Clean Soil for New Tidal Wetlands – An Overview of the Soil Quality Assurance Process

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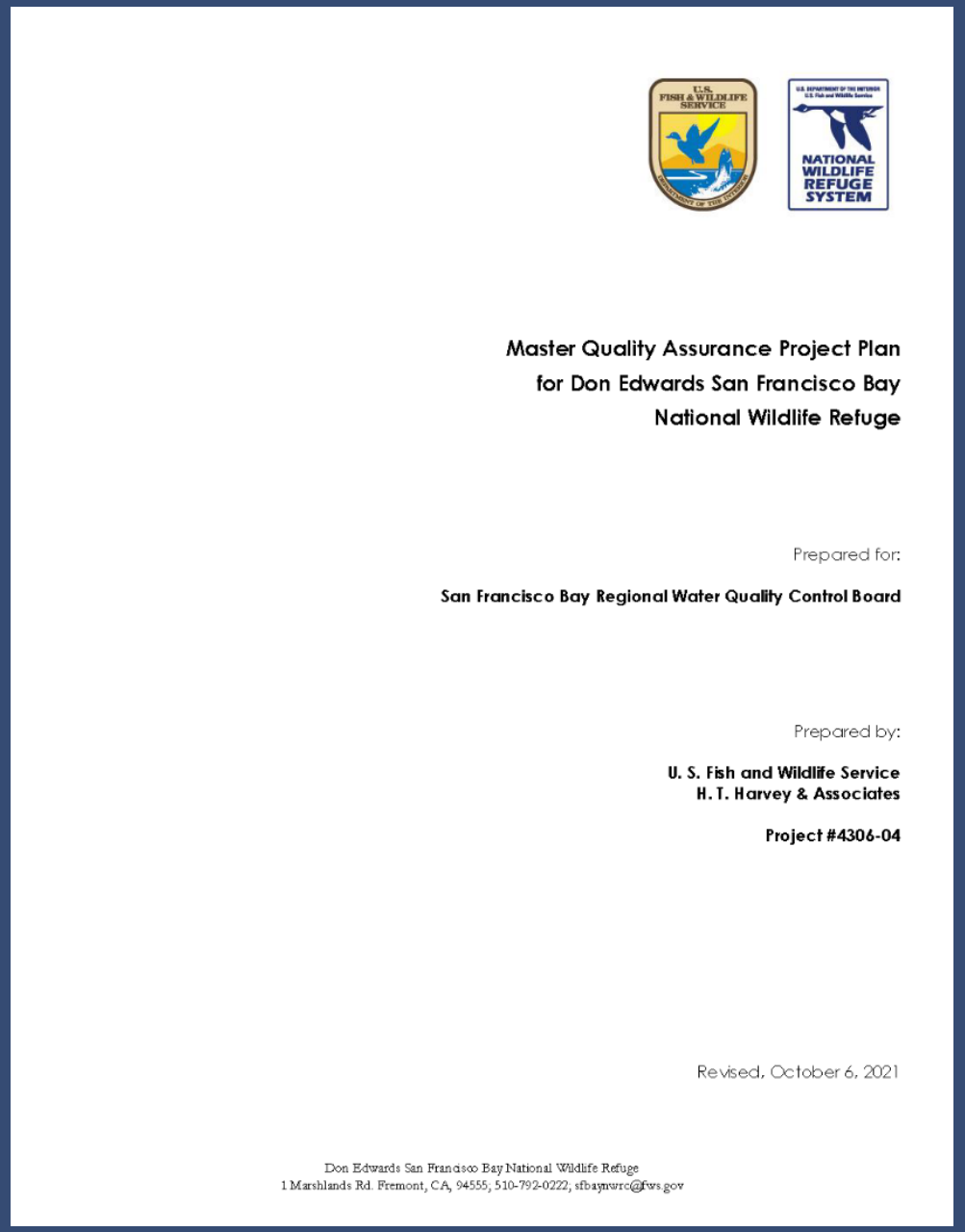
H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Outline

- Why the Refuge needs fill
- Master Quality Assurance Project Plan (QAPP)
- Origins
- How it works
- Soil import project examples
- Next steps



Master Quality Assurance Project Plan
for Don Edwards San Francisco Bay
National Wildlife Refuge

Prepared for:

San Francisco Bay Regional Water Quality Control Board

Prepared by:

