



Corte Madera Four-Acre Tidal Marsh Restoration Project

Year 5 (2025) Annual Monitoring Report

Corte Madera, Marin County, California



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January 2026

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List of Acronyms

BCDC	Bay Conservation and Development Commission
Cal-IPC	California Invasive Plant Council
District	Golden Gate Bridge Highway & Transportation District
HMMP	Habitat Mitigation and Monitoring Plan
ISP	Invasive Spartina Project
MHHW	Mean Higher High Water
NAVD88	North American Vertical Datum of 1988
Project	Corte Madera Four-Acre Tidal Marsh Restoration Project
RWQCB	Regional Water Quality Control Board
UAV	Unmanned Aerial Vehicle
USACE	U.S. Army Corps of Engineers
WRA	WRA, Inc.



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1.0 INTRODUCTION

This report presents the results from the fifth year of the five-year annual monitoring period for the Golden Gate Bridge Highway & Transportation District (District) Corte Madera Four-Acre Tidal Marsh Restoration Project (Project) located in Corte Madera, Marin County, California (Appendix A – Figure 1). Annual monitoring of the Project Area is specified for five years in the U.S. Army Corps of Engineers (USACE) Section 404 permit (File Number 1999-24251N), Regional Water Quality Control Board (RWQCB) Water Quality Certification (WDID #2 CW429899), and Bay Conservation and Development Commission (BCDC) permit (M2019.011.00). Monitoring is conducted to assess whether the Project is meeting performance criteria. Monitoring criteria and performance goals for the restoration area are detailed in the Habitat Mitigation and Monitoring Plan (HMMP) written for the project and approved by the permitting agencies. A copy of the HMMP is included as Appendix B. This monitoring report presents the results of the fifth year (2025) of monitoring and the outcome of the Project in meeting performance goals.

1.1 Background

The Project meets the needs of the District’s outstanding environmental restoration obligations. The District’s 1988 USACE permit authorized the dredging and disposal of 90,000 cubic yards of dredge sediment associated with maintenance of the Larkspur Ferry Terminal (#17486N). As a condition of the USACE permit covering these activities, the District was required to create a maximum of 2 acres of tidal marsh and habitat suitable for California Ridgway’s rail (*Rallus longirostris obsoletus*, formerly California clapper rail). In 1996, ferry operation was modified to include the acquisition of a high-speed ferryboat for the Larkspur Ferry Terminal operations. Consequently, the District consulted with local environmental groups and permit agencies regarding mitigation of anticipated environmental impacts and agreed to create an additional 2 acres of tidal marsh habitat, resulting in a commitment to restore a total of 4 acres of tidal marsh. The Project fulfills this commitment by restoring approximately 4.3 acres of tidal marsh habitat. The tidal restoration efforts resulted in impacts to seasonal wetlands on the site, prompting creation of 0.28 acre of seasonal wetlands within the Project Area as mitigation.

1.2 Restoration Goal

The Project goals are to restore approximately 4.3 acres of tidal salt marsh and create habitat suitable for Ridgway’s rail. This includes restoring native plant species within the tidal marsh area and transition zone and reducing the presence of invasive plant species, which were previously dominant throughout the Project Area. In addition, the Project will be monitored to ensure there is no adverse erosion or sedimentation within the restored tidal marsh or adjacent Northern Drainage Channel. The total restored acreages of jurisdictional wetlands are summarized in Table 1. The restored marsh is tidally connected to the Northern Drainage Channel, which is connected to the San Francisco Bay (see Appendix A – Figure 1).

Summary of Restoration Goals:

- Restore tidal wetlands in a diked marshland that was historically tidal wetlands;
- Provide habitat for Ridgway’s rail;
- Create seasonal wetland habitat to mitigate for the Project’s impacts to existing seasonal wetlands;

- Restore native plant vegetation within the tidal marsh area, the transition zone; and upland refugia areas of the Project;
- Reduce cover and control the spread of invasive plant species within the tidal marsh and transition zone in the Project Area; and
- Minimize adverse sedimentation and channel erosion in the tidal channels of the new marsh and the adjacent Northern Drainage Channel.

Table 1. Proposed and Completed Habitat Restoration

WETLAND TYPE	RESTORED AREA (ACRES)
Seasonal Wetlands	0.28
Tidal Habitats (Total)	4.30
Tidal Marsh – Channel	0.30
Tidal Marsh – Low Marsh	0.23
Tidal Marsh – High Marsh	3.77

1.3 Earthwork

1.3.1 Earthwork for the Creation of the Tidal Marsh

The restored tidal marsh was created by excavating historic Bay sediments from the diked former baylands and lowering the existing grades to create a tidal marsh plain to appropriate elevations for low marsh (3.75–4.75 feet relative to the North American Vertical Datum of 1988 [NAVD88]) and high marsh (4.75–6.5 feet NAVD88) tidal zones. In addition, a system of tidal channels was excavated (2.0–3.75 feet NAVD88) and connected to the adjacent Northern Drainage Channel (a tidal channel) in order to provide full tidal hydrology to the site. A portion of an existing earthen berm and trail was excavated to provide access to the tidal waters of the Northern Drainage Channel. The excavated material was reused on the site and configured to create a replacement perimeter berm and a low mound to the south and east of the restored tidal marsh area supporting a public trail. Approximately 28,000 cubic yards of material was excavated in total to create the new tidal marsh and deposited on the site to re-create a berm and low mound adjacent to the restored area.

The internal tidal channels have been sized to provide full tidal hydrology for the new tidal marsh. In addition, the channels have been designed to convey water at velocities within a range that is not expected to cause scouring and should preclude the channels from accumulating sediment. The size and configuration of the tidal channels is expected to develop and mature over time into a state of equilibrium.

1.3.2 Earthwork for the Creation of the Seasonal Wetland

Creation of new seasonal wetland habitat necessitated the excavation of approximately 600 cubic yards of soil. This involved creating a shallow depression with a maximum depth of 4 to 6 inches over a 0.28-acre area. The material removed to create the seasonal wetland was reused on the site to create the low mound supporting the public trail discussed in the previous section. The restored seasonal wetland is located approximately 175 yards south of the restored marsh perimeter.



1.4 Revegetation Plan

Revegetation within the tidal marsh plain consisted of plantings sourced from local nurseries. Tidal marsh plain planting was restricted to the highest elevations of the marsh surface because of the risk that stronger and more frequent tidal action at lower elevations could wash away the plantings. Natural colonization of native tidal marsh species is being relied upon for vegetation in the lower elevations of restored tidal areas, as seeds and vegetative propagules capable of rooting in mudflats are carried on the site via tidal flows. Project design intended to promote rapid colonization by creating suitable substrates and elevation profiles for the establishment of salt marsh vegetation. To provide a seed source within the restored tidal area, approximately 10 percent of the high marsh was planted with pickleweed and other high marsh plant species. Seed production from this small area of planting is expected to augment natural seed input via tidal flows from adjacent tidal marshes. The low marsh was not actively planted based on recommendations from the San Francisco Estuary Invasive *Spartina* Project (ISP). Due to the presence of invasive non-native *Spartina alterniflora* in the vicinity, there is a potential for it to hybridize with the native cordgrass, *Spartina foliosa*, which would typically be planted at the low marsh elevations.

