

EXHIBIT A
Scope of Work

Suisun Marsh Improvement Assessment

1. AUTHORITY

This contract agreement (Agreement) is entered into between the Sacramento-San Joaquin Delta Conservancy, hereinafter referred to as the “Delta Conservancy,” and the Suisun Resource Conservation District, hereinafter referred to as “the Contractor”.

The Contractor agrees to perform and complete the work described in this Agreement within a total budget not to exceed \$57,750.

2. BACKGROUND/PURPOSE

The assessment of existing managed wetland water management infrastructure in the Suisun Marsh (Marsh) is vitally important to maximize the ecological benefits of the managed wetland habitats and functions for a range of resident and migratory fish and wildlife species. By identifying priority sites for water management improvements, this will support several actions of the Department of Water Resources’ Delta Smelt Resiliency Strategy (DWR/DSRS), and the Suisun Marsh Habitat Management, Preservation, and Restoration Plan (SMP). This assessment will further the objectives of the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1), and result in a prioritized list of actions that will be eligible for future Proposition 1 funding.

The Suisun Marsh is an 116,000 acre complex of managed wetlands, tidal wetlands, and transitional upland habitats located downstream of the confluence of the Sacramento and San Joaquin Rivers. Management and ownership of this land is a combination of public, non-profit organizations, and private organizations (duck clubs). The objective of the SMP is to enhance 40,000 to 50,000 acres of managed wetlands, provide 5,000 to 7,000 acres of tidal wetlands, and to generally improve water quality for beneficial uses in the Marsh including estuarine, spawning, and migrating habitat uses for fish species. The primary objective of the DWR/DSRS is to improve the status of Delta Smelt through improved Delta Smelt vital rates and improved habitat conditions in the Delta and Suisun Marsh regions.

The 54,000 acres of managed wetlands that exist in Suisun Marsh provide numerous ecosystem benefits including food resources and habitat for a variety of species including waterfowl and other species of special concern. Additionally, the cyclic flood and drain cycle of these managed wetlands provide an opportunity for the robust primary and secondary productivity produced on these wetlands to be exported to the surrounding tidal sloughs augmenting aquatic food resources for native and listed fish species (e.g. Delta Smelt). Two recent and ongoing studies by Win Kimmerer (San Francisco State University), Peter Moyle (U.C. Davis), and John Durand (U.C. Davis) on two managed wetlands in different regions of the Marsh (west-central and north-east regions of the Marsh) have shown higher primary and secondary productivity in effluent water from the managed wetland study sites as compared with background productivity in the receiving tidal sloughs. Two relevant DWR/DSRS actions to the proposal below are (I) coordinating the effective and efficient drainage of managed wetlands throughout the Suisun Marsh at key times of year, and (II) installing and operating the drain gates on Roaring River. Both CWR/DSRS actions have the potential to provide a regional boost in food supply and maximize export of productivity to adjacent open water habitat used by Delta Smelt.