U. S. Fish and Wildlife Service
H. T. Harvey & Associates

Project #4306-04

Revised, October 6, 2021

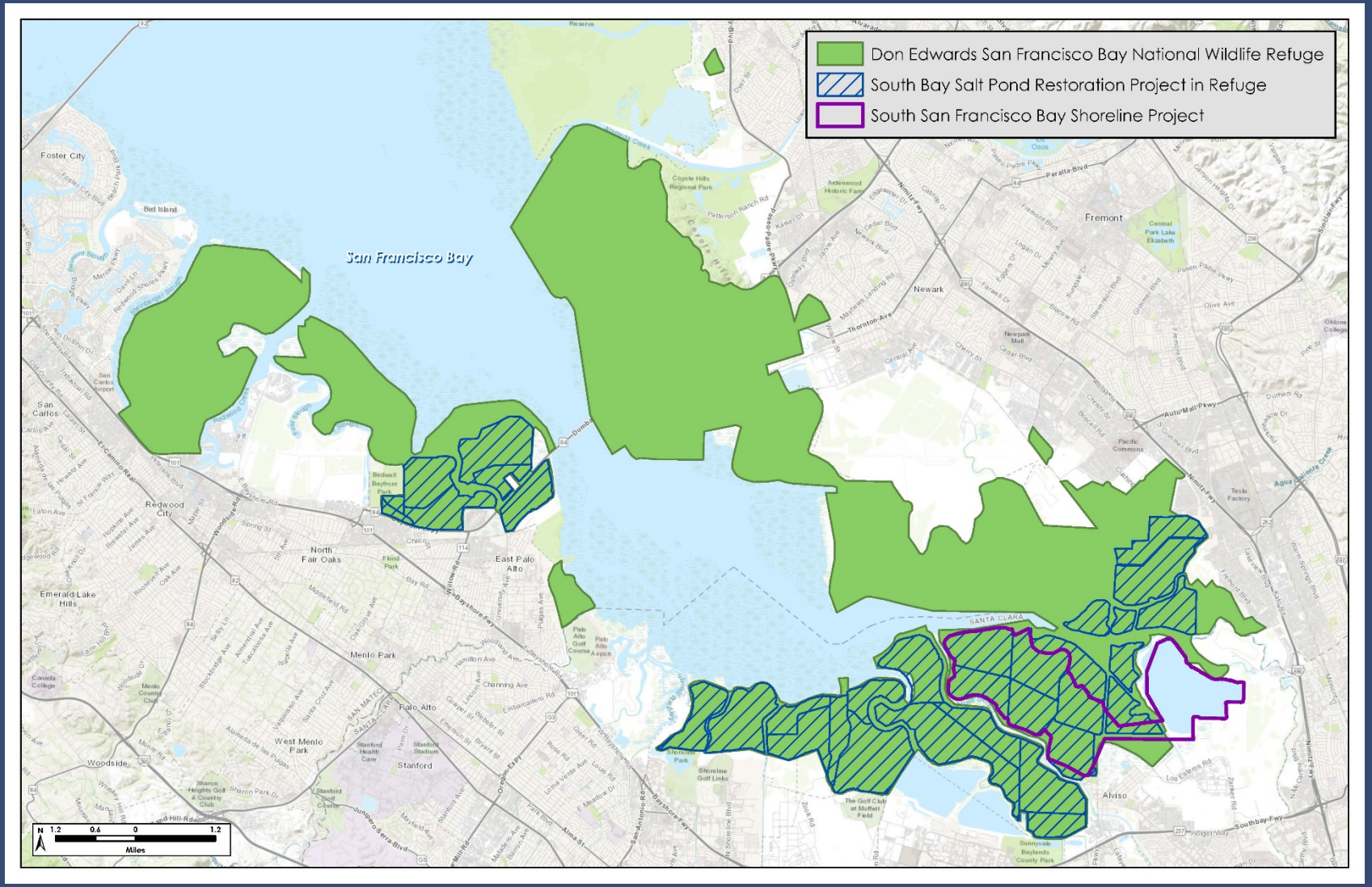
Don Edwards San Francisco Bay National Wildlife Refuge
1 Marshlands Rd. Fremont, CA, 94555, 510-792-0222, sfbaynwrc@fws.gov