To support a functioning marsh ecosystem, including habitat for Ridgway’s rail, planting was completed in the marsh transition zone. A well-vegetated transition zone increases cover for Ridgway’s rail and other species to hide from predators during high tides. Prior to planting, a temporary spray irrigation system was installed within the transition zone planting area to provide supplemental water during the first three years of monitoring. Irrigation was applied during the dry season (summer) and during dry winters to supplement any deficiency in rainfall to ensure successful establishment of the plants. The transition zone was revegetated with a combination of native grass and shrub species to provide vegetative cover for Ridgway’s rail, which is likely to use these areas for refugia during extreme high tide events. In addition, the transition zone and upland disturbed areas throughout the Project footprint were hydroseeded with a seed mix at densities indicated in Table 2, in conjunction with an erosion-control seed mix void of invasive plant species. The planting palette was chosen based on previous restoration experience in the Bay and the current vegetation inhabiting functioning marshes in the immediate vicinity of the site.

Planting and seeding occurred following the final site grading and during the rainy season. Table 2 summarizes the revegetation plan for the Project based on the project as-built report (WRA 2021).

Table 2. Planting Palette & Seeding Rates by Biological Community

	BOTANICAL NAME	COMMON NAME	SIZE / LBS OF SEED	ON-CENTER SPACING (FEET) / SEED DENSITY PER ACRE	QUANTITY TOTAL
High Marsh Zone	<i>Distichlis spicata</i>	salt grass	TB5	1.0	2,651
	<i>Jaumea carnosa</i>	marsh jaumea	TB5	1.0	1,642
	<i>Frankenia salina</i>	alkali heath	TB5	1.0	541
	<i>Limonium californicum</i>	California sea lavender	TB5	1.0	821
	<i>Salicornia pacifica</i>	pickleweed	TB5	1.0	11,090



	BOTANICAL NAME	COMMON NAME	SIZE / LBS OF SEED	ON-CENTER SPACING (FEET) / SEED DENSITY PER ACRE	QUANTITY TOTAL
	TOTAL:				16,745
Transition Zone	<i>Baccharis glutinosa</i>	salt marsh baccharis	D16	3.0	189
	<i>Grindelia stricta</i>	coastal gumweed	D16	3.0	189
	<i>Baccharis pilularis</i>	coyote brush	D16	6.0	108
	TOTAL:				486
Seasonal Wetland Seed Mix	<i>Carex praegracilis</i>	field sedge	2.00	0.56	
	<i>Eleocharis macrostachya</i>	creeping spike rush	1.00	0.28	
	<i>Elymus triticoides</i>	creeping wild rye	4.00	1.12	
	<i>Hordeum brachyantherum</i>	meadow barley	6.00	1.68	
	<i>Juncus bufonius</i>	toad rush	1.00	0.28	
	<i>Juncus phaeocephalus</i>	brownhead rush	1.00	0.28	
	<i>Oenothera elata</i>	evening primrose	2.00	0.56	
	TOTAL:			17.00	
Upland/ Transition Hydroseed Mix	<i>Baccharis pilularis</i>	coyote brush	0.15	1.50	
	<i>Bromus carinatus</i>	California brome	3.00	30.00	
	<i>Danthonia californica</i>	California oatgrass	3.00	30.00	
	<i>Elymus glaucus</i>	blue wild rye	6.00	60.00	
	<i>Eschscholzia californica</i>	California poppy	4.00	40.00	
	<i>Festuca microstachys</i>	three weeks fescue	6.00	60.00	
	<i>Hordeum brachyantherum</i>	meadow barley	8.00	80.00	
	<i>Sisyrinchium bellum</i>	blue-eyed grass	3.00	30.00	
	<i>Stipa pulchra</i>	purple needlegrass	4.00	40.00	
TOTAL:			37.15		

1.4.1 Coordination with the San Francisco Estuary Invasive Spartina Project

The Project consulted with the ISP regarding the planting of *Spartina foliosa* and received a response letter dated November 22, 2019, with the following recommendations:

- There are known occurrences of invasive *Spartina* in the vicinity of the project site;
- The ISP strongly recommends that the Project not actively plant *Spartina foliosa* because of the risk of infestation and hybridization of invasive *Spartina*; and

- The ISP expects passive recruitment of native *Spartina foliosa* at this site because there are existing populations of native *Spartina* within adjacent tidal marsh areas.

As a result, the Project did not plant *Spartina foliosa*. No alternatives for planting in the low marsh are available since the native cordgrass *Spartina foliosa* is the only native species that grows at low marsh elevations. The Project will rely on natural recruitment for establishing vegetation in the low marsh. As requested, the ISP is notified if monitoring detects *Spartina* colonization within the restoration area to allow them to incorporate the site into their monitoring and treatment plans.

1.5 As-Built Conditions

Construction, inclusive of planting, was completed in January 2021. As-built conditions were documented following completion of restoration efforts, including a bathymetry and LiDAR survey of the Project Area and the Northern Drainage Channel. A brief letter report outlining the as-built conditions of the restoration area was submitted to the regulatory agencies following the completion of all restoration activities, inclusive of planting (WRA 2021). The area of elevated nickel was excavated to 1 foot below finish grades, thus the as-built cover over this area is 1.0 feet.

2.0 PERFORMANCE AND MAINTENANCE MONITORING

2.1 Success Criteria

Monitoring is performed to demonstrate that the Project accomplishes all the restoration goals and to help identify the need for maintenance activities. Monitoring covers the following factors:

- Tidal hydrology;
- Erosion and siltation within tidal channels;
- Seasonal wetland hydrology;
- Revegetation of the tidal marsh area, transition zone, and upland refugia areas; and
- Revegetation of the seasonal wetland.

Monitoring that would trigger maintenance activities focuses on the following:

- Identify areas of excess erosion or siltation within tidal channels;
- Identify the need to implement invasive weed control;
- Identify the need to repair or replace the access control fence; and
- Identify the need to replace plantings in the transition zone or high marsh

The monitoring program will last five years or until success criteria have been achieved. Quantitative monitoring is performed to evaluate performance as specified in Tables 3 and 4. The final report will include a topographic survey of the Project Area and an updated jurisdictional wetland delineation.

Success of the proposed restoration activities will require the successful establishment of wetland vegetation, demonstration of channel stability (i.e., lack of significant erosion and sedimentation indicators), and control of invasive weed species that may invade the newly



constructed tidal marsh and seasonal wetland. Success criteria, as outlined in the HMMP, will be used to evaluate the development of the restored wetland habitats. The success criteria include:

- 50 percent total cover of native high marsh vegetation by Year 5;
- 80 percent survival of native shrub plantings within the transition zone;
- Control of invasive species;
- Absence of significant erosion affecting upper tidal range or cover over the area within the restored marsh where soil containing elevated levels of nickel was removed and replaced with clean soils;
- Presence of a functioning, self-sustaining wetland system;
- The restored seasonal wetland shall perform similarly to reference wetland conditions within the parcel by Year 5; and
- Permanent photo-documentation points will be established at several locations to visually track the progress of the restoration site toward meeting final success criteria described below.