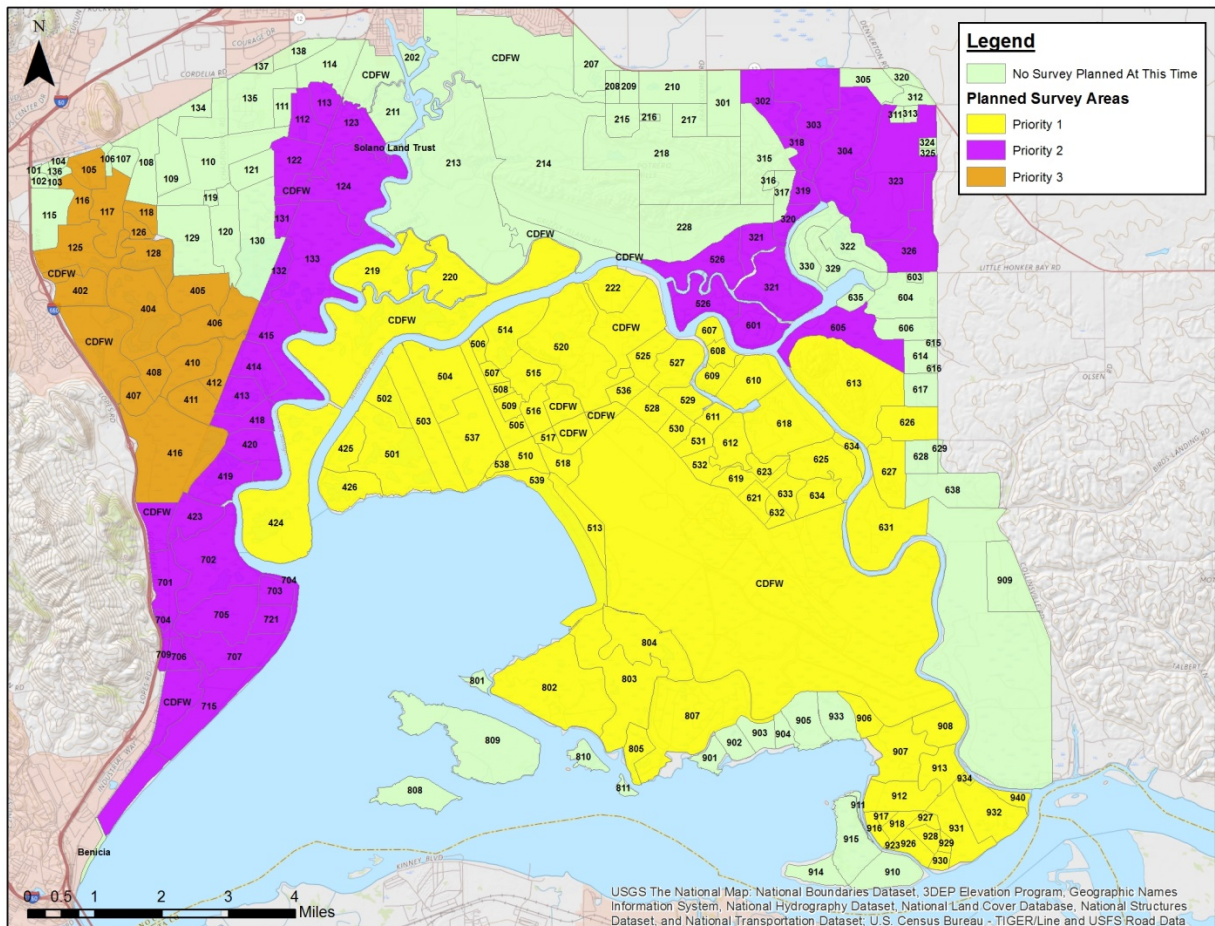
In order to maximize the benefits of improved managed wetland operations for the aforementioned species, meet several of the elements of the DWR/DSRS, and to minimize negative impacts of managed wetlands (e.g. low dissolved oxygen during drainage events), the flood/drainage infrastructure of the individual wetlands needs to be in optimal working order. Optimal working order of managed wetlands includes: the ability to flood and drain within a 30 day period, to perform salt management leach cycles, provide required irrigation of desirable wetland plant communities, and improve water quality conditions to reduce the occurrence of low dissolved oxygen events and reduce

vector (mosquito) production. The first step towards achieving these goals is to undertake a Marsh-wide infrastructure assessment to determine the quantity, quality, location, and resiliency of the existing marsh flood/drain infrastructure. The completion of this assessment would then allow for the prioritization of flood/drainage infrastructure improvements on individual managed wetlands and help prioritize funding through local/regional grants, Proposition 1 funds, landowner assistance programs, etc. The Contractor is particularly well suited to manage this assessment.

In general, this assessment would consist of physically surveying the water management infrastructure on each managed wetland in the Suisun Marsh and perform a simplified hydrodynamic model to determine the length of time each managed wetland takes to flood and drain. More specifically, surveying and identifying physical elements would include: the geographic location, invert elevation, diameter, material, and qualitative condition of each flood and drain pipe; the type and condition of gate on each flood and drain pipe; and an estimate of the managed wetland acreage flooded served by the structures, water level in the managed wetlands, and average pond bottom elevation in comparison to the tidal datums. A modified U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center' River Analysis System (HEC-RAS) model will be utilized to determine length of time each managed wetland takes to flood and drain. This modeling approach will then be simplified to a format more readily usable by individual landowners and SRCD biologists and water managers.

To facilitate this assessment, the total area of the Suisun Marsh will be divided into four geographic areas (Table 1).

Table 1: Geographic Survey Areas within Suisun Marsh



These areas are based on hydrological connectivity and the aquatic habitats adjacent to the managed wetland discharge locations and will be surveyed in the following order:

- Area 1 (yellow): properties on Grizzly Island that drain into Honker Bay, Grizzly Bay, Suisun Bay, or Montezuma Slough.
- Area 2 (purple): properties that drain into Cross Slough, Denverton Slough, Nurse Slough, Little Honker Bay, Goodyear Slough, Suisun Slough, and minor sloughs that drain to Suisun Slough.
- Area 3 (orange): properties within Cordelia Slough and the area above the Southern Pacific Railroad.
- Area 4 (green): will not be included in this assessment. These properties have been acquired for future tidal restoration; proposed as mitigation banks; have failed levees and are no longer able to be operated as managed wetlands; or are not managed wetlands and are existing as tidal, upland, or other non-wetland habitats. However, owners of the areas in green will still be given the opportunity to participate in this assessment (provided they have functional infrastructure to assess).

