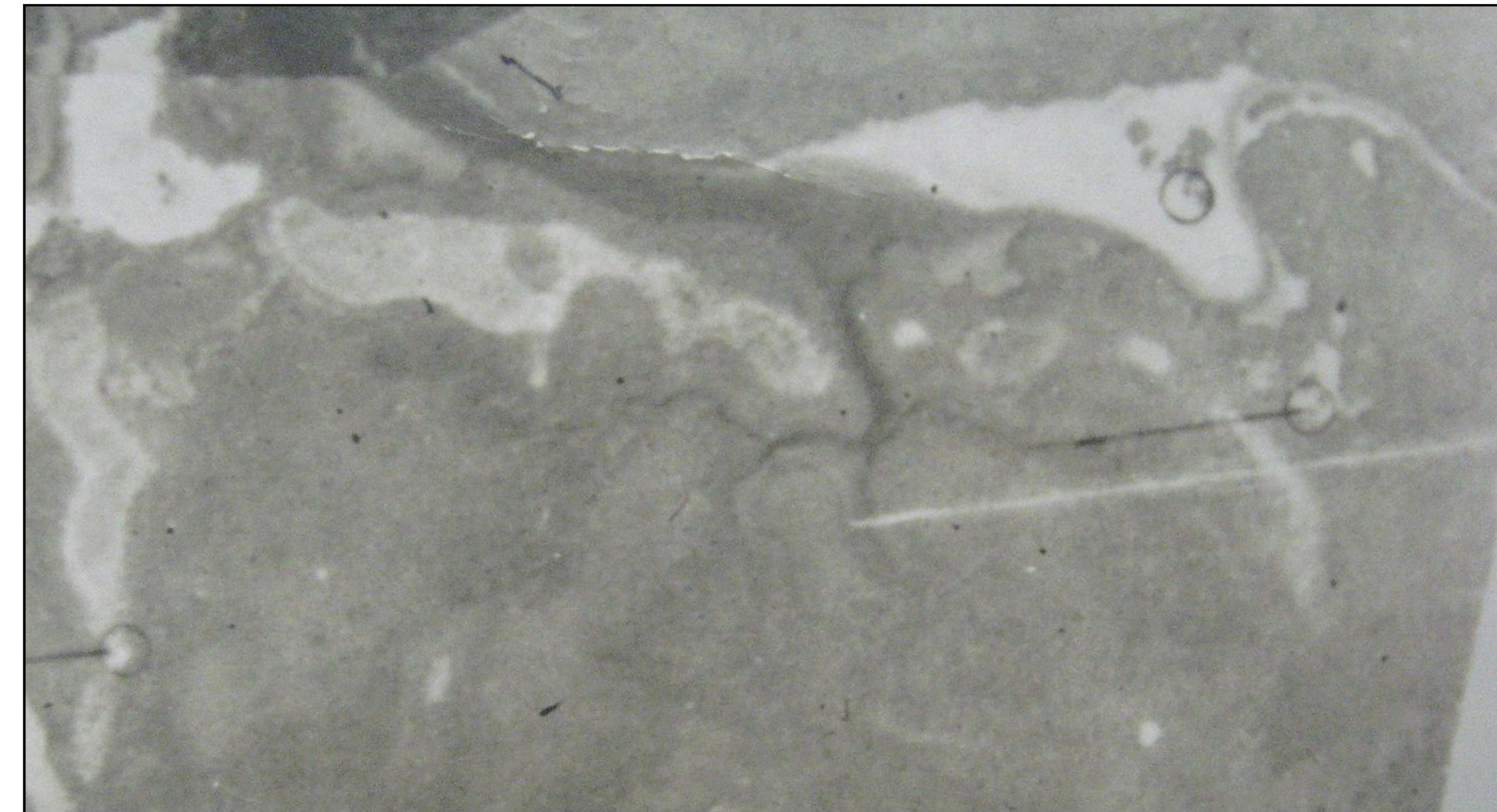
Prop Roots and Roots Closing Tidal Creeks



