



University of California,  
Berkeley

Richmond Bay Campus/  
Richmond Field Station

April 27, 2018

Western Stege Marsh  
and Meeker Slough





San Francisco

Brooks Island

Stege  
Marsh

outboard  
inboard

Meeker  
Slough

Marina Bay

EBRPD Bay Trail

Former  
Zeneca

EPA

RFS Site

PEER

B445

NRLF

FPL

Meade Street

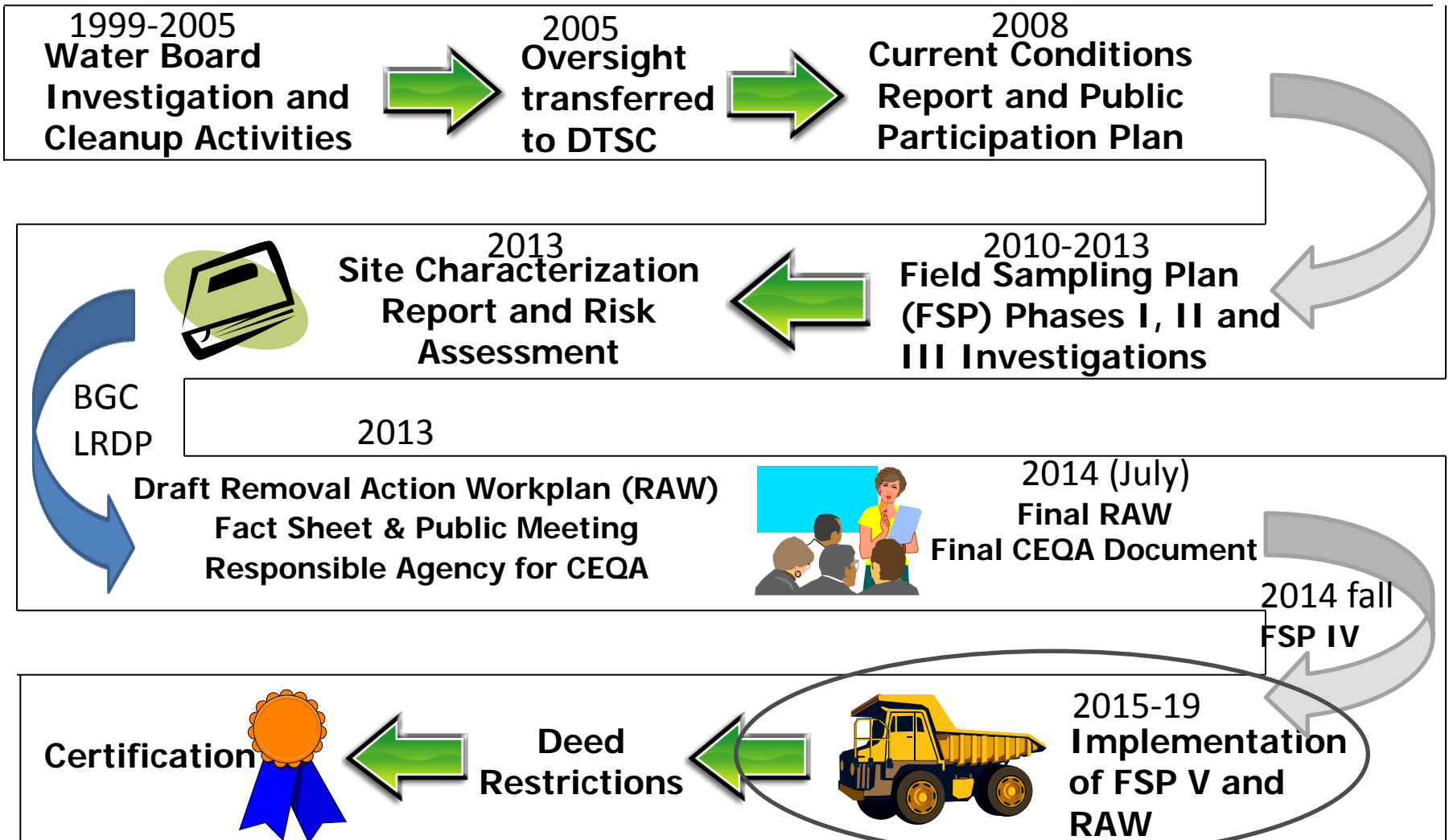
I-580

Regatta  
Blvd

3300  
Regatta

+  
= RBC

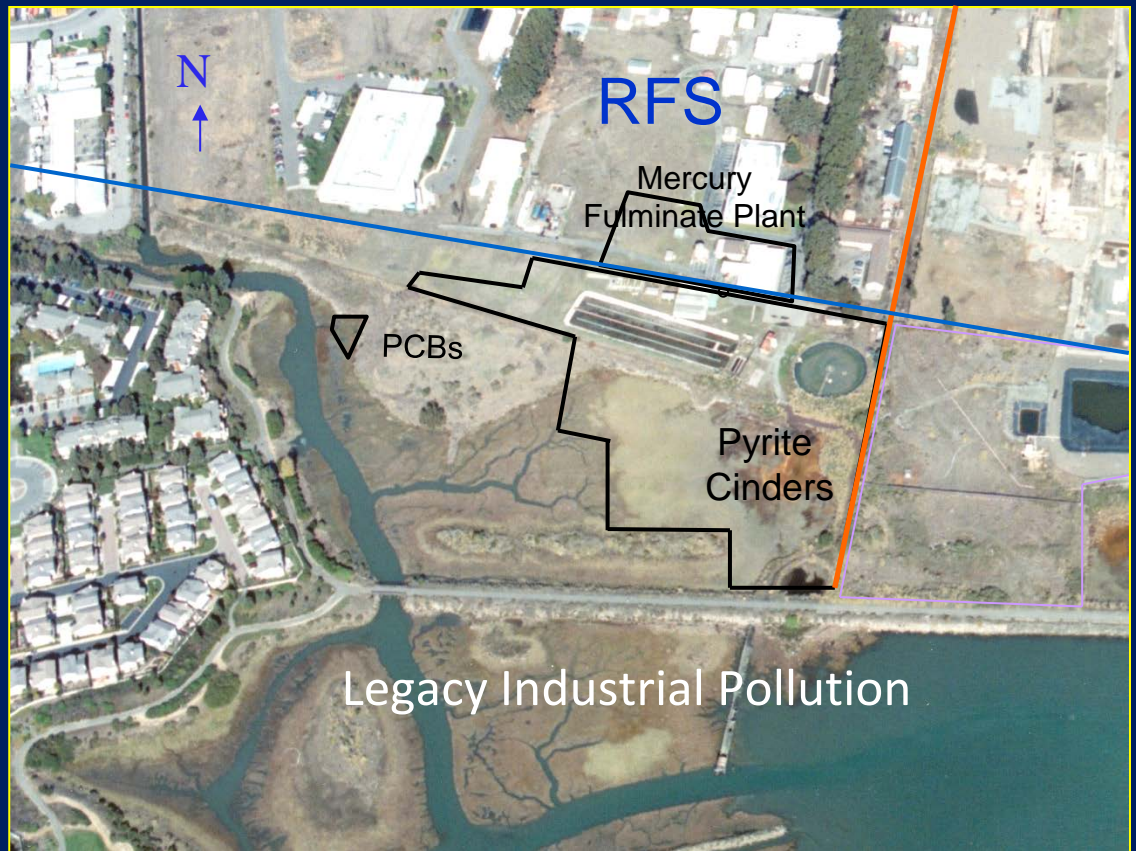
# Site Investigation and Cleanup Process





# RFS History 1950

October 1950- University of California acquires property from California Cap Company and develops engineering field station campus.