Tables 3 and 4 summarize success criteria for completing annual monitoring in Years 1, 2, 3, and 5 for the restored tidal marsh, transition zone, upland refugia, and seasonal wetland habitats. The Regional Water Quality Control Board permit requires that monitoring be completed each year during the five-year monitoring period. Year 5 monitoring was completed in compliance with the permit, with results compared to the Year 5 monitoring criteria to assess any final actions required to achieve the success criteria.



Table 3. Success Criteria for Restored Tidal Habitats

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
Tidal Marsh, Transition Zone, and Upland Refugia	Erosion and/or Sedimentation	Document baseline topography using low altitude, high resolution imagery Qualitative monitoring to observe signs of sedimentation/erosion	Compare digital topographic data with hydrology monitoring data to identify sedimentation/erosion reducing the extent of marsh ponded at Mean Higher High Water (MHHW) or cover over area with elevated nickel	Compare digital topographic data with hydrology monitoring data to identify sedimentation/erosion reducing the extent of marsh ponded at MHHW or cover over area with elevated nickel	Compare digital topographic data with hydrology monitoring data to identify sedimentation/erosion reducing the extent of marsh ponded at MHHW or cover over area with elevated nickel. Sedimentation does not contribute to reduction in MHHW by more than 0.3 ft depth Depth of cover over area where elevated nickel was removed is at least 0.5 ft
	Hydrology	Install water-depth data loggers in main tidal channel, secondary tidal channel, and two within the marsh plain	Compare hydrographs; calculate and compare the tidal datum	Compare hydrographs; calculate and compare the tidal datum	MHHW within the tidal marsh is within 0.3 ft of MHHW within the Northern Drainage Channel.
	Vegetation	N/A No active planting of low marsh will be conducted.	Following native cordgrass establishment, low marsh cover will increase 5 percent annually.	Following native cordgrass establishment, low marsh cover will increase 5 percent annually.	Following native cordgrass establishment, low marsh cover will increase 5 percent annually.
		N/A The high marsh will be planted with native species in Year 1.	Native plant cover within the restored high marsh will be ≥ 15 percent.	Native plant cover within the restored high marsh will be ≥ 22.5 percent.	Native plant cover within the restored high marsh will be ≥ 50 percent.

Table 3. Success Criteria for Restored Tidal Habitats

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
		N/A The transition zone will be planted with native shrubs in Year 1.	Native shrub survival within the transition zone will be 90 percent.	Native shrub survival within the transition zone will be 80 percent.	Native shrub survival within the transition zone will be 80 percent.
		Invasive plants ranked by the California Invasive Plant Council as “High” will not exceed 5 percent absolute cover within the tidal marsh, transition zone, and upland refugia, exclusive of annual grasses.			
		Report presence of <i>Spartina</i> sp. to facilitate on-site genetic testing and control of invasive and hybrid <i>Spartina</i> , if present, by the Invasive Spartina Project.		No invasive or hybrid <i>Spartina</i> within the tidal restoration area.	
	Wetland Delineation	N/A			A protocol-level wetland delineation will be completed to verify boundaries of wetlands and non-wetland waters.

Table 4. Success Criteria for Restored Seasonal Wetland Habitat

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
Seasonal Wetland	Hydrology	Soils in the restored seasonal wetland will be inundated or saturated within 12 inches of the soil surface for at least 14 consecutive days.			
	Vegetation*	Absolute native plant cover in the restored seasonal wetland will be $\geq 40\%$ of absolute native plant cover in the reference seasonal wetland.	Absolute native plant cover in the restored seasonal wetland will be $\geq 50\%$ of absolute native plant cover in the reference seasonal wetland.	Absolute native plant cover in the restored seasonal wetland will be $\geq 60\%$ of absolute native plant cover in the reference seasonal wetland.	Absolute native plant cover in the restored seasonal wetland will be $\geq 100\%$ of absolute native plant cover in the reference seasonal wetland.

Table 4. Success Criteria for Restored Seasonal Wetland Habitat

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
		Invasive plants ranked by the California Invasive Plant Council as “High” will not exceed 5% absolute cover within the seasonal wetland.			
	Wetland Verification		N/A		A protocol-level wetland delineation will be completed to verify boundaries of wetlands and non-wetland waters.
<p><i>* The success criterion language for native plant cover was changed from the original to allow the metrics to be mathematically possible given the definitions of “relative” and “absolute” cover in the scientific literature, and consistent with the intent of this metric.</i></p>					

2.2 Monitoring Methods

The following section outlines the monitoring methods that were used to measure the success criteria for the Project, including an as-built topography survey of the Project. Vegetation monitoring efforts will be conducted in spring during the appropriate plant growth season to assess vegetation across the restored wetlands.

2.2.1 Photographic Documentation

Ten (10) permanent monitoring locations have been established where photographs are taken to document the development of restored habitats and illustrate that normal sediment transport processes are occurring within the Project Area over time. Photographs are taken with a handheld camera from ground level or from a camera mounted on an unmanned aerial vehicle (UAV). These photographs will capture the development (revegetation success) and status of the following:

- Tidal marsh area, including potential signs of erosion and/or sedimentation within tidal channels;
- Transition zone;
- Upland refugia;
- Seasonal wetland; and
- Access control fence.

Photographic documentation for the fifth year of monitoring was recorded on June 13, 2025, and August 13, 2025.

2.2.2 Erosion and Sedimentation

The potential adverse effects of erosion and sedimentation are monitored using digital topographic data developed from aerial photographs. Following construction and in Years 2, 3, and 5, low altitude, high-resolution, color imagery is acquired using a UAV for use in assessing both erosion and vegetative cover. Imagery is acquired at low tide to expose the entire restoration area. Photogrammetry software is used to generate high-resolution topography (digital terrain model) from the color imagery; however, the UAV is unable to penetrate vegetation to reach the surface, so as vegetation fills in, it can distort the topographic data. To account for this potential distortion, topography is verified using on-the-ground cross-section surveys. Topographic data is compared to post-construction baseline data to determine changes in marsh surface and tidal channel geometry and evaluate performance criteria. Baseline as-built topography was recorded via UAV photography in December 2020. Current topography was documented using UAV photography of the site on August 13, 2025.

2.2.3 Tidal Hydrology

Tidal hydrology will be considered successful by demonstrating that the new tidal marsh area is exposed to full tidal hydrology. Tidal hydrology is verified through use of pressure/water-level data loggers to measure and confirm full tidal inundation as well as biannual photographic evidence that the site is fully inundated at high tide events. Pressure transducers equipped with data loggers are installed each year in the Northern Drainage Channel and the restored tidal marsh within slotted PVC housings. Tidal hydrology monitoring locations are depicted in

Appendix A – Figure 2. Elevations of the housings were surveyed relative to the NAVD88. On August 13, 2025, pressure transducers equipped with data loggers were installed: one in the lower tidal channel at the northern boundary of the restoration area, adjacent to the Northern Drainage Channel (1.8 feet NAVD88); and one in an upper channel in the southern portion of the marsh (3.45 feet NAVD88). A reference data logger is installed within the Northern Drainage Channel near the pump station west of the restoration site. The gauges were comprised of data loggers, a slotted PVC pipe, and T-posts. The locations were topographically surveyed using a Trimble RTK device and were tied in with an existing control point, which is located near the pump station at the western end of the Northern Drainage Channel at an elevation of 11.43 feet NAVD88. The loggers were left to collect data from August 13 to October 17, 2025, to capture a large range of tidal conditions.