Existing Partially-functional 60 Inch Culvert



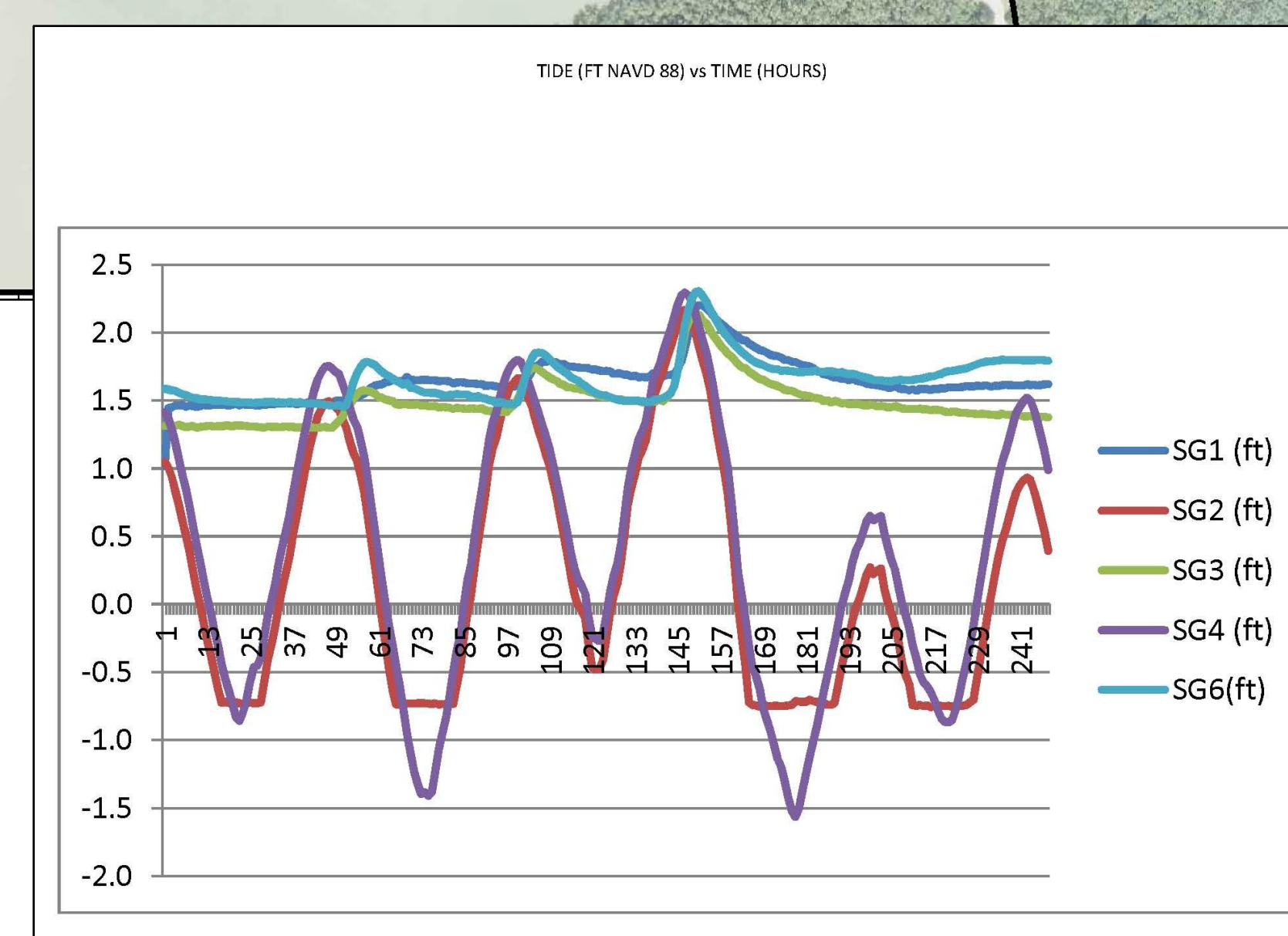