Contaminated Western Stege Marsh prior to clean up



# RWQCB SCR Order Activities 2001-04

## Completed

Phase 1 2002

Phase 2 2003

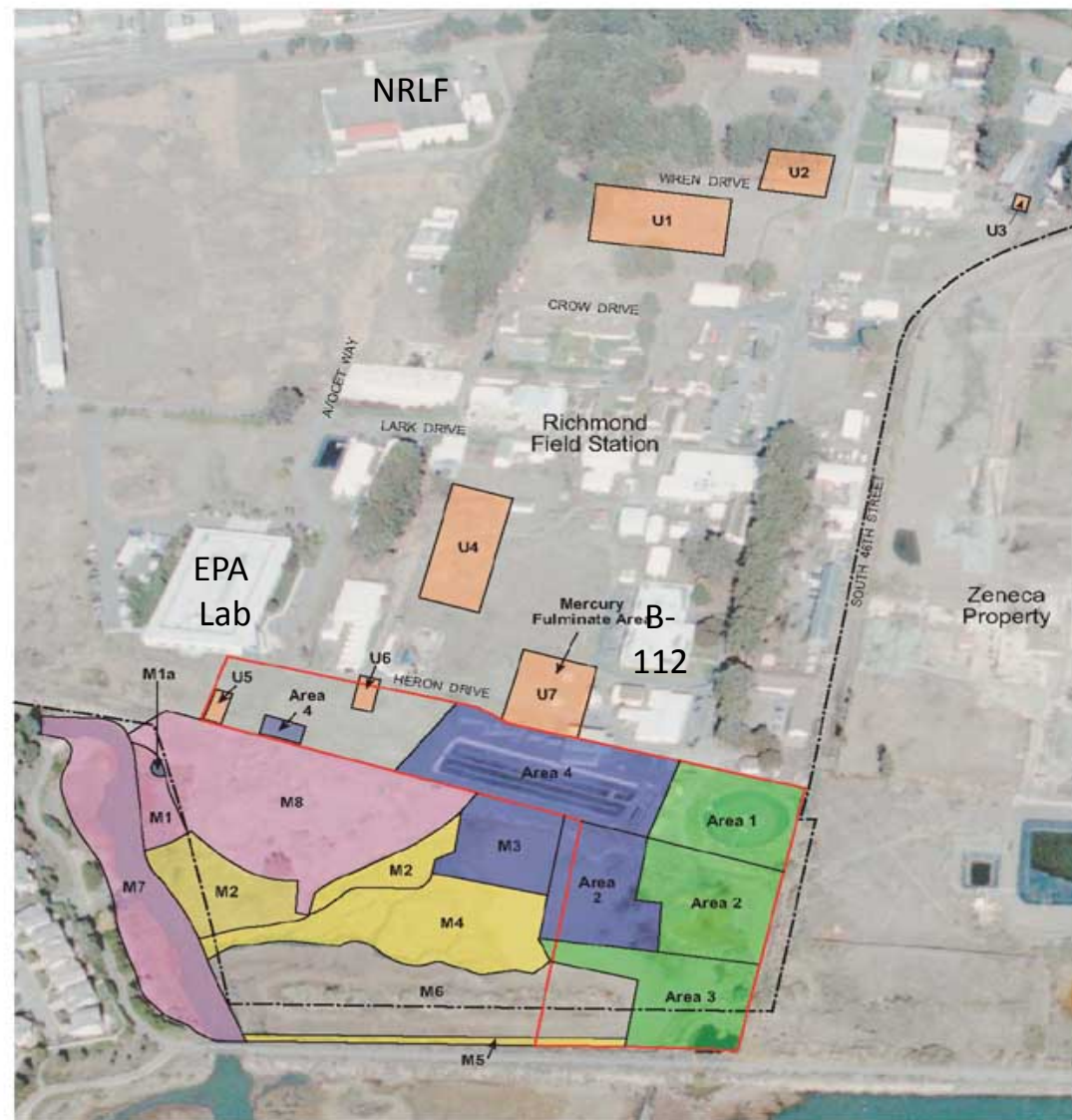
Phase 3 2004

## Planned

Mercury Fulminate  
now 2018

Phase 4 &

Phase 5 were TBD if  
necessary



### LEGEND

#### Remediation Schedule

Phase 1	2002 (UCB FY 2002/2003)
Phase 2	2003 (UCB FY 2003/2004)
Phase 3	2004 (UCB FY 2004/2005)
Phase 4	2005 (UCB FY 2005/2006)
Phase 5	2006 (UCB FY 2006/2007)

Area 1 = Subunit 2A Area 1

U1 = Subunit 3B Upland AOC 1

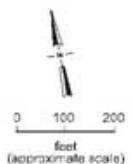
M1 = Subunit Marsh AOC 1

Subunit 2A Boundary

Property Boundary

#### Notes:

1. Areas are approximate and will be refined based upon 2003 additional characterization results and CAL EPA approval.
2. Shaded areas indicate boundary of area to be addressed during the identified remedial phase. Remedial activities being considered for each