Why the Refuge Needs Soil

Maintain 70 miles of berms

SBSPRP needs 100,000s CY soil to build ecotones

Shoreline Project in Refuge close to 1M CY for FRM levees + ecotones

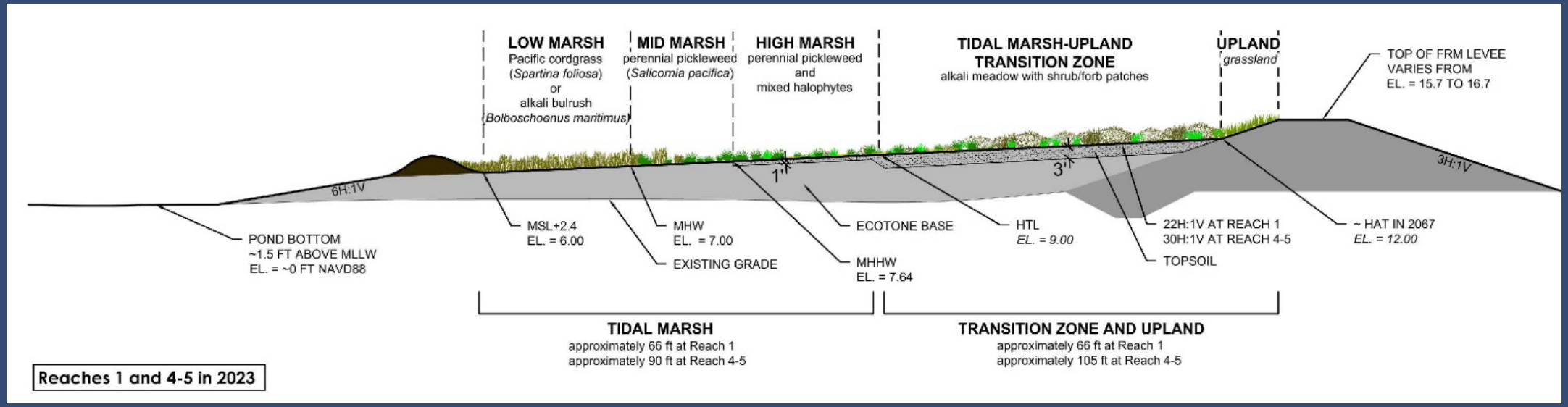


Ecotone

Tidal Marsh-Upland Transition Zone

Provides habitat, SLR resilience, + flood protection

Pond A18



Pond A18 Ecotone Design

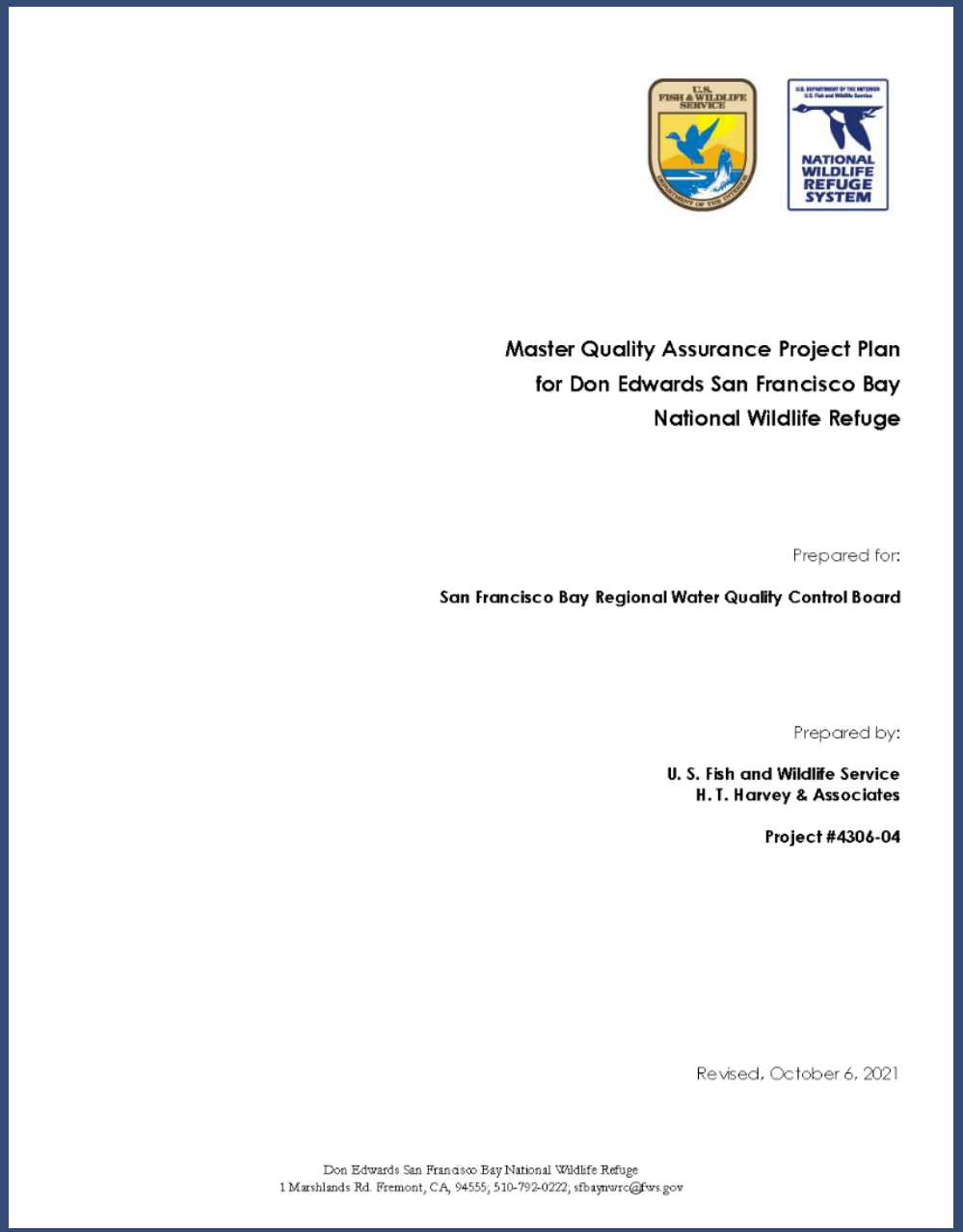
Purpose of QAPP

Process to evaluate, approve and oversee import of fill

Ensure fill is protective of aquatic life

Required by RWQCB and BCDC

Allows autonomy by projects but retains RWQCB/BCDC oversight



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U.S. Fish & Wildlife Service and H. T. Harvey & Associates 2021. Master Quality Assurance Project Plan for the Don Edwards National Wildlife Refuge.