Photographs of the site fully inundated at high tide were taken on August 13, 2025, and are included in Appendix C.

2.2.4 Vegetation Coverage in the Transition Zone

The development of the vegetation coverage within the transition zone is measured to demonstrate that this area has sufficient vegetation coverage to support Ridgway’s rail refugia. Utilizing the planting palette developed for the transition zone, qualified biologists walk the transition zone and monitor all live shrub species within this zone to determine the planting success.

On August 13, 2025, and September 3, 2025, shrub survival was determined by walking the transition zone and counting all live shrubs included in the planting palette. Natural recruitment of native shrub species was included in the totals.

2.2.5 Seasonal Wetland Hydrology

The hydrology of the seasonal wetland is measured by collecting data that demonstrates that the soils within the seasonal wetland are saturated or inundated for the required minimum duration of 14 consecutive days during the rainy season. Data is collected through field visits to verify the extent, depth, and duration of inundation.

In Year 5, inundation was observed in the seasonal wetland on January 23, February 13, and February 28. Images of inundation during Year 5 are included in Appendix C – Photos 13, 14, and 15.

2.2.6 Vegetation Coverage in the Tidal Marsh

Vegetative cover within the tidal marsh is monitored to demonstrate that the rate of revegetation is on track based on the success requirements for the Project, including the low marsh and high marsh areas of the Project Area. The absolute cover of vegetation within the tidal marsh was measured with the remote-sensing analysis software in GIS. This software allows users to classify different vegetation signatures from aerial photographs. Using a high-resolution aerial image collected during low tide, the software can determine the aerial cover of vegetation.

Using aerial imagery, vegetation signature recognition software interprets signatures of the vegetation, and the software can automatically define the boundaries of every color signature on the color aerial photograph, a process also known as a multi-resolution segmentation analysis.

This analysis generates polygons that require classification in the aerial imagery by a trained geospatial analyst familiar with the software and tidal ecology. On August 13, 2025, WRA, Inc (WRA) flew a UAV to capture aerial imagery of the site and subsequently used that imagery to measure vegetation cover.

2.2.7 Vegetation Coverage in the Seasonal Wetlands

The development of vegetation coverage within the restored seasonal wetland and a reference seasonal wetland is monitored to demonstrate that the rate of revegetation is on track based on the performance requirements for the Project as outlined in Table 5. The established reference wetland is a local depressional wetland within an undisturbed area of the property of similar size to the restored seasonal wetland (Appendix A – Figure 2). Seasonal wetland vegetation is monitored using transect-quadrat methods for both the restored seasonal wetland and reference seasonal wetland habitats (Appendix A – Figure 2). Species composition and percent cover are collected by the placement of quadrats at random intervals along the transects. In Year 5, vegetation monitoring occurred on June 13 and December 10, 2025.

2.2.8 Wetland Verification

A protocol-level wetland delineation was completed on January 23, 2025, to verify boundaries of wetlands and non-wetland waters in both the restored seasonal wetland and the restored tidal marsh. WRA Biologists followed the Routine Method to evaluate the Study Area for the presence or absence of indicators of the three wetland parameters described in the USACE Manual (Environmental Laboratory 1987) and Arid West Supplement (USACE 2008). Data on vegetation, hydrology, and soils were collected at sample points within potential wetland communities and adjacent upland areas. Sample points that contained positive indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were considered to be wetland. Sample points that lacked one or more indicators were considered to be upland. Sample point data were reported on Arid West Supplement data forms (Appendix F). Sample point locations were recorded using a handheld GPS unit with mapping-grade accuracy (Appendix A – Figure 6).

2.2.9 Access Control Fence

The access control fence is inspected during annual monitoring site visits to confirm that it remains in working condition. The tidal marsh, transition zone, and upland refugia areas are inspected during monitoring field visits for evidence of significant anthropogenic disturbances.

2.3 Remedial Actions

If annual or final success criteria are not met, the District is required to prepare an analysis of the potential cause(s) of failure and, if determined necessary by the permitting agencies, propose remedial action for approval. Subsequent annual and final monitoring reports may be required to confirm that remedial actions were successful. The District will be responsible for reasonably funding the remedial actions necessary for successful completion of the mitigation efforts. Remedial actions may include additional planting of native wetland species, invasive species abatement activities, or modification of Project features to ensure proper hydrological functioning.



2.4 Reporting

Annual monitoring reports cover the monitoring year beginning at the start of the rainy season (approximately October 1st) and cover 12 calendar months forward from that point, with submittal occurring by January 31 of the following year.

3.0 PAMPAS GRASS AND HARDING GRASS TREATMENT

The Project Site and surrounding areas are dominated by non-native and in many areas, invasive species. The two most prevalent of these species are pampas grass (*Cortaderia selloana*) and Harding grass (*Phalaris aquatica*). The District has undertaken a voluntary effort to control these species in lands adjacent to the restoration area with a dual purpose of public land stewardship and protecting the tidal restoration area from invasion by these species. This effort is peripherally related to the success of the restoration area but is undertaken independent of regulatory requirements for the restored tidal marsh.

A large, established population of pampas grass, totaling approximately 9 acres in size, is present adjacent to, but outside of, the Project Area. Pampas grass has a California Invasive Plant Council (Cal-IPC) High rating and is an aggressive invader. While it remains absent from the Project Area (see Section 4.2.2), this species had begun to encroach into the restored seasonal wetland area, and its wind-dispersed seeds could easily spread into the tidal marsh transition zone. Not only does the pampas grass pose a direct threat to the biodiversity and structural function of restoration efforts on the Project Area, but it also has the potential to expand into neighboring Baylands and surrounding open spaces.

Similarly, Harding grass is prevalent across much of the landscape surrounding the Project Area and has been observed at the margins of the seasonal wetland and within uplands at the margins of the tidal restoration site. This species spreads through rhizomes as well as by seed, and portions of the District's property outside of the restored marsh contain dense monocultures of this species. As pampas grass is removed, Harding grass has the risk of expanding.

A multi-phased approach to treating the pampas grass and Harding grass populations was developed and initiated in 2023. The District has removed approximately 9 acres of pampas grass from the property to date, with the final 3 acres of removal having occurred in 2025. Areas of previous pampas grass removal are reviewed each year and controlled for regrowth. Areas of Harding grass located within and adjacent to the pampas grass are also treated, with the first treatments beginning in 2024 and continuing into 2025. Areas of Harding grass treatment are reseeded with native grass seed developed based on the native grass species that have most thrived from the restoration seed mix. Pampas grass and Harding grass management activities are scheduled to occur through the end of 2028. Per requirements of the contract as requested by the District Board of Directors, no herbicide is used for any of the weed treatments.