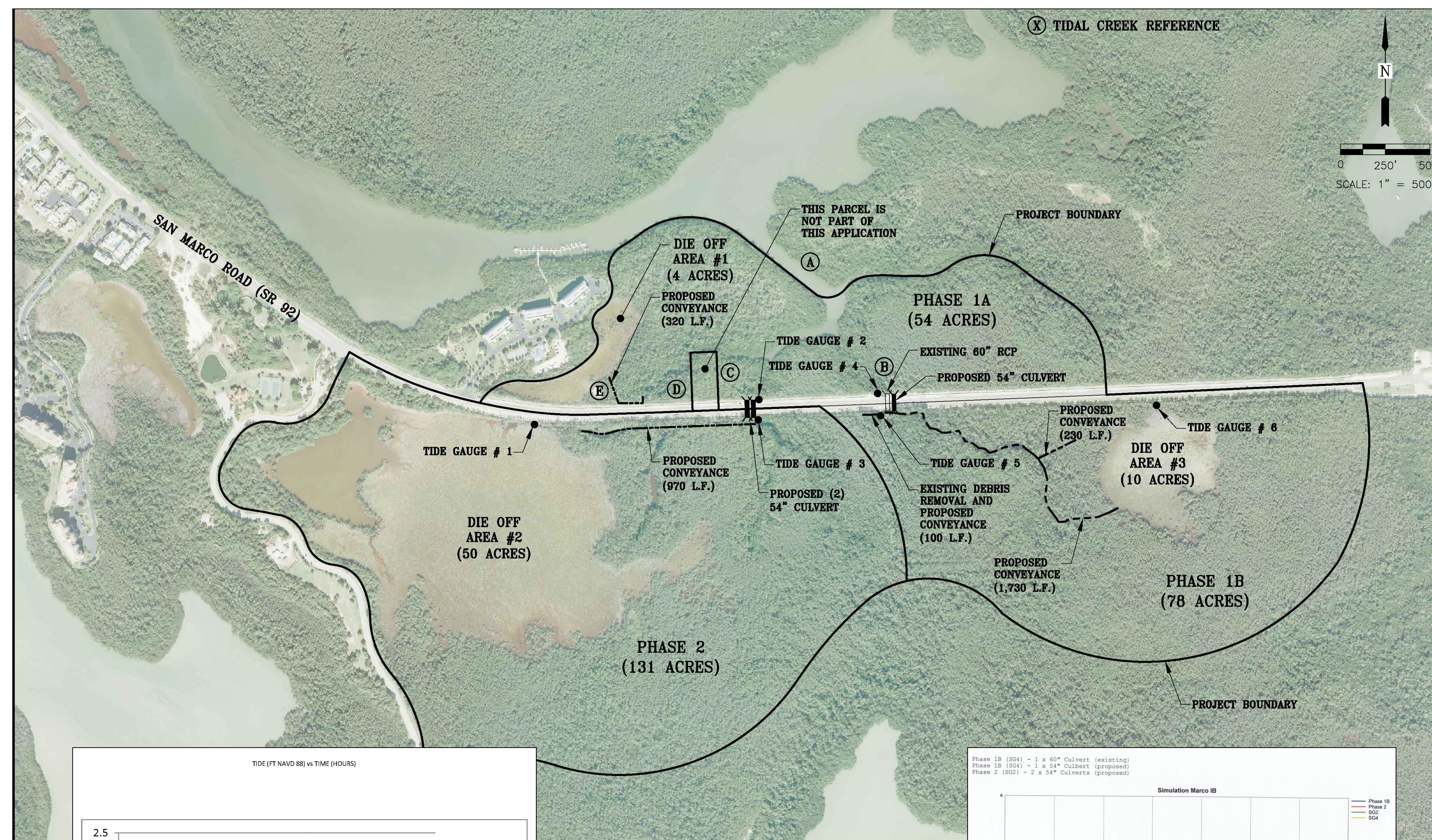
Accumulation of elemental sulfur/sulfur-reducing bacteria