2021 Master QAPP - Origins

Inner Bair Island Restoration Project QAPP: 1,000,000 CY[1]

Master QAPP: Versions in 2017, 2018, 2021

- H. T. Harvey & Associates
- The Refuge
- SBSPRP director
- TRC Solutions
- Pacific States Environmental
- USACE
- RWQCB

[1] *U. S. Fish & Wildlife Service. 2008. Quality Assurance Project Plan for Inner Bair Island Fill and Placement.*

2021 Master QAPP – How it Works

Propose:

- Contractor
- Quality Assurance Officer
- Peer Reviewer

2021 Master QAPP – How it Works

Contaminant Screening Criteria [1]

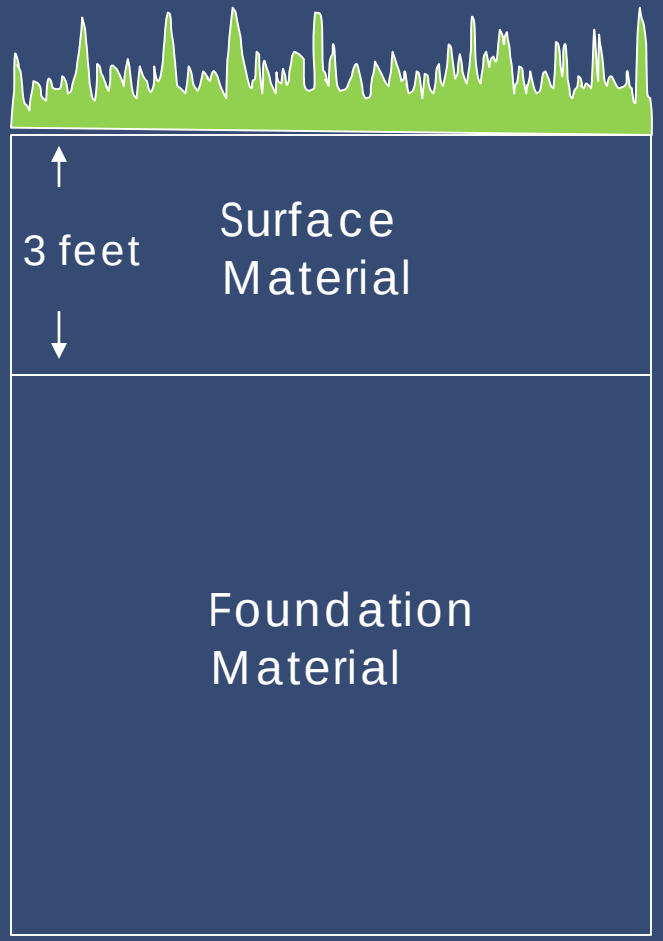
– Metals, pesticides, PCBs, PAHs, and VOCs

– Largely based on RWQCB 2000

- Ambient levels in bay
- Biotic effects studies

Wetland Surface – upper 3 feet

Wetland Foundation – easier to find



[1] San Francisco Bay Regional Water Quality Control Board Draft staff report. 2000, Beneficial Reuse of Dredged Material: Sediment Screening and Testing Guidelines