4.0 MONITORING RESULTS

This section presents the results of Year 5 monitoring activities. The locations of vegetation monitoring transects and photo-monitoring locations are depicted in Appendix A – Figure 2. Photo-monitoring and high tide photographs are included in Appendix C. Tidal hydrology monitoring data collected is presented in Appendix D. Vegetation monitoring data is included in Appendix E. Table 5 below summarizes the results of Year 5 monitoring and whether success

criterion has been met. A narrative summary of the monitoring results and whether success criterion has been met is provided in the following sections.

Table 5. Summary of Success Criteria and Year 5 Monitoring Results

PERFORMANCE STANDARD	YEAR 5 SUCCESS CRITERION	YEAR 5 RESULT	SUCCESS CRITERION MET?
<i>Tidal Marsh, Transition Zone, and Upland Refugia</i>			
Erosion and/or Sedimentation	Compare digital topographic data with hydrology monitoring data to identify sedimentation/erosion reducing the extent of marsh ponded at MHHW or cover over area with elevated nickel.	Hydrology monitoring and topographic data indicate no changes in ponding or marsh extent	Yes
	Sedimentation does not contribute to reduction in MHHW by more than 0.3 ft. depth. Depth of cover over area where elevated nickel was removed is at least 0.5 ft.	The cross-section survey completed in Year 5 (2025) showed that sedimentation is 0.2 feet which is not in excess of 0.3 feet as compared to the As-Built (2021). Depth of cover over the area where elevated nickel was removed is 1.2 feet.	
Hydrology	MHHW within the tidal marsh is within 0.3 ft. of MHHW within the Northern Drainage Channel.	MHHW, during the 2025 hydrology monitoring period, in the lower channel of the tidal marsh was within 0.18 ft. of the MHHW in the Northern Drainage Channel, within the 0.3 ft threshold.	Yes
Vegetation	Following native cordgrass establishment, low marsh cover will increase 5 percent annually.	Cordgrass continued to establish in the low marsh throughout the channel in Year 5, expanding throughout the entire marsh – a significant expansion compared to the Year 4 patches.	Yes
	Native plant cover within the restored high marsh will be \geq 50%.	Native plant cover was 67.6%	Yes
	Native shrub survival within the transition zone will be 80%.	Native shrub survival was 301%	Yes
	Cal-IPC High plants will not exceed 5%	Cal-IPC High plants were less than 5%	Yes
	Report presence of <i>Spartina</i> sp. to ISP. No invasive or hybrid <i>Spartina</i> within the tidal restoration area.	<i>Spartina</i> sp. reported to ISP, and it was determined through observation and genetic testing that the finding that no invasive	Yes

PERFORMANCE STANDARD	YEAR 5 SUCCESS CRITERION	YEAR 5 RESULT	SUCCESS CRITERION MET?
		<i>Spartina</i> are present on site is still consistent.	
Wetland Verification	A protocol-level wetland delineation will be completed to verify boundaries of wetlands and non-wetland waters.	A protocol-level wetland delineation was completed that verified the boundaries of restored wetlands.	Yes
Seasonal Wetland			
Hydrology	Soils in restored wetland inundated or saturated ≥ 14 days	Soils inundated and/or saturated for >14 days	Yes
Vegetation	Absolute native plant cover in the restored seasonal wetland will be $\geq 100\%$ of absolute native plant cover in the reference seasonal wetland.	Absolute native cover in restored wetland is 317% of the absolute native cover in the reference wetland	Yes
	Cal-IPC High plants will not exceed 5%	Cal-IPC High plants were less than 5%	Yes
Wetland Verification	A protocol-level wetland delineation will be completed to verify boundaries of wetlands and non-wetland waters.	A protocol-level wetland delineation was completed that verified the boundaries of restored wetlands.	Yes

4.1 Tidal Marsh, Transition Zone, and Upland Refugia

4.1.1 Photographic Monitoring

Photographic monitoring recorded on August 13, 2025, is provided in Appendix C.

4.1.2 Erosion and/or Sedimentation

Baseline topography was documented using UAV imagery of the site taken on December 15, 2020. Current topography was documented using UAV imagery of the site taken on August 13, 2025, and verified with on-the-ground cross-section surveys conducted the same day. Cross-section comparisons were made between the topographic data collected in Year 5 and the As-Built, Year 2, Year 3, and Year 4 topography. The cross-section locations are depicted in Appendix A – Figure 3. The cross-section comparisons are depicted in Appendix A – Figure 4. UAV data shows a slight decrease in marsh elevation from Year 4, but not greater than 1-foot.

Tidal marshes are dynamic systems, and slight variations in elevation from year to year are normal. In general, the high marsh elevation has been stable throughout the monitoring period, with no substantial increases or decreases in elevation. The low marsh morphology is stable, with no substantial changes in planform or elevation compared to Years 1–4.

Cross-section 3, located within the area of elevated nickel (the area of particular concern) shows limited change throughout the monitoring period. The average as-built elevation across cross-section 3 was 5.4-feet while the average elevation in Year 5 was 5.6-feet. Sedimentation occurred on average at 0.2-feet across cross-section 3, indicating no erosion and an increase in the cover over the area where elevated nickel was removed. The as-built depth of cover was 1 foot, making the Year 5 depth of cover 1.2 feet. Thus, no signs of detrimental erosion occurred within the area of elevated nickel. The depth of cover over the elevated nickel area at Year 5 is

greater than 0.5-feet. Year 5 results confirm the continuing trend where elevations at this area equal or exceed the as-built elevation, maintaining appropriate cover over the elevated nickel area.

As confirmed by visual observations of the high tide line, the extent of marsh has not been reduced since February 2021. In fact, the marsh is slightly larger than the as-built boundary in many areas, possibly due to settlement in some areas of the transition zone (see Appendix A – Figure 5). To account for the distortion in the UAV, the on-ground cross-section survey data from 2025 was also compared to the as-built topography. This comparison shows no elevation changes above the 0.3-foot threshold, indicating no signs of detrimental erosion or sedimentation qualitatively or quantitatively observed during the five-year monitoring period; therefore, the Year 5 success criterion was met.

4.1.3 Hydrology

Tidal hydrology monitoring locations are depicted in Appendix A – Figure 2. The data collected in Year 5 is presented in Appendix D. As in Years 1, 2, 3, and 4, the greatest tidal fluctuation was recorded in the lower channel at the northern edge of the restored tidal area, which is closest to the San Francisco Bay and has the lowest base elevation (1.8 feet NAVD88). High tide photos show inundation was present in highest elevations of the marsh, including Photo 10 in Appendix C, which depicts inundation in most of the restored tidal marsh and adjacent previously existing marsh, facing north. Only the very highest elevation areas are not inundated.

The timing and elevations of the tides in the Northern Drainage Channel (reference location), the lower channel, and the upper channel are approximately the same. The fact that tidal peaks are similar at the monitoring locations indicates that tidal inundation is continuing to function as designed within the restoration area, with no muting or other issues.