This project is a collaboration between the Contractor, the California Waterfowl Association (CWA), the Department of Water Resources (DWR), and the Delta Conservancy to lead the development and implementation of the assessment; to share the costs of the assessment between DWR and the Conservancy; and to provide the results of the assessment to DWR, CWA, the Contractor, and the Delta Conservancy, and other stakeholders and landowners.

3. TERMS OF AGREEMENT

The term of this Agreement is October XX, 2017, or the date of the Agreement's execution, whichever is later, through February 28, 2019.

The Conservancy has the option to extend the term of this Agreement. Any amendment to this Agreement requires written approval by both parties.

4. TASKS

In order to effectively identify and prioritize the infrastructure improvements, to realize the objectives of the SMP and DSRS, and to produce the best possible outcomes for fish, wildlife, and existing land uses, the following tasks will need to be completed.

Task 1. Landowner Outreach

This task will include identifying and contacting the landowners within the Suisun Marsh for each Area of the survey (as detailed in Table 1), explaining the need for evaluation for infrastructure assessment and identification of possible improvements to those landowners. For landowners willing to participate in the project, the Contractor will obtain access permission. It is anticipated that landowners will have a high level of interest in participating. Contractor staff will perform this task.

Timeline: Feb 10, 2018 – Feb 28, 2018

Cost: \$5,400

Deliverables: List of properties and landowners who are willing to participate and allow access to their properties for this assessment, and access agreements from willing landowners.

Task 2. General Survey of Managed Wetland Infrastructure

This task will include a survey of managed wetland water management flood and drainage infrastructure within each wetland unit within Areas 1-3 on properties of the willing landowners identified in Task 1. This survey will assess the managed wetland interior water elevation, the existing flood and drainage infrastructure, and the relative condition of the infrastructure on each of these properties. Contractor staff will participate in the survey effort providing survey coordination, ensuring

site access, on site benchmark locations, appropriate survey routes, and needed support for survey completion. CWA staff will perform the actual task of completing the field surveys, establishing required benchmarks, data collection, and prepare data for post-survey analysis.

Timeline: March 1, 2018 – June 30, 2018

Costs: \$45,900 (\$28,500 to be subcontracted to CWA)

Deliverables: Inventory, according to each Area of the project that will include the number, size, elevation, and material used for all drainage pipes; the flooded area (acres) and staff gauge elevation for all managed ponds.

Task 3. Create Prioritization Model

Resource Management Associates (RMA) will use the data collected in Task 2 to perform a modified hydrodynamic model (USACE HEC-RAS) to determine length of time each managed wetland takes to flood and drain. Additionally, RMA will create a simplified version of this modified HEC-RAS model (using something such as an Excel spreadsheet). This model will include prioritization criteria such as the types of improvements needed, size and number of additional facilities or upgrades to existing infrastructure, willingness of landowners, inclusion of 65% engineering designs, ecological benefits to managed wetland and aquatic species (e.g. Delta Smelt and others) in the adjacent slough, estimated costs of improvements, and others. Use of the prioritization criteria allows for selection of improvement sites that will yield the maximized ecological benefits. This model will be utilized to identify priority sites by the contractor (with other funding provided by the DWR/DSRS in a different agreement) and provided to the SRCD, DWR, the Conservancy, and landowners for future use. Contractor staff will perform this task.

Timeline: Apr 2018 – July 2018

Costs: \$3,900

Deliverables: Completed model, including prioritization criteria, populated with all appropriate data.

Task 4. Reporting

Several reports will be generated that explain the project, the process that was used to complete Tasks 1-3, the data collected, the prioritized sites, and how this project supports regional planning efforts. Contractor staff will perform this task.

Timeline: Aug 2018 – Oct 2018

Costs: \$2,550

Deliverables: Reports submitted to the Conservancy and DWR.

5. AUTHORIZED KEY CONTACTS

Contractor – Contract Manager:	
Name, Title:	Steve Chappell, Executive Director
Address:	2544 Grizzly Island Rd., Suisun, CA 94585
Telephone Number:	707-425-9302
Fax Number:	707-631-8634
E-mail address:	schappell@suisunrcd.org
State – Contract Manager:	
Name, Title:	Jessica O'Connor, Staff Services Manager
Address:	1450 Halyard Drive, Suite 6, West Sacramento, CA 95691
Telephone Number:	916-375-2090
Fax Number:	916-375-4948
E-mail address:	Jessica.oconnor@deltaconservancy.ca.gov
State – Project Manager:	
Name, Title:	Aaron Haiman, Environmental Scientist
Address:	1450 Halyard Drive, Suite 6, West Sacramento, CA 95691
Telephone Number:	916-376-4023
Fax Number:	916-375-4948
E-mail address:	Aaron.haiman@deltaconservancy.ca.gov