How It Works

Borrow Site History

Sample Plan

Analytic Testing

Data Review

Approval

- QAO
- Peer Review
- RWQCB + BCDC

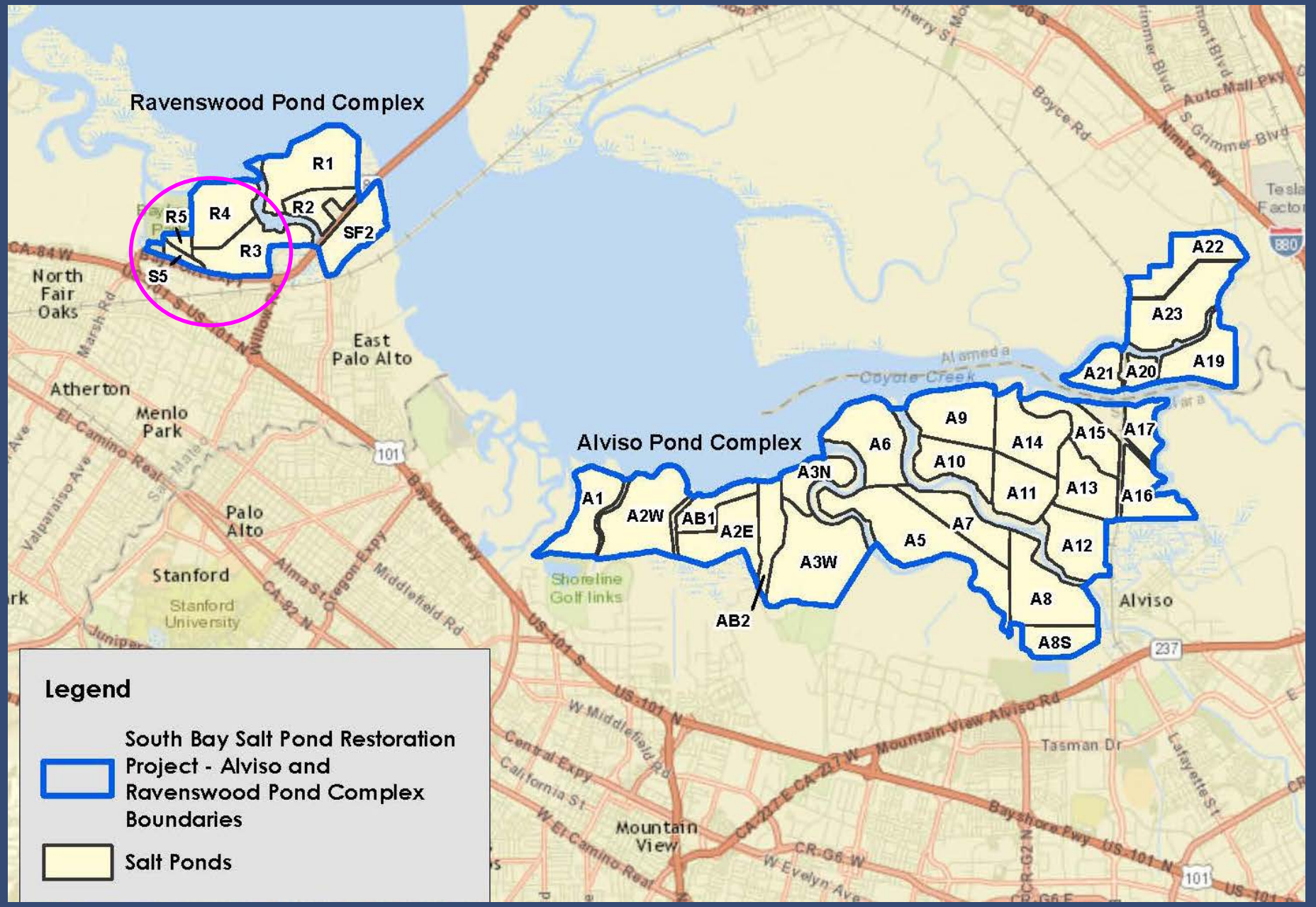
Import Oversight

Reporting

Project Example – Ravenswood

Phase II of SBSPRP

H. T. Harvey role of Quality Assurance Officer 2018–ongoing



Project Example – Ravenswood

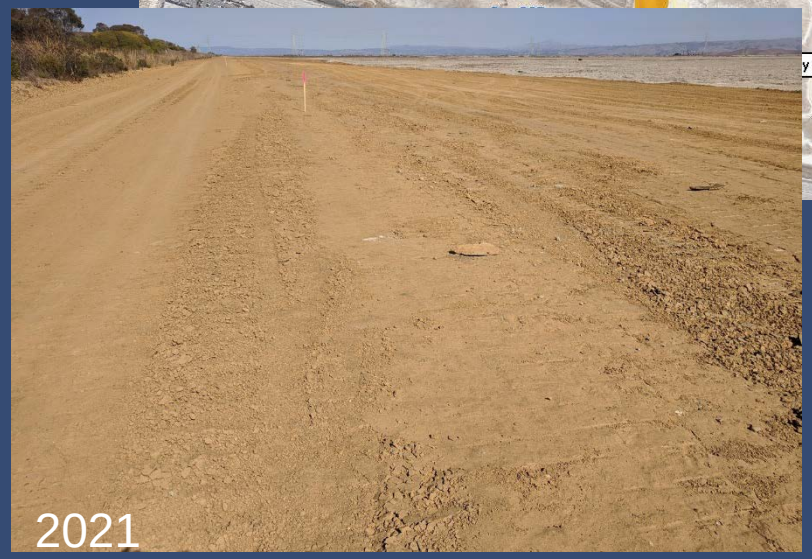
Soil for Phase II, ecotone construction

Project Example – Ravenswood