Photographs were taken on August 13, 2025 (Appendix C) that depict the restored tidal area mostly inundated at high tide. The predicted highest tides on that date (NOAA 2025) were 5.82 feet MLLW (mean lower low water datum), which is slightly lower than the as-built target elevation of 6.5 feet MHHW as the outer boundary of the restored marsh area; therefore, this photo accurately depicts anticipated tidal inundation. The photographs and corroborating tide predictions demonstrate that the restored tidal area is hydrologically functioning as designed for the fifth consecutive year since it was constructed. Additionally, the difference in MHHW at the Northern (Main) Channel versus the Lower Channel was 0.18 feet, as recorded during the Year 5 tidal data collection period, below the threshold of the performance criteria. Because the difference in MHHW at the tidal marsh compared to the Northern Drainage Channel is within the 0.3-foot threshold of the performance criteria, the Year 5 success criterion was met.

4.1.4 Vegetation

MARSH VEGETATION COVER

Marsh vegetation continues to rapidly expand. Planted individuals have expanded, and natural recruits have also been established beyond planted areas. Pickleweed (*Salicornia pacifica*) recruits were the most abundant, but other species have also recruited beyond planted areas, including alkali heath (*Frankenia salina*), marsh jaumea (*Jaumea carnosa*), and salt grass (*Distichlis spicata*). Photographs showing tidal marsh species recruitment are provided in Appendix C, and the vegetated areas are depicted in Appendix A – Figure 5. No non-native



species were observed in high marsh. A total of 2.57 acres of the 3.8 acres of high marsh (67.6 percent) were vegetated by native plant species; therefore, absolute native plant cover within the high marsh was greater than 50 percent, and the Year 5 high marsh success criterion was met.

The Year 5 low marsh cover also expanded substantially compared to Year 4. In Year 4, 10 occurrences of cordgrass were observed in locations throughout the tidal channels in multiple locations. In Year 5, 0.03 acres of low marsh were mapped with greater than 10 percent cover of vegetation (Figure 5) consisting of saltgrass, pickleweed, and cordgrass. The as-built acreage of low marsh was mapped as 0.57 acres. Cordgrass expanded into the 0.23 acres of low marsh habitat channels covering approximately 0.12 acres (52%) in small to medium stands at a density of less than 10 percent cover. Based on this rapid expansion, there was a significant increase in presence of low marsh vegetation cover including *Spartina* compared with Year 4, exceeding an increase of 5 percent. It is expected that the continual expansion of cordgrass will occur in the low marsh beyond monitoring years, establishing a robust population.

TRANSITION ZONE PLANTING

Table 6 below summarizes the survival of transition zone plantings.

Table 6. Summary of Transition Zone Survival

SPECIES	COMMON NAME	NUMBER PLANTED	NUMBER OBSERVED	SURVIVAL
<i>Baccharis glutinosa</i>	salt marsh baccharis	189	1024	542%
<i>Baccharis pilularis</i>	coyote brush	108	152	141%
<i>Grindelia stricta</i>	coastal gumweed	189	288	152%
TOTAL		486	1464	301%

Overall, the number of native shrubs present was 301 percent higher than the number planted, exceeding the success criteria. This is notable given that no irrigation has been applied to the plantings since Year 3 and plantings continued to establish and recruit into Year 5. Photos of planted shrubs are included in Appendix C (Photograph 28–30). The salt marsh baccharis count continued to exceed the number planted because of abundant recruitment and it continues growing vigorously in the transition zone. Notably, recruitment has resulted in numbers exceeding the number of shrubs planted for other species as well.

Additionally, the natural colonization by salt grass, a native species that was not planted in the transition zone, continued in Year 5. This is a positive development for the site because it increases native vegetation cover and helps reduce the spread of invasive species. Abundant cover by creeping wild rye (*Elymus triticoides*), introduced as part of the seed mix for the project, is also present in many portions of the transition zone.

UPLAND REFUGIA

The thriving shrubs and herbaceous understory within the uplands continue to develop and expand into a habitat currently available as refugia for wildlife. Grasses and herbaceous plants continue to increase in size and height among the upland and transition zone shrubs (Appendix C – Photographs 1, 2, and 28). The herbaceous layer is structurally complex, with the species present providing vegetation of varying heights (Appendix C – Photographs 28–30). Senescent

plant material is also forming thatch. Shrubs are thriving and increasing in size (Appendix C – Photograph 28). The upland transition zone is composed of grasses and herbaceous plants, intermixed with patches of maturing shrubs and is anticipated to improve as upland refugia beyond Year 5.

INVASIVE SPECIES COVER

Invasive and non-native plant species, such as fennel (*Foeniculum vulgare*), Harding grass (*Phalaris aquatica*), French broom (*Genista monspessulana*), wild radish (*Raphanus sativus*), and birdsfoot trefoil (*Lotus corniculatus*) have been consistently controlled throughout the monitoring period, using a combination of hand-pulling and weed-whipping. As a result of this management effort, the presence of Cal-IPC High species was less than 1 percent within the restoration area; therefore, the Year 5 success criterion was met. The District plans to continue invasive species control efforts on the property, with a particular emphasis on the restoration area, through at least 2028 to preserve its investment in the restoration.

CORDGRASS (SPARTINA)

In Year 5, the extent of cordgrass spread throughout the entire extent of the marsh restoration area, apart from the northeast secondary channel. Cordgrass was present in small to medium stands interspersed throughout the restored marsh channel banks. This is a marked expansion from Year 4, where only 10 small colonies of cordgrass were present throughout the low marsh area. ISP was notified of the expansion of cordgrass in the restored low marsh on September 30, 2025. Based on 2025 genetic testing, observation, and the context of the Project Site, ISP determined that recruits observed in the restored marsh are all the native cordgrass, *Spartina foliosa*. Cordgrass was first observed in Year 3, and the success criteria anticipates 5 percent growth of cordgrass year-over-year after establishment within the restored marsh. Cordgrass is assumed to be established in Year 3. In Year 4 the growth was anticipated to develop as a 5 percent increase in size of the single colony observed. Meeting the Year 5 success criteria was anticipated to be an observation of 10 percent increase in the size of the Year 3 colony. The Year 5 success criterion was met as the vegetation established in small to medium-sized stands spread throughout the majority of the low marsh covering approximately 0.12 acres (52%), a significant increase over the single location observed in Year 3. The notification and the response from ISP are included as Appendix G.

4.1.5 Wetland Verification

The results of the verification of aquatic resources were based on conditions observed during the time of the assessment. The delineation uses the federal methodology to verify the boundaries of wetland features and is consistent with the approach used by the RWQCB for wetlands subject to the State Wetland Policy. A map showing the updated Year 5 extent of the restored tidal marsh is provided in Appendix A – Figure 6. Wetland Delineation Data Forms are provided as Appendix F. There were no significant changes to the As-built tidal wetland boundary.

4.2 Seasonal Wetland

4.2.1 Hydrology

The restored seasonal wetland was directly observed on the ground on January 23, February 13, February 28, May 2, and May 28 of 2025. On January 23, the restored seasonal wetland was fully inundated and saturated (Appendix C – Photo 13). On February 13 and February 28, the restored

seasonal wetland was fully inundated, and soils were completely saturated (Appendix C – Photos 14 and 15). The observations demonstrate that the wetland was inundated and/or saturated for more than 14 days during the Year 5 monitoring period; therefore, the Year 5 success criterion was met.

4.2.2 Vegetation

RELATIVE NATIVE PLANT COVER

Results from the Year 5 seasonal wetland vegetation monitoring are attached in Appendix E.