Former Zeneca Site

RFS

Western Stege Marsh cleanup 2002-2004



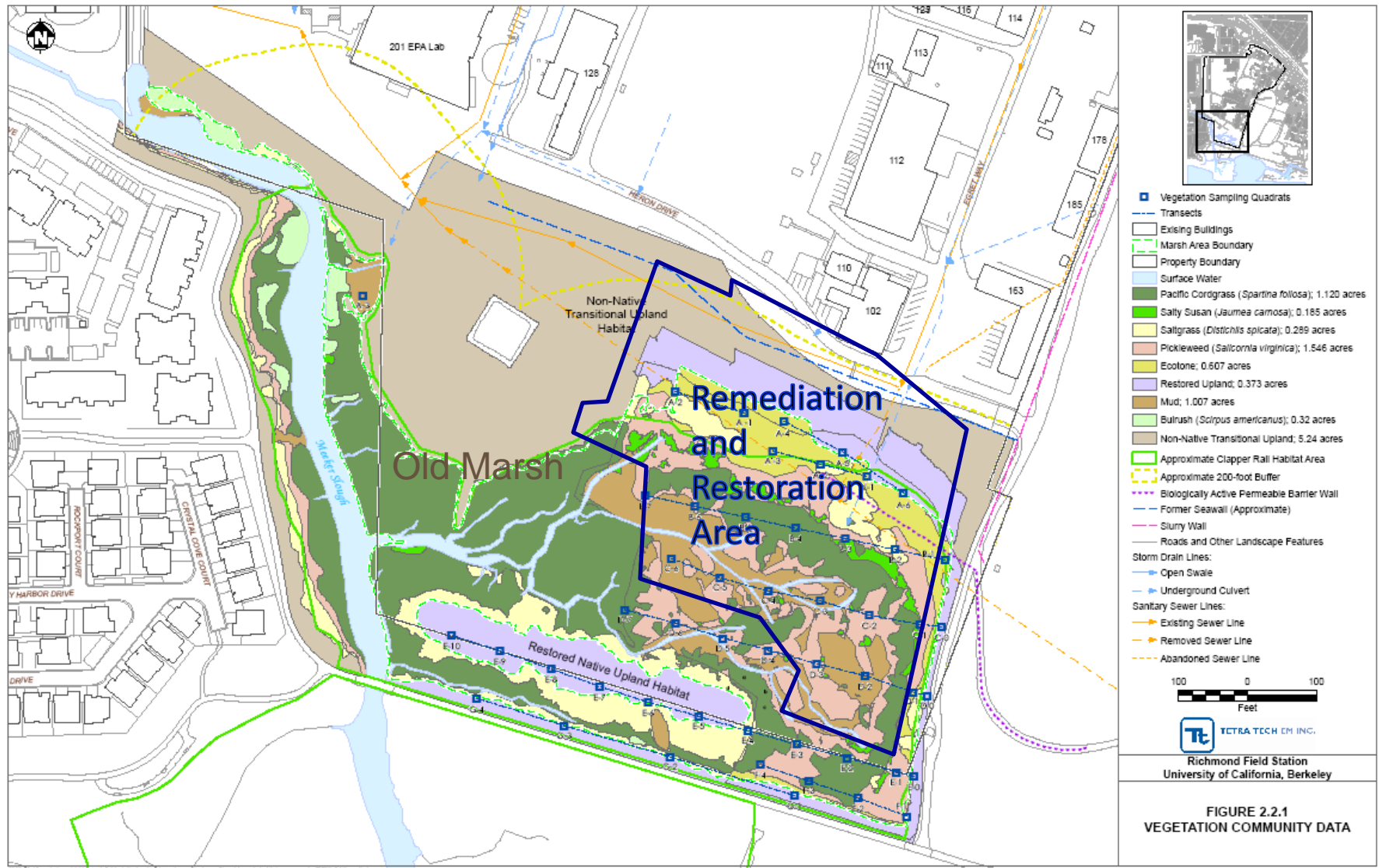
The first outplantings occurred on a blank canvas.





# Marsh Monitoring Program

US Army Corps of Engineers NW38 Permit 28135S September 3, 2003





## Conclusions of restoration and monitoring 2004 - 2010

Western Stege Marsh is progressing toward providing the functions of a typical SF Bay tidal salt marsh.

- Hydrologic complexity is established.
- Previous water quality problems eliminated.
- Diverse native salt marsh and marsh edge habitats have been created.
- Clapper rails and other marsh species present in WSM.



# Tidal Salt Marsh

**Target 4: Establish a compositionally and structurally complex ecosystem with attributes important to wildlife focused on increasing habitat functions for the Ridgway's Rail (formerly known as the California Clapper Rail).**