Foundation into All American Canal

Project Example – Ravenswood

Wetland surface for ecotone

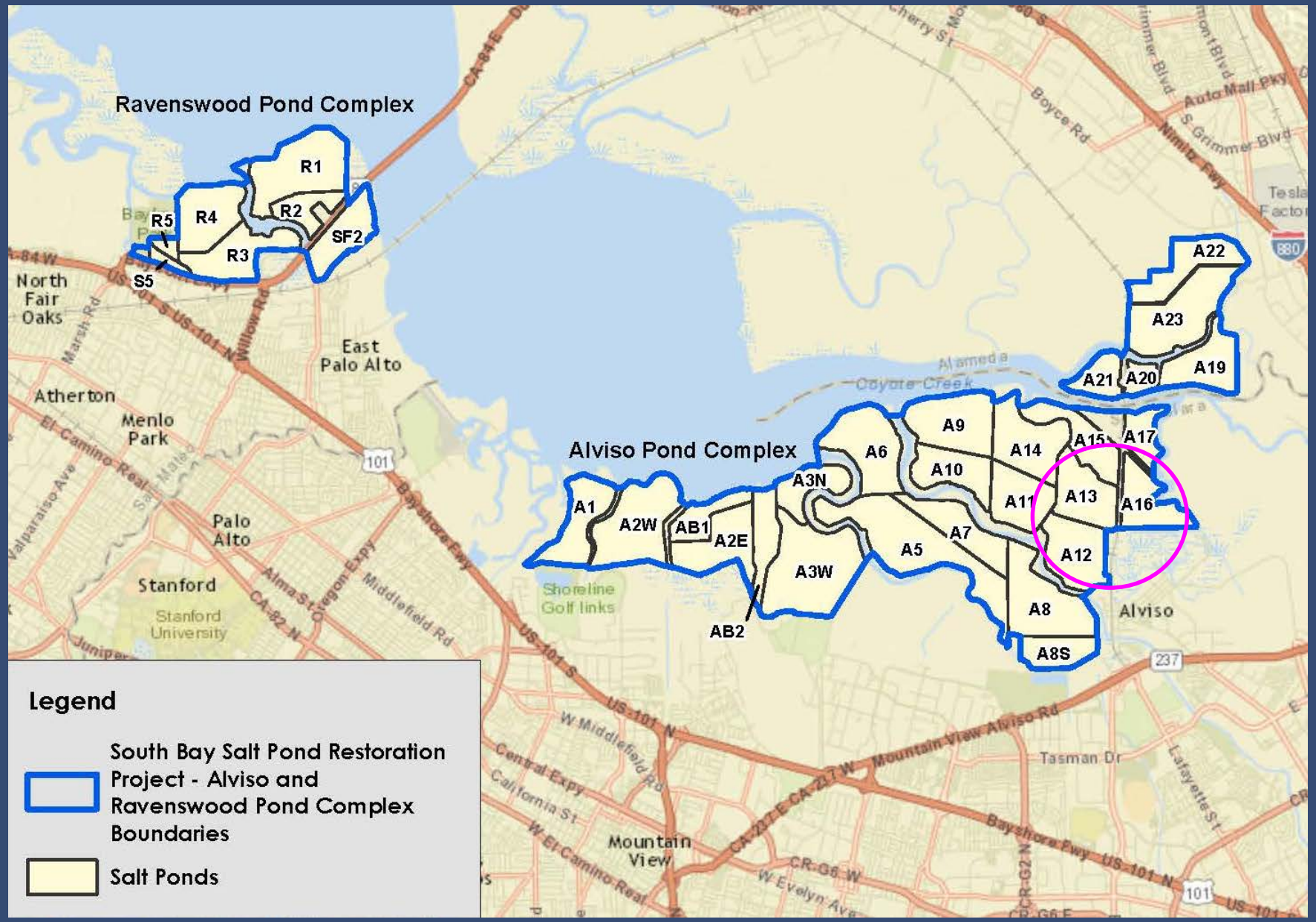


Project Example – Ravenswood

- Soil from 12 basement digs
- Over 700,000 cy approved
- 172,000 cubic yards imported over 3 years
- Ecotone construction and berm improvement ongoing

Project Example – Shoreline Project

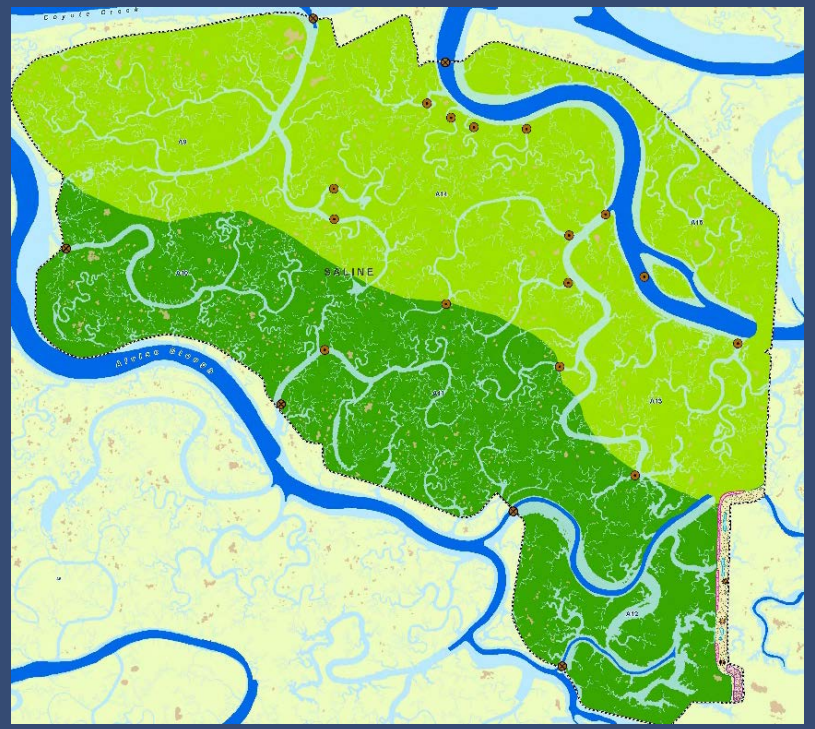
H. T. Harvey as Quality Assurance Officer 2017–ongoing