Both the reference wetland and the restored wetland were dominated by non-native species and had a low presence of native species. The reference wetland was dominated by brass buttons (*Cotula coronopifolia*) and Pacific bentgrass (*Agrostis avenacea*). One native species was present, cocklebur (*Xanthium orientale*), averaging 5.8 percent absolute cover across all 20 quadrats. Average absolute cover of all plant species was 37.6 percent, a slight decrease from 39.5 percent in Year 4.

The restored wetland had similar diversity in Year 5 (21 species present) as in Year 4 (22 species present) and like the reference wetland, was dominated by Pacific bentgrass and brass buttons in addition to rabbitsfoot grass (*Polypogon monspeliensis*). Absolute native plant cover in the restored wetland was 9.2 percent, an increase from the 0 percent absolute native plant cover in Year 4, which showed excellent response to additional seeding efforts that were undertaken in the restored seasonal wetland during the monitoring period. Native species observed outside of the transects within the restored wetland included creeping wild rye (*Elymus triticoides*), sprangletop (*Diplachne fusca*), common spike rush (*Eleocharis macrostachya*), meadow barley (*Hordeum brachyantherum*), and tall flatsedge (*Cyperus eragrostis*). Average absolute cover of all plant species was 57 percent. Bare ground comprised of 7.5 percent, an increase from the 0.4 percent bare ground of Year 4. The absolute cover of native species in the restored wetland (9.2 percent) is 317 percent of the absolute cover of native species in the reference wetland (2.9 percent). The Year 5 success criterion of greater than or equal to 100 percent of the absolute native plant cover in the reference wetland was therefore met.

In Year 1 and Year 2, the absolute cover of native plant species in the reference wetland was 0.1 percent, and native cover was higher in the restored wetland than in the reference wetland. The increase in native cover in Year 3 was almost entirely the result of natural colonization of the reference wetland by cocklebur (*Xanthium orientale*), a native species. Cocklebur was present in the reference wetland in Year 1 and Year 2, but its presence was negligible, such that it was not captured by the transect sampling. In Year 3, perhaps due to the above-normal rainfall, the cocklebur population increased substantially. Cocklebur is a ruderal native species that can behave like a non-native weed, in the sense that it is adapted to disturbed habitat, regularly occurs in such conditions, and can respond readily to sudden changes in conditions. In Year 4, the absolute cover of cocklebur increased again from 3.7 percent to 5.8 percent as the plant continues to establish in the reference seasonal wetland. The Project Team made an intentional decision not to seed cocklebur into the restored wetland because of its weed-like behavior and tendency to perpetuate monocultures. Creeping wild rye and meadow barley were seeded instead to increase native cover in the restored seasonal wetland, and they successfully caused significant increases in native cover. These robust wild rye patches are expected to continue establishing successfully (Attachment C – Photos 21–26).

INVASIVE SPECIES COVER

No Cal-IPC High invasive species were present in the restored seasonal wetland in Year 5. Because the cover of Cal-IPC High plants was less than 5 percent, the Year 5 success criterion was met.

4.2.3 Wetland Verification

The results of the verification of aquatic resources were based on conditions observed during the time of the assessment. The verification uses the federal methodology to delineate the boundaries of wetland features and is consistent with the approach used by the RWQCB for wetlands subject to the State Wetland Policy. A map showing the updated Year 5 extent of the restored seasonal wetland is provided in Appendix A – Figure 6. Wetland Delineation Data Forms are provided as Appendix F. There were no significant changes to the As-built Seasonal Wetland Boundary.

5.0 CONCLUSIONS AND MAINTENANCE RECOMMENDATIONS

5.1 Success Criteria

The tidal marsh, transition zone and upland refugia are meeting Year 5 success criteria, with the tidal marsh outperforming expectations with substantial expansion by marsh vegetation. Cordgrass has vigorously established at low marsh elevations in Year 5, with a significant increase in the number of cordgrass patches compared to Year 4. Cordgrass was mapped in much of the low marsh tidal channels. The success of the site was achieved due to regular management and maintenance activities that occurred throughout Year 5. Per the HMMP, Year 3 was the final year that the plantings could be irrigated. As such, no irrigation occurred in Year 4, and existing plantings were not irrigated in Year 5. The marsh vegetation and transition zone plantings appear to be established and generally robust, and it is anticipated that they will survive beyond the monitoring period without supplemental irrigation.

Weed management activities such as hand-removal and mowing occurred in the Project Area as needed throughout the monitoring period. Invasive species were kept under control, and this is likely a key factor in the growth of shrub plantings and the natural colonization by native species observed during monitoring visits. Harding grass continues to be a larger management issue past the tidal marsh restoration and restored seasonal wetland, subsequently Harding grass management will continue past the monitoring period. Future management will focus more intensive control efforts on the areas surrounding the 4-acre marsh to preserve the public benefits and views of the 4-acre marsh restoration, while implementing less labor-intensive management actions as needed within the remainder of the site. Additionally, revised treatment strategies will be implemented and could include, but are not limited to, techniques such as mechanical removal, controlled burns, disking, additional wetland restoration, or altering land usage. Revised Harding grass treatment options are currently being analyzed and discussed by WRA and the District.

The restored seasonal wetland met the Year 5 vegetation success criterion that absolute native plant cover will be greater than or equal to 100 percent of absolute native plant cover in the reference seasonal wetland. An increase in absolute native plant cover in the restored seasonal wetland was due to the spreading of a native wetland seed mix containing creeping wildrye (*Elymus triticoides*) and meadow barley (*Hordeum brachyantherum*). These grasses were present

in the restored seasonal wetland in Year 5, and wild rye significantly increased in cover in Year 5. The presence of creeping wildrye is expected to increase and continue establishing successfully past the monitoring period.

Baseline topography taken in December of 2020 was compared to current topography in 2025. Year 5 monitoring data shows slight variations in surface elevations as compared to the baseline conditions and all other years, which is typical for dynamic tidal marsh systems, but the elevations are within the 0.3-foot threshold in the final Year 5 performance criterion. This indicates that sedimentation does not contribute to reduction in MHHW by more than 0.3 feet depth. Additionally, the topographic comparison indicates no detrimental erosion in the area of elevated nickel, with at least 0.5 feet of cover over that area throughout the monitoring period. The site meets the success criteria for erosion and sedimentation.

Additionally, the HMMP states that if any of the following conditions were observed during monitoring, maintenance activities would be triggered:

- Identify areas of excess erosion or siltation within tidal channels;
- Identify the need to implement invasive weed control;
- Identify the need to repair or replace the access control fence; and
- Identify the need to replace plantings in the transition zone or high marsh

These conditions were monitored for and were not identified; therefore maintenance activities were not triggered and are not necessary.

5.2 Restoration Goals

Overall, the site met Year 5 success criteria; furthermore, the restoration and maintenance of the tidal marsh, transition zone, upland refugia, and seasonal wetland throughout the five-year monitoring period have ensured that these habitats meet restoration goals outlined in the HMMP (Appendix B) and are self-sustaining habitats that no longer require monitoring or upkeep.

The restored tidal marsh is well-developed at Year 5, with self-sustaining tidal hydrology and successfully established population of tidal marsh vegetation. The designed and built tidal channels and tidal marsh plain have consistently met hydrology and erosion/sedimentation success criteria, demonstrating a design that provides consistent tidal hydrology to the restored area through a system of tidal channels with minimized sedimentation or erosion. Tidal marsh vegetation has continually progressed throughout the five-year monitoring period. Approximately 1.26 acres of high marsh were vegetated in Year 2 and approximately 2.57 acres were vegetated in Year 5. Lower marsh vegetation also progressed steadily in five years, with cordgrass successfully colonizing the site within the last three years of monitoring without additional management and at a much faster rate than outlined in the success criteria. The Year 5 delineation, tidal hydrology monitoring, vegetation monitoring, and absence of invasive plants all demonstrate that tidal wetlands have been restored to this area of historical tidal wetland, consistent with the restoration goals of the Project.

The transition zone continues to progress through natural recruitment, with coyote brush, salt marsh baccharis, and coastal gumweed establishing and recruiting successfully throughout the five-year monitoring period, without irrigation for the last two years of monitoring; 90 percent of plantings survived in Year 1 while Year 5 had 301 percent survival of plantings. The Year 5



transition zone is composed of a complex community of dominant plants of varying heights. In alignment with the Project restoration goals, the transition zone is expected to continue to thrive and provide ongoing complex habitat for wildlife, including upland refugia.

The seasonal wetland hydrology remained consistent throughout the five-year monitoring period, meeting wetland hydrology criteria from Year 1 through Year 5. Seasonal wetland vegetation is present and similar to the reference wetland, apart from a lack of cocklebur colonization and an increasing cover of native grass, specifically, creeping wild rye; therefore, a self-sustaining seasonal wetland habitat was successfully created as envisioned in the Project restoration goals.

The site met overall restoration goals throughout the five-year monitoring period and met Year 5 success criteria; therefore, the Corte Madera Marsh Restoration Project has met all standards required by Project permits and post-construction monitoring can be considered complete.



6.0 REFERENCES

- Cal-IPC 2024** California Invasive Plant Council. 2024. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: <http://www.cal-ipc.org/paf/>; most recently accessed: October 2025.
- Environmental Laboratory 1987** Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.
- NOAA 2025** National Oceanic and Atmospheric Association. 2025. NOAA Tide Predictions. Corte Madera Creek, CA, 2022 (9414874). Generated on October 20, 2025d.
- USACE 2008** U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0); most recently accessed: October 2025.
- WRA 2021** WRA, Inc. 2021. Corte Madera Four-Acre Tidal Marsh Restoration Project As-Built Report. Prepared for the San Francisco Bay Conservation and Development Committee, U.S. Army Corps of Engineers, and San Francisco Regional Water Quality Control Board. April 23.

APPENDIX A. FIGURES



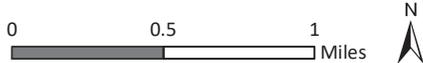
Path: L:\Acad 2000 Files\232294\GIS\ArcMap\2018\Redesign\HMMP\Figure 1 Location.mxd



Sources: National Geographic, WRA | Prepared By: njander, 1/20/2022

Figure 1. Vicinity Map - Project Area Location

Corte Madera Four-Acre
Tidal Marsh Restoration Project
Town of Corte Madera, Marin County, California



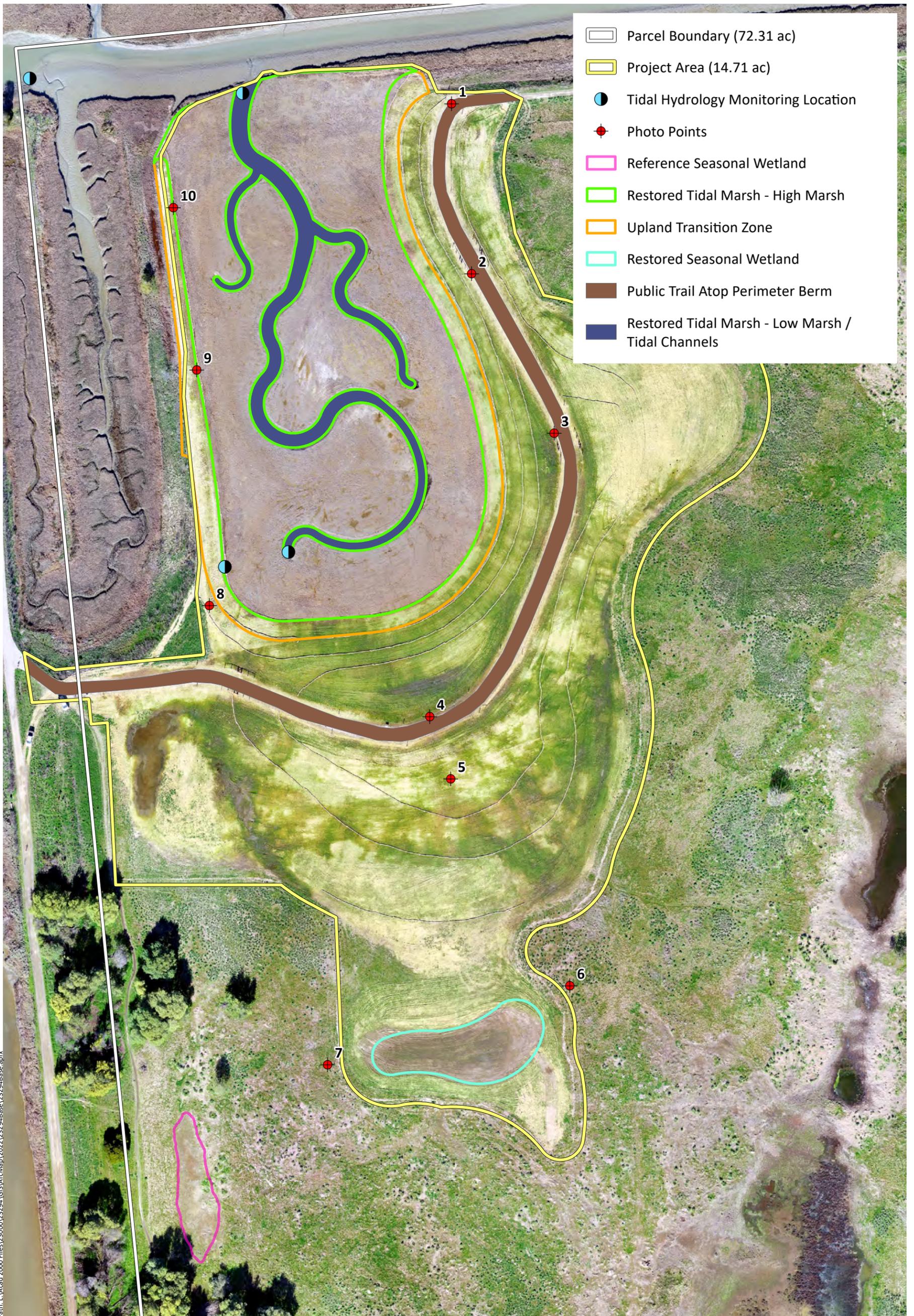


Figure 2