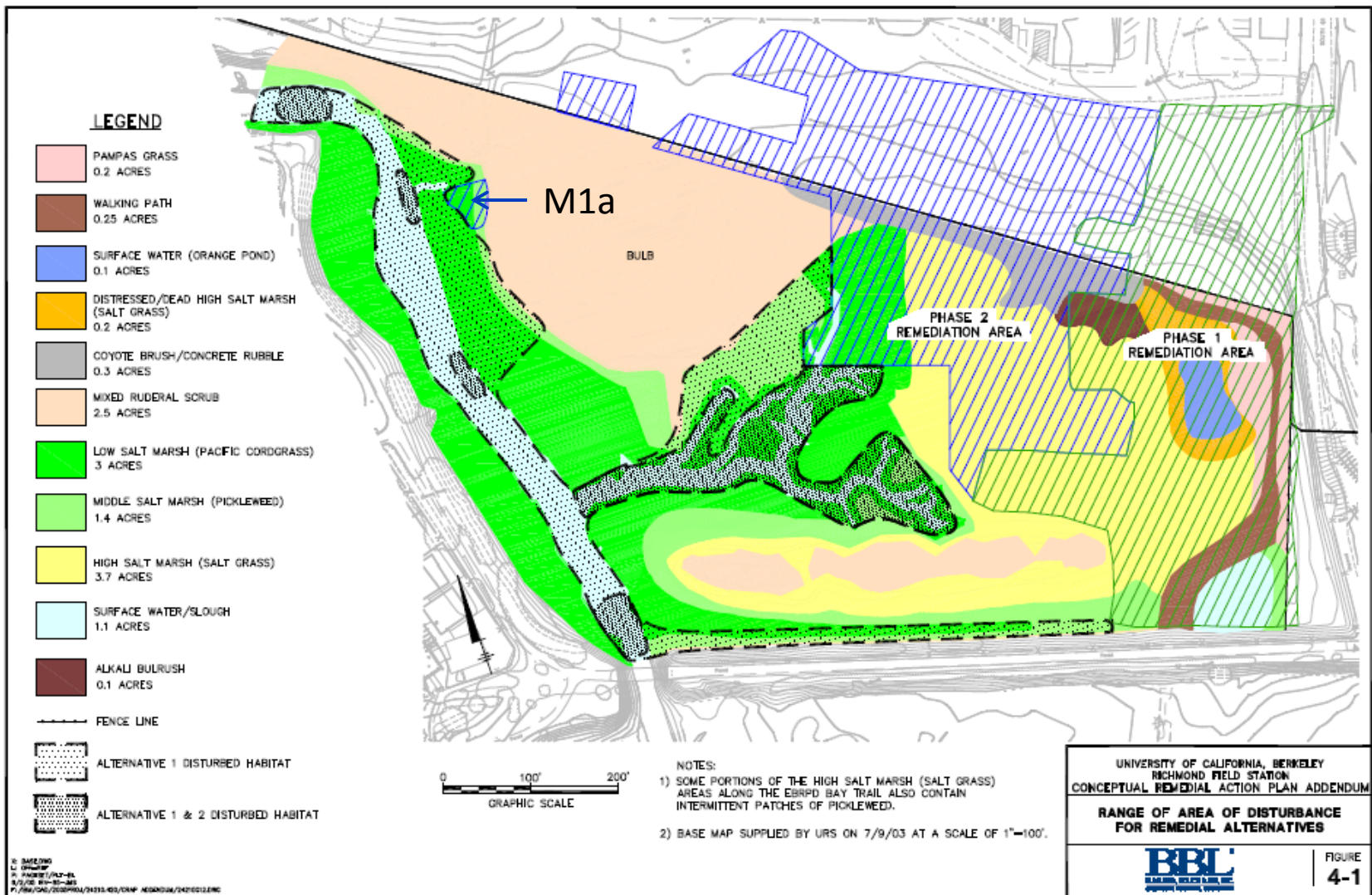


# An adult rail and two chicks near Meeker Slough

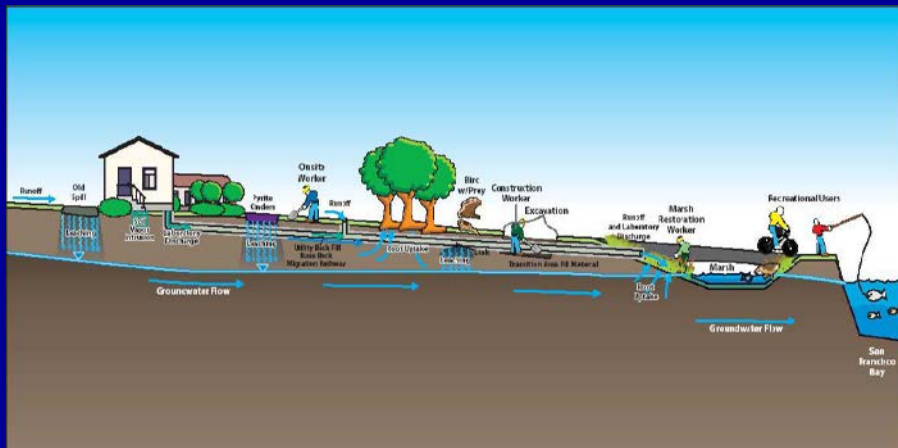


Photo courtesy of Denise White





2003 M1a excavated (PCB hot spot at Western Storm Drain Outfall)  
 2004 Net Environmental Benefit Analysis proposed  
 2005 Draft Conceptual Remedial Action Plan- describes options of manage  
 in place vs. excavate or alternative treatment (carbon e.g.)

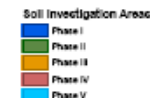
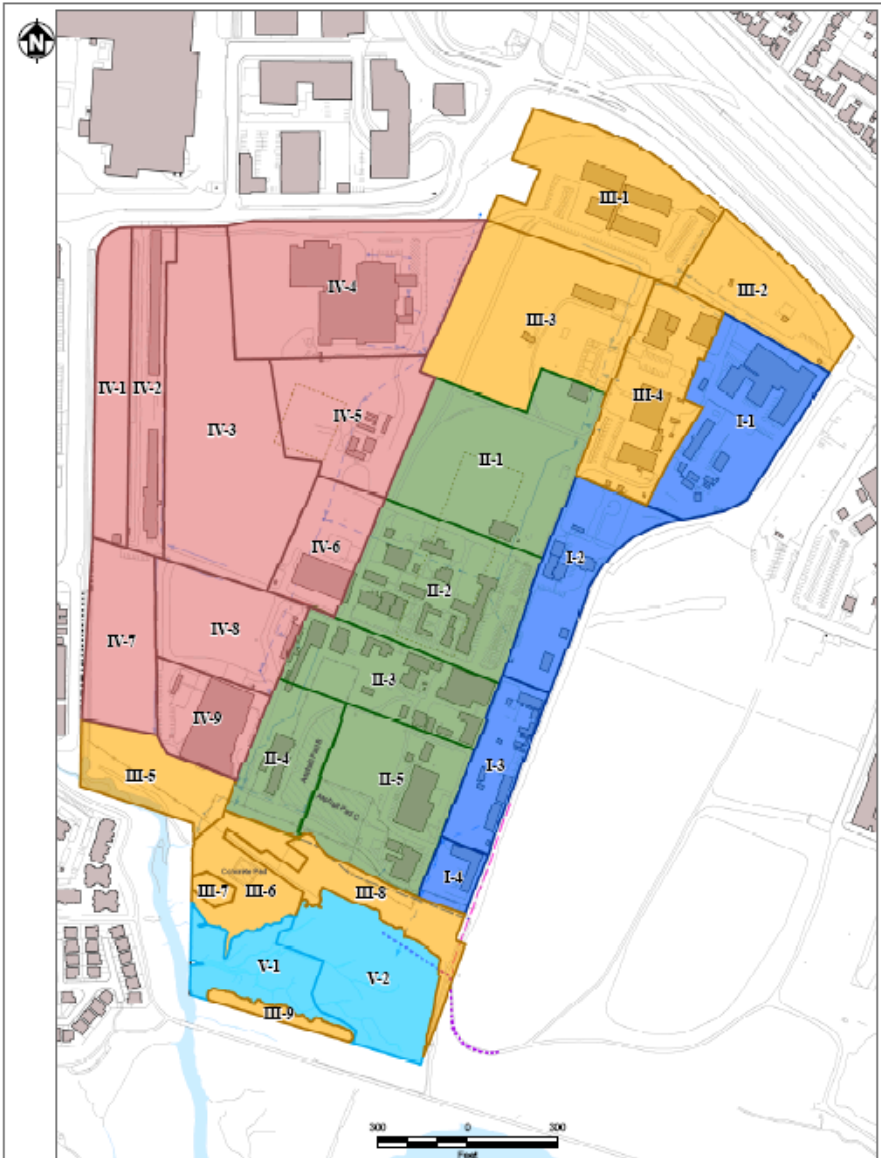


## Field Sampling Workplan

-Conceptual Site Model identified data gaps from Current Conditions Report

- Investigation phasing

- Five phases began 2010



Richmond Field Station  
University of California, Berkeley

FIGURE 4  
SOIL INVESTIGATION AREAS

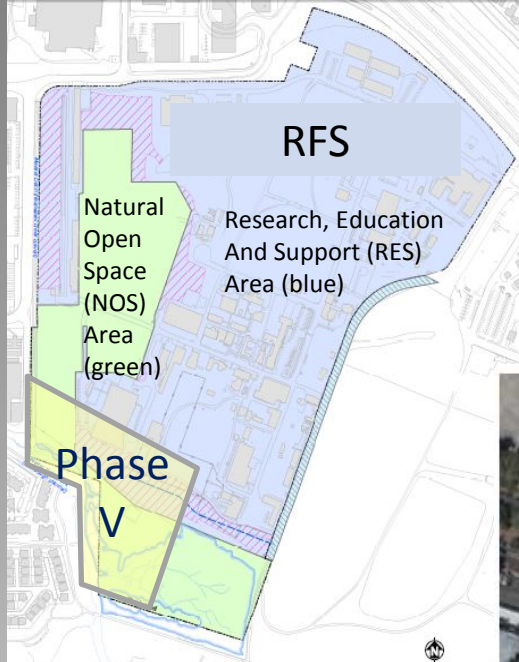
Field Sampling Workplan



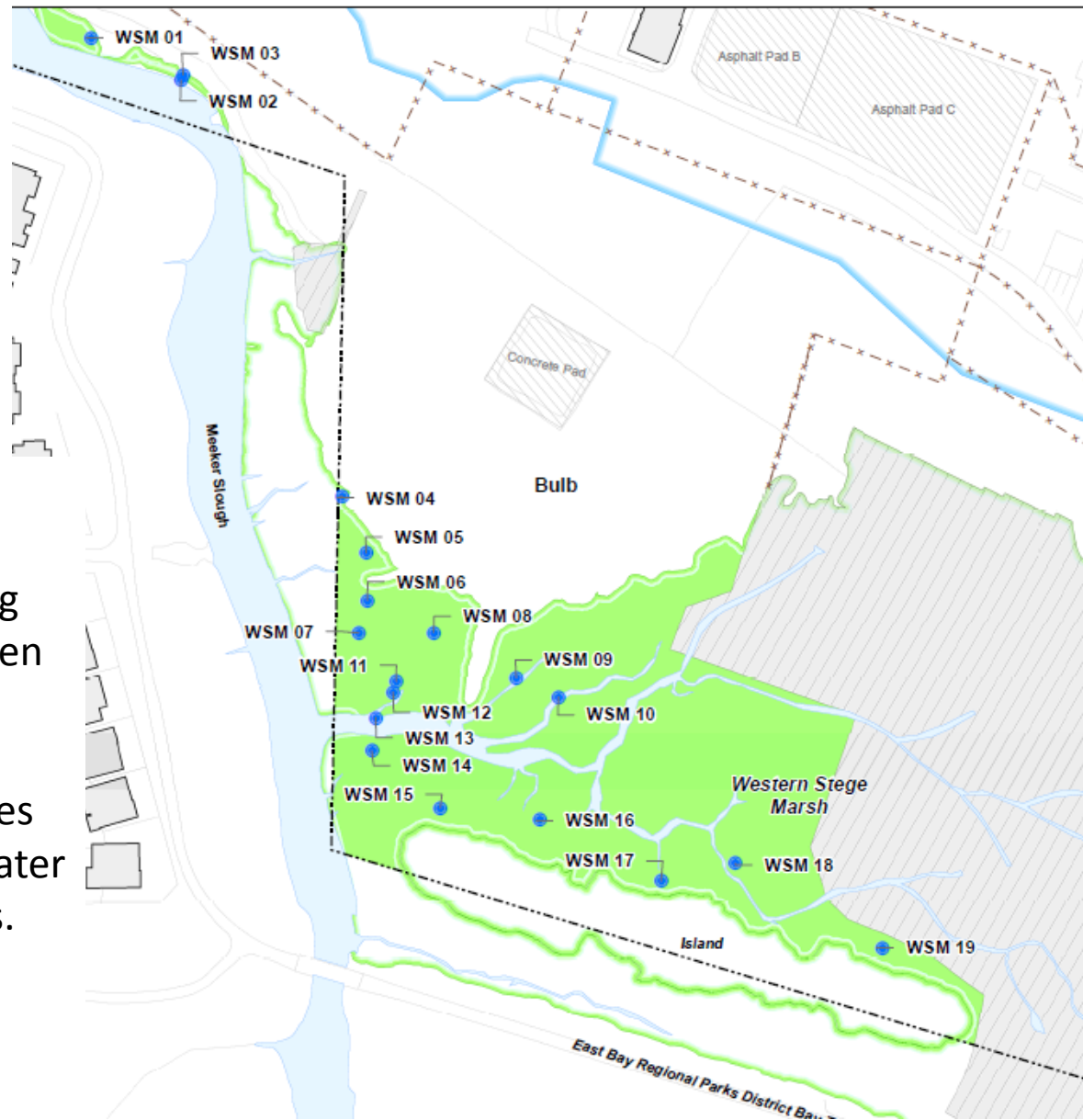
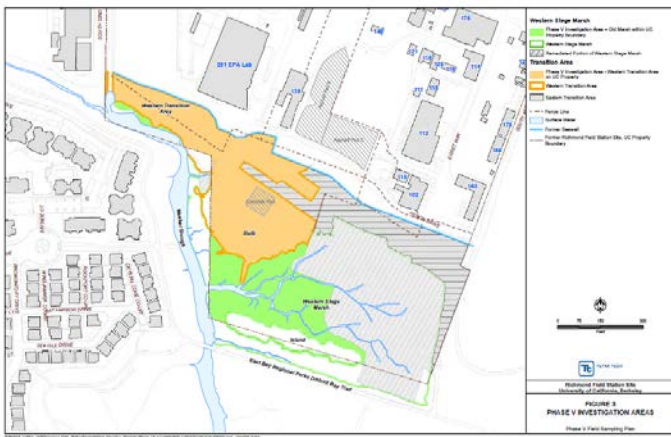


# Field Sampling Plan Phase V

- Western Stege Marsh- pore water and sediment sampling. Done January 2017
- Western Transition Area (Bulb) – potholing. Planned for fall 2019





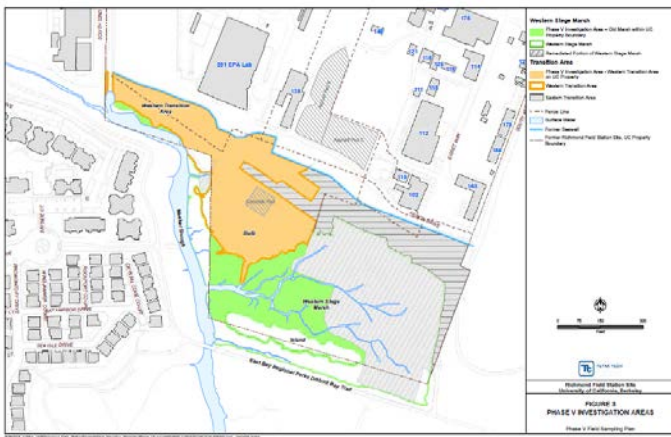


## FSP V

Pore water and sediment sampling locations at two depths, at nineteen locations.

For 0- 0.5 feet all sediment samples analyzed for Hg and PCBs. Pore water extracted was analyzed for metals. MeHg analysis performed on 10 highest sediment Hg locations.

For 1.5- 2.0 feet, nineteen locations analyzed for PCBs.



FSP V

Western Transition Area  
potholing locations

Expected to be  
completed in Fall 2019  
after Ridgway's rail  
breeding season





RFS

Sims Metals fire January 30, 2018

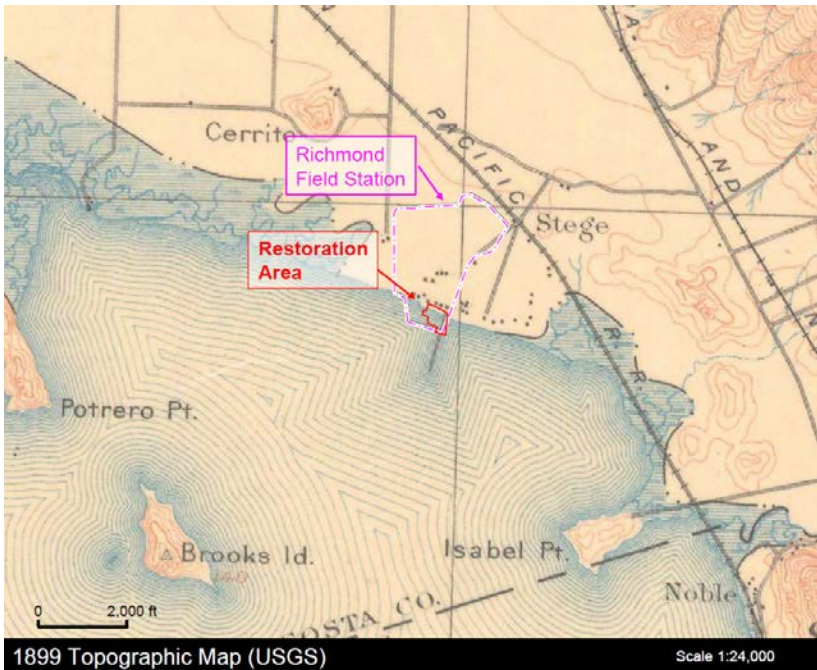
Ridgway's Rails at Stege Marsh  
Richmond, CA southeast shoreline



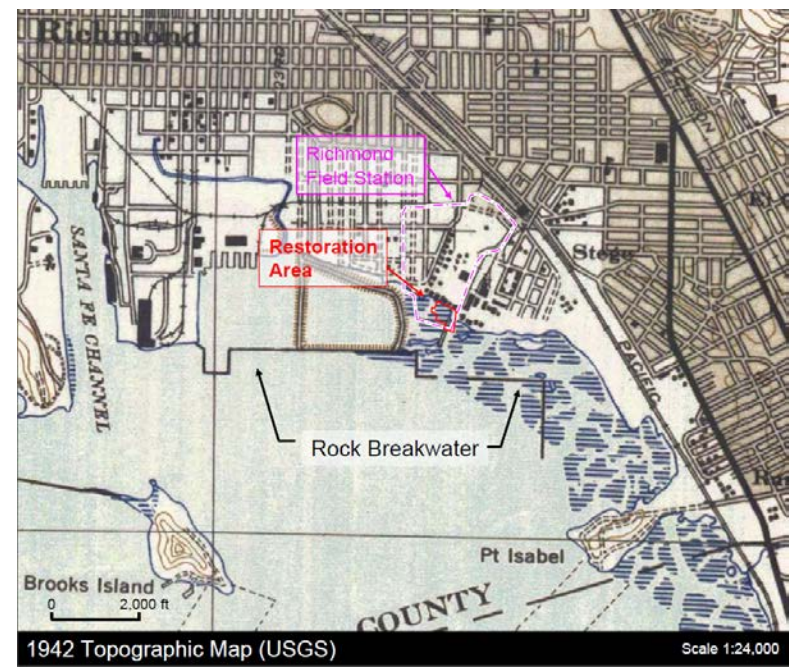
M. Eichelberger 2016



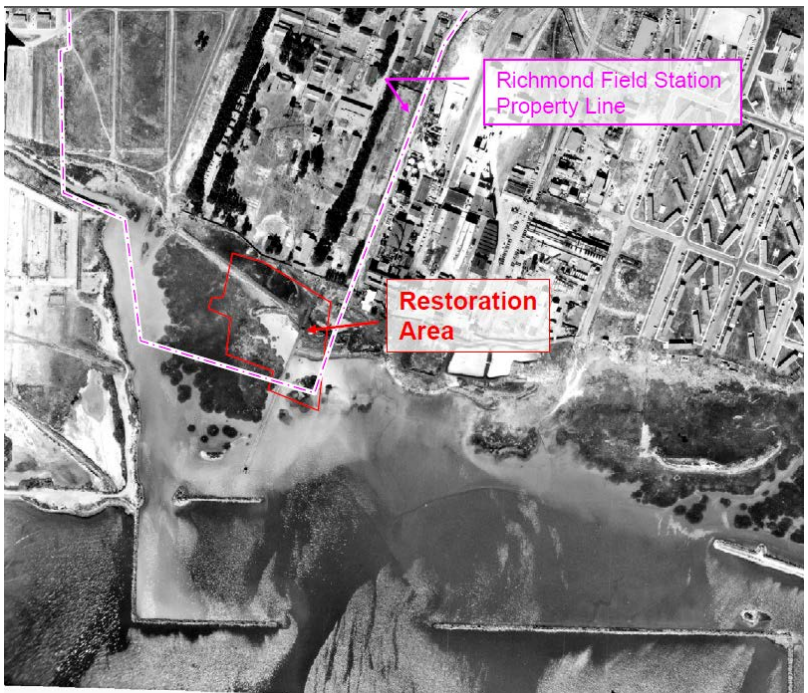
1899



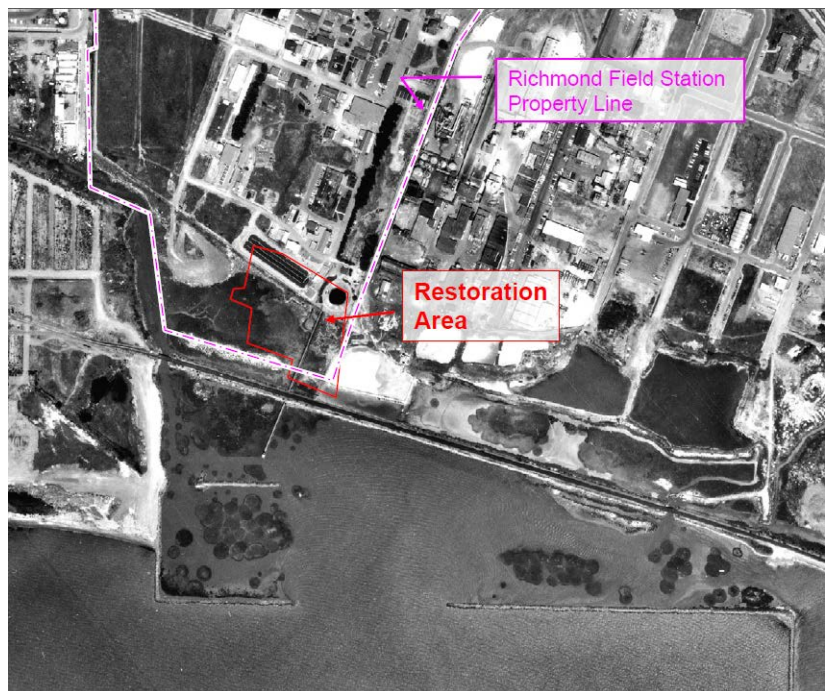
1942



1949



1963



## Stege Marsh Rail Sightings History

1963, 1975, 1987, and 1994 Western Stege Marsh CNDDDB records  
– including nesting in 1963 and 1994 (reference Bumgardner 2001)

Continuous annual sightings since 1999  
(East Bay Birders, Avocet surveys, UCB staff, and other public reports)

Photo documentation and report of fledged young on numerous occasions

2018 Season- currently appears to be at least two nests in WSM, three in ESM,  
maybe more





2006 - 2010 Avocet Protocol Surveys- Western Stege Marsh

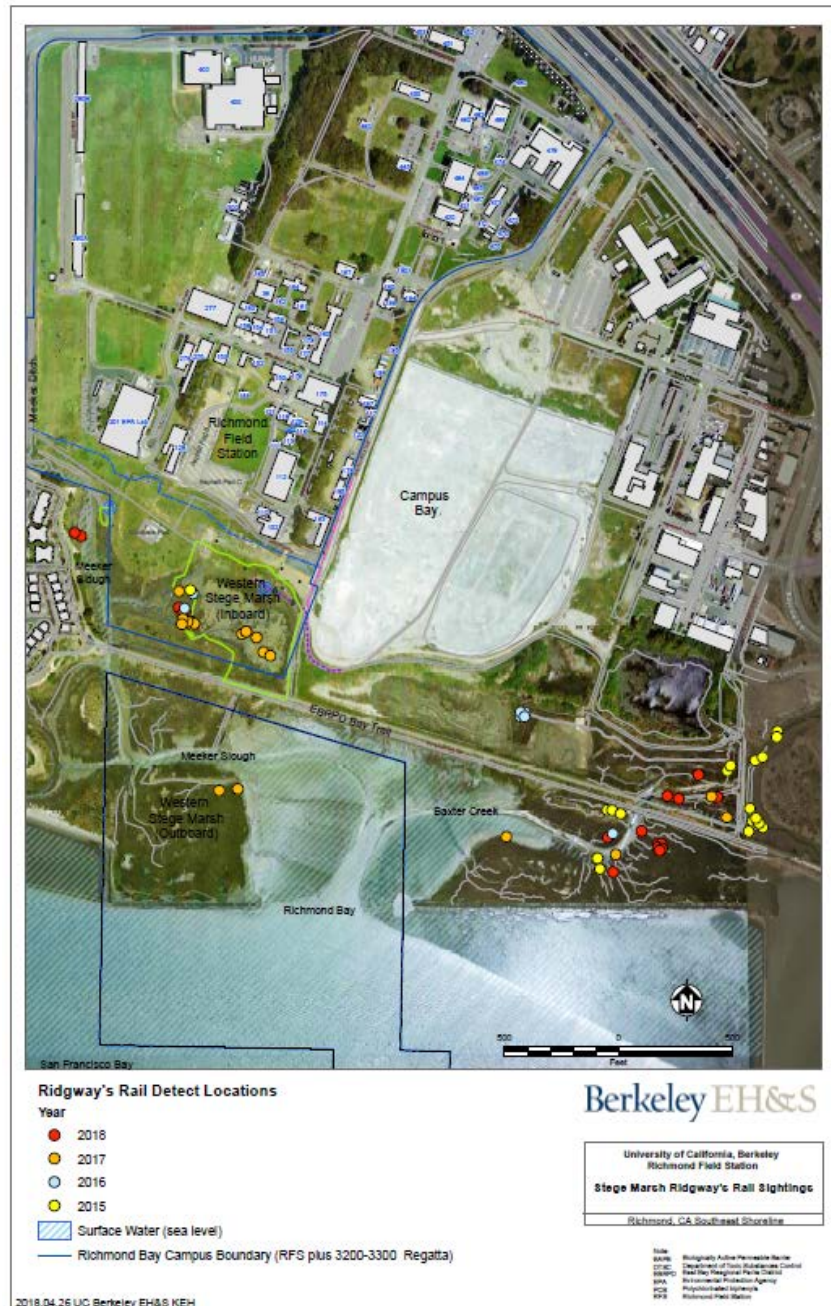


2015- 2018 Rail Detect Reports- Western Stege Marsh





2006 - 2010 Avocet Protocol Surveys- Western Stege Marsh



2015- 2018 Rail Detect Reports- Western and East Stege Marshes  
March 2008 aerial





September 17, 2009

Fledglings from nest in  
Old Marsh  
(circle is likely nest  
area)



October 23, 2017  
First observation of  
young in restored  
marsh

## UC Berkeley Richmond Field Station

Environmental Website



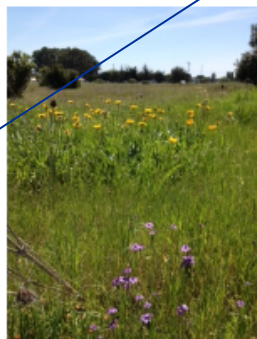
University of California, Berkeley

### Resources

[Home](#)  
[About RFS](#)  
[Contacts](#)  
[For Faculty, Staff & Students](#)  
[Community Advisory Group](#)  
[Remediation Project Fact Sheet](#)  
[Technical Documents](#)  
[Air Monitoring Data](#)  
[Current and Future Activities](#)  
[Restoration](#)  
[Regulatory Agencies](#)  
[FAQ](#)  
[Non-UC Resources](#)  
[Air Quality Concerns](#)  
[Health Agencies](#)  
[Local and State Govt](#)  
[Neighboring Sites](#)  
[The Watershed Project](#)

### Welcome

The RFS Environmental Website serves as a principal and current source for environmental news, monitoring data and resources for the UC Richmond Field Station community (UC staff, faculty and students, non-UC tenants, and visitors).



Coastal Terrace Prairie at RFS April 18, 2018

If you have questions, concerns or suggestions related to the environmental remediation project, we're here for you.

If you have any questions - from human resources issues to environmental health inquiries - please contact us. A list of names, phone numbers and other resources are available for you.

### NEW: Wildlife Gallery

We recently updated the [Restoration Page](#) to include a gallery of photographs of flora and fauna found at the Richmond Field Station. If you have a photo you'd like to see in the gallery, please send it to: [ehs-sp@berkeley.edu](mailto:ehs-sp@berkeley.edu)

Other Useful links:

[Working at the Richmond Field Station](#) required on-line training

[RFS Map and Driving Directions to RFS](#)

[RFS Operations and Facilities Management website](#)

### News

May 10 is Bike to Work Day!  
 March 14, 2018  
[Final 2017 Groundwater Monitoring Report available](#)  
 November 27, 2017  
[Corporation Yard Removal Excavations October 10-November 1](#)  
 July 31, 2017 Draft Phase V Sampling Result Technical Memorandum Western Stege Marsh available  
 May 24, 2017 DTSC approval of April 8478 Vapor Pin Report  
 May 19, 2017 Work Notice for Campus Bay Cat Maintenance  
 April 18, 2017 Soil Management Plan Revision 1 available  
 March 29, 2017 Osprey Nest Cam in Richmond  
 March 27-31, 2017 is Tsunami Preparedness Week for California  
 March 10, 2017 Annual Western Stege Marsh Near-surface Sediment Sample Report available  
 January 11, 2017 Final Reports Available- 2016 Groundwater and Field Sampling Phase V  
 May 23, 2016 Final Phase IV Field Sampling Plan Technical Report Available

Community Advisory Group (CAG) Meetings held second Thursday of the month 6:30- 9:00 p.m.  
 Next meeting: May 10, 2018  
[Location](#)

RFS rainfall total 2017-18 (annual average 21.81 inches)

18.13" water year 2017-18 (4/17/18 9:00 am)

Based on DWR Richmond City Hall <http://odac.water.ca.gov/odac09a/QueryFTR.html>



Ridway's Rail in East Stege Marsh January 2015 (photo by Karl Hans)

## Ridgway's Rail Conservation

Note: As of July 2014, the formerly known as California Clapper Rail is now called the Ridgway's Rail. The American Ornithology Union approved this change due to new genetic studies that looked at the relatedness of big rails as described in the following from the American Birding Association Blog <http://blog.aba.org/2014/07/2014-aou-check-list-supplement-is-out.html>.

[Stege Marsh Ridgway's Rails powerpoint](#) [11.2 MB ppt file]

### Clapper Rail Split

Mangrove Rail\* (*Rallus longirostris*) Ridgway's Rail (*Rallus obsoletus*) Clapper Rail (*Rallus crepitans*) Recent genetic studies have looked at the relatedness of the New World "big rails", that is, what we have traditionally known as Clapper Rail and King Rail. King Rail was split into two species, and Clapper Rail into three. (For an article on the different "Clapper Rails" in the ABA Area, check out the Sep/Oct 2013 issue of *Birding*.) Finally, Robert Ridgway has an English bird name to celebrate his storied contributions to North American ornithology! Ridgway's Rail includes the "California" (obsoletus), "Yuma" (yumanensis), and "Light-footed" (levisipes) subspecies, plus others further south in Mexico. Any "Clapper Rail" observed in California, Nevada, or Arizona is now this species. The name "Clapper Rail" was retained for the birds on the east coast of the U.S. (this species also extends partially into Middle America and the Caribbean), but its scientific name has changed. Mangrove Rail is thought to be restricted to coastal South America.

### Free-Roaming Cat and Other Animal Feeding Prohibition

Beginning May 2008, the University instituted a prohibition on feeding free-roaming cats and other wildlife at the RFS as it was determined that feeding had become a significant source of predator pressure at the RFS. For more information, see the [Prohibition on Feeding Free-Roaming Cats flyer](#).

### Clapper Rail Videos:

October 23, 2017 [multiple rails calling in Western Stege Marsh](#) [65 MB movie file]

October 23, 2017 [juvenile rail in Western Stege Marsh](#) [56 MB movie file]

December 9, 2010 Clapper Rail Calling at Meeker Slough

<http://www.youtube.com/user/karlclapper#p/a/u/0/CqQP61zhR2g>

March 15, 2010 two rail clips (Baxter Creek and Western Stege Marsh)

<http://www.youtube.com/user/karlclapper#p/a/u/0/dRWFs2yZ06Y>

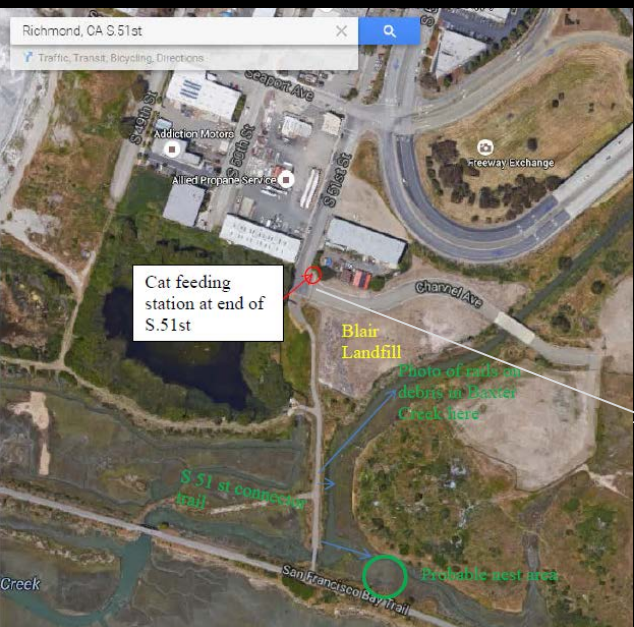
September 17, 2009 clapper rail fledglings in RFS Western Stege Marsh:

<http://www.youtube.com/watch?v=K0vzvTluXR4>

September 3, 2009 clapper rail clatter call at Meeker Slough:

<http://www.youtube.com/watch?v=4wX35qXtMPA>





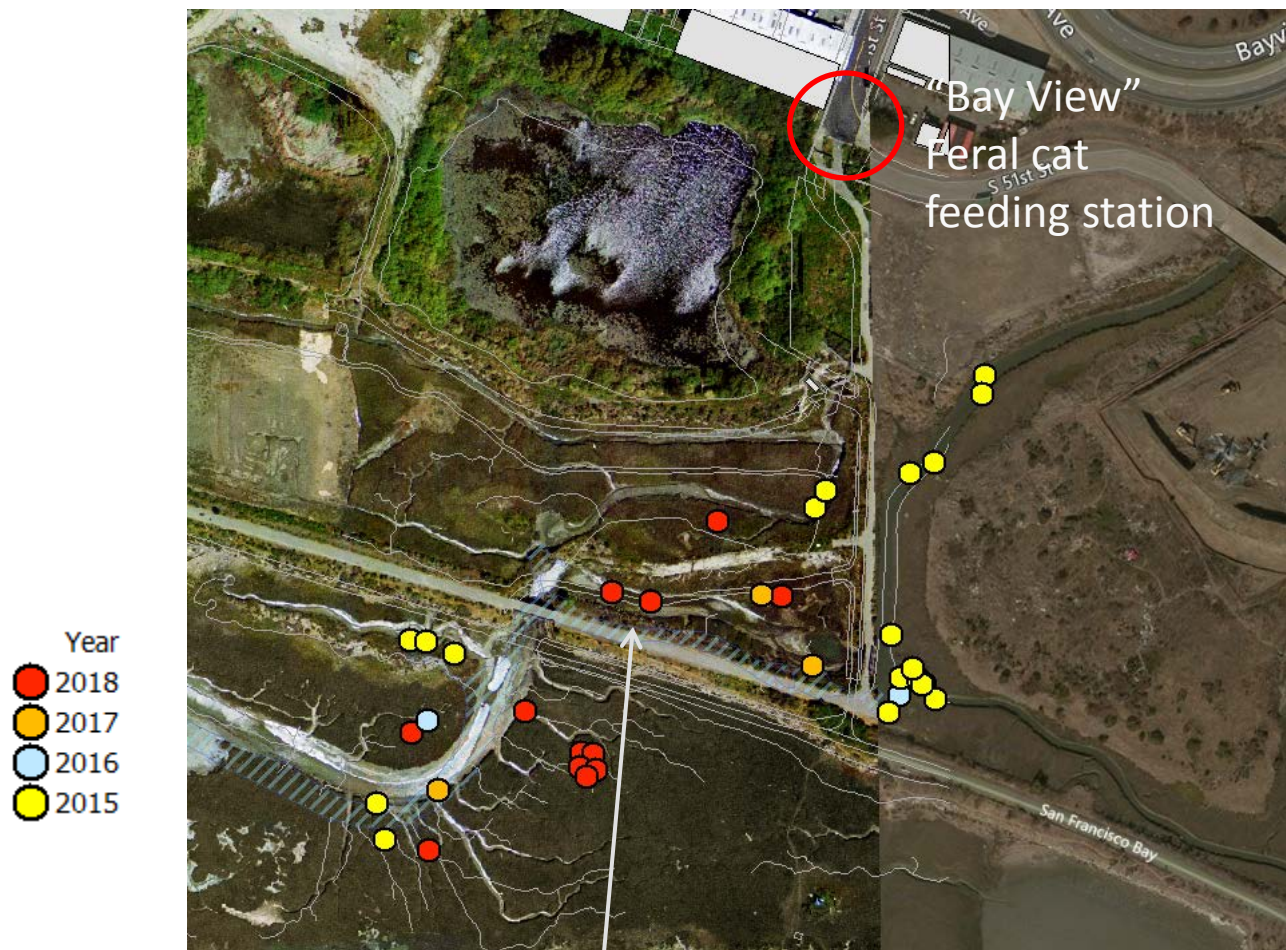
S. 51<sup>st</sup> St. connector to Bay Trail



S. 51<sup>st</sup> St. Richmond, CA







October 2017



Marina Bay







NOV 7 2002





**Karl Hans May 2015**

Baxter Creek upstream of S 51<sup>st</sup> St.  
Richmond, CA

# THANK YOU. Questions?



Bike to Work Day May 12, 2016



*Spiranthes romanzoffiana*  
August 2016



# Removal Actions

## Specific Actions 2014 RAW (estimated schedule):

1. Corporation Yard and B150 PCB: first field effort completed October 2017
2. Mercury Fulminate Area: early summer 2018
3. Coastal Prairie groundwater (carbon tetrachloride): 2019 if necessary

## Soil Management Plan

Current and future development and operations require soil testing prior to excavation.