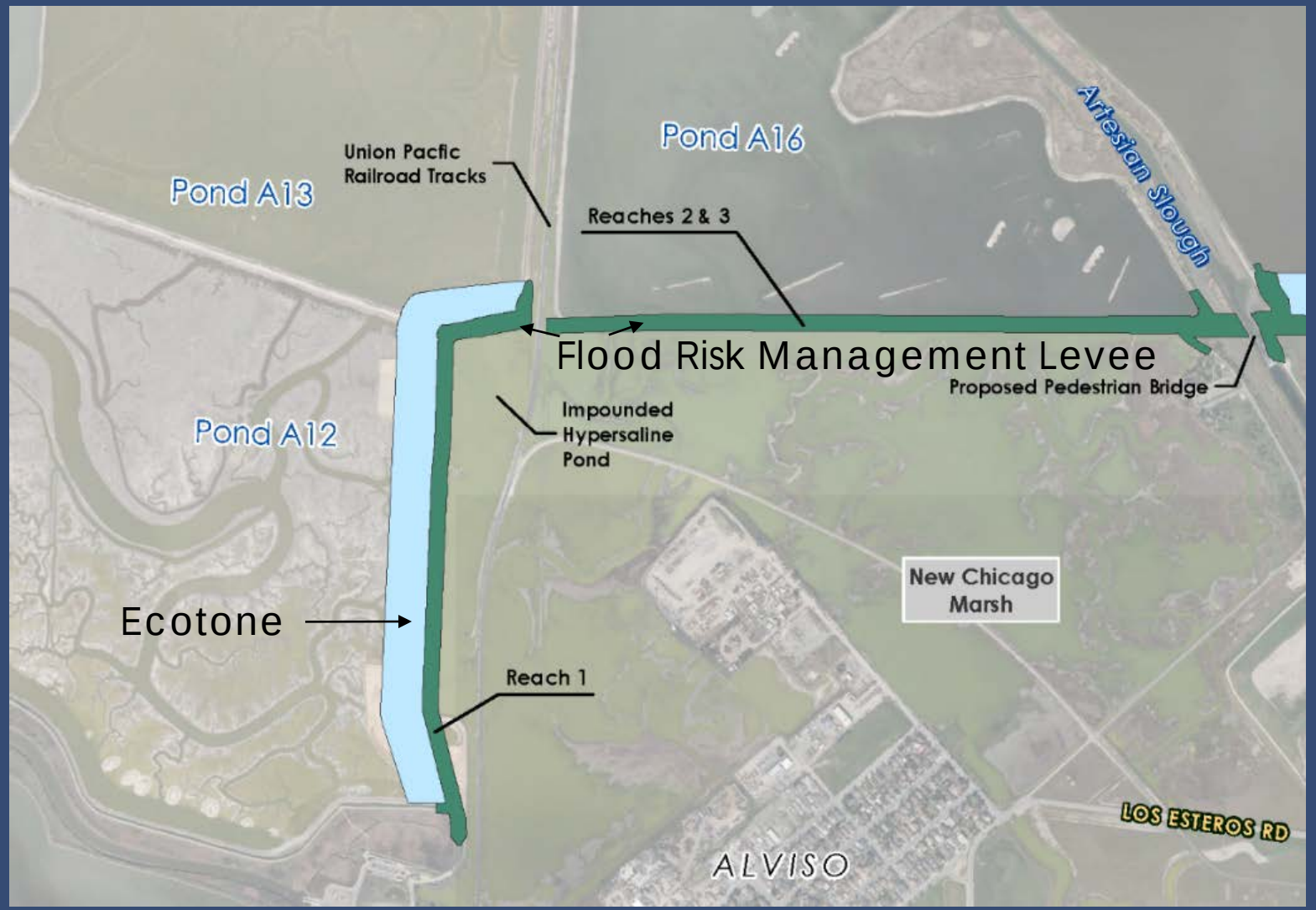
Project Example – Shoreline Project

Reach 1-3

~850,000 CY for FRM levee, coffer dams, topsoil for ecotones



Pond A12 – 2067 habitat projections



Pond A12 - 2018

Project Example – Shoreline Project

FRM Stockpile in 2019

80,000 cy imported

6 sites, 1 quarry

Pond A12 – August 2017

Pond A12 – April 2019

Project Example – Shoreline Project

Reach 1-3 in active construction

~2 years to import 750,000 CY

Soil mixing needed to meet levee specifications

Quarry material ~200,000 CY

Road project in Milpitas ~70,000 CY

Basement in SJ ~100,000 CY