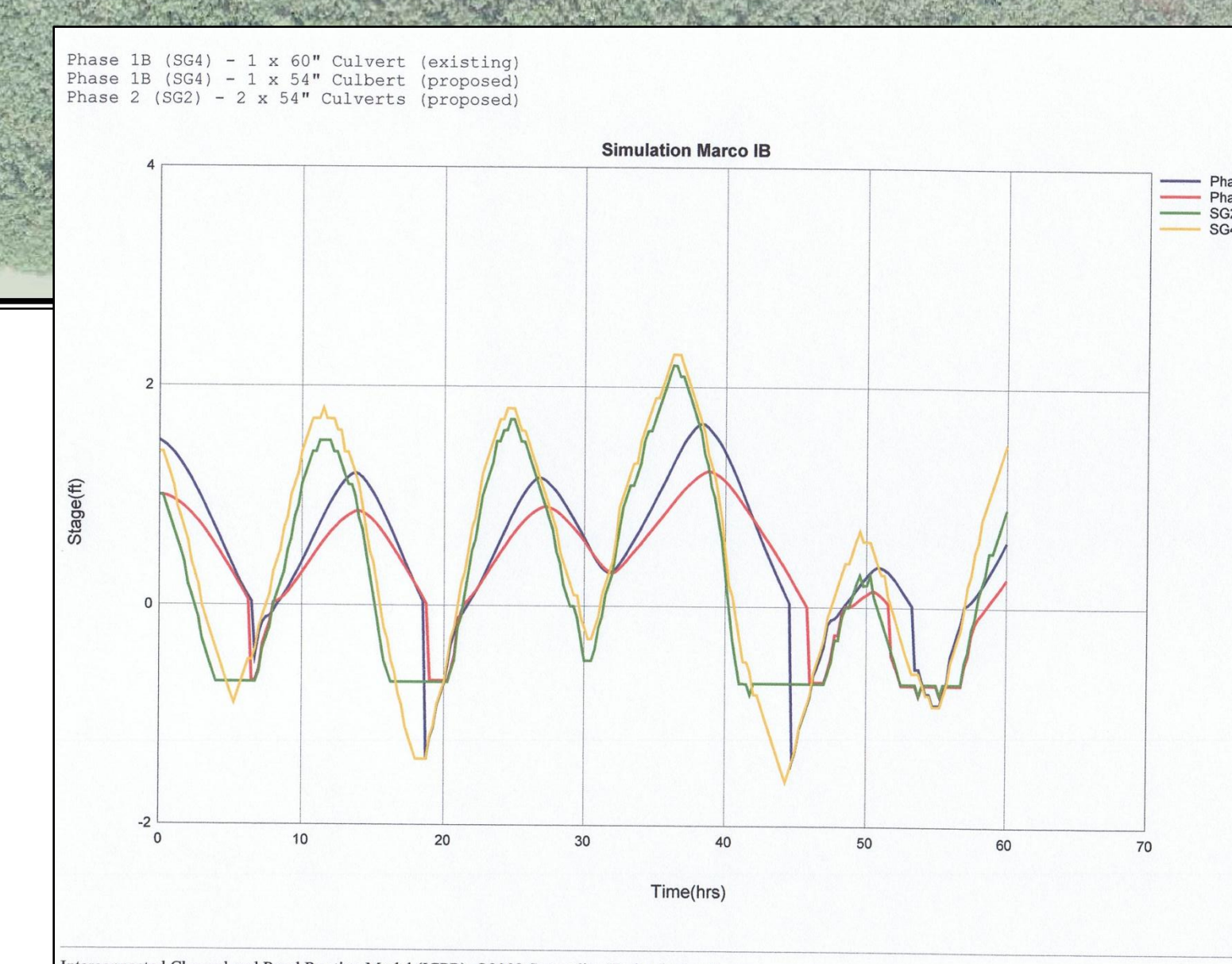
1929 Aerial Photography



1940 Aerial Photography



Existing tidal data was used to create and calibrate a hydrologic model of the existing mangrove system. The model was then utilized to size and locate culvert improvements that would approximate and restore the natural tidal prism.



Three black mangrove basin forests totaling 64 acres located in the Rookery Bay National Estuarine Research Reserve near Marco Island, Florida, have died from inadequate flushing and altered tidal hydrology. With a grant from the U.S. Fish and Wildlife Service, donated matching time from the professional design team, and private funding, these areas will be restored and 161 additional acres will benefit utilizing the Ecological Mangrove Restoration (EMR) approach.

THE PROPOSED RESTORATION PLAN CONSISTS OF NINE (9) ELEMENTS:

1. Installation of a new 54 inch culvert at the location of partially functioning 60 inch culvert at Tidal Creek A/B.
2. Installation of two new 54 inch culverts at Tidal Creek D across SR 92 along with minor impacts associated with the sumps.
3. Removal/trimming of red mangrove roots and prop roots in Tidal Creek E.
4. Removal of red mangrove roots in Tidal Creeks B and E.
5. Removal of up to 30 mangroves in Tidal Creeks B (20) and E (10).
6. Re-excavation/excavation of roadside ditch and removal of black mangroves and pneumatophores between proposed culvert at Tidal Creek C and Die-off Area #2.
7. Debris (construction mat) removal and improved conveyance at location of existing culvert at Tidal Creek B.
8. Approximately 350 linear of feet of discretionary mangrove trimming/alteration as part of the Adaptive Management Plan.
9. Optional post-construction planting for educational purposes.