Project Example – Shoreline Project

Soil placed for coffer dams

Reach 1

Reach 1

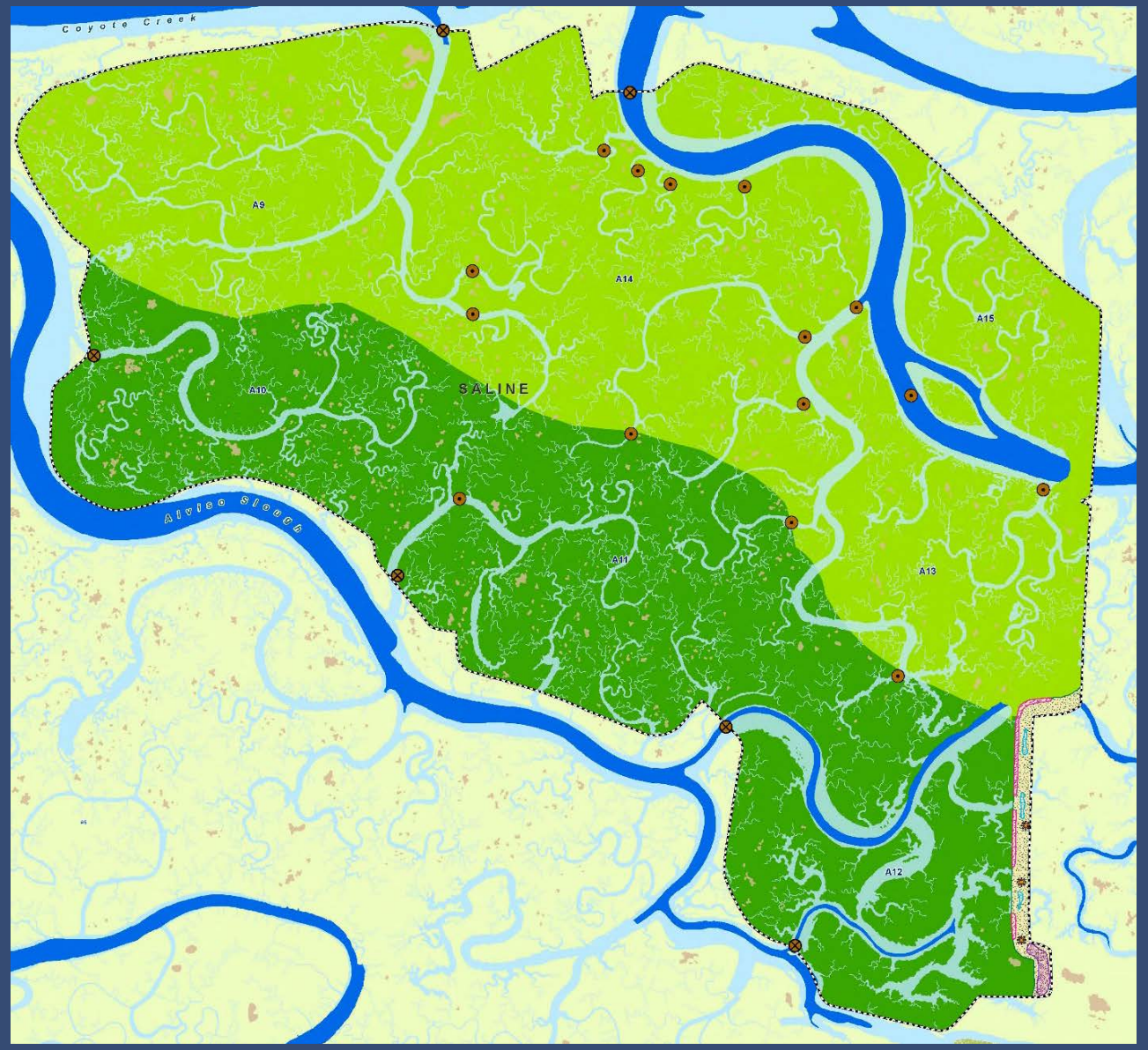
Reach 2-3

Takeaways on Finding Clean Soil for Wetlands

- Past uses make many sites unsuitable
- Legacy pesticides in upper 3 ft
- Large scale basement digs and quarries viable sources for large volumes
- Cadmium, selenium in local geology
- Dirt import market changes with economy
- Responsive RWQCB/BCDC essential

Next Steps

- Coastal Conservancy funding refinements
- Ecological Conceptual Site Model
- Collaboration
- Revise QAPP



Why we are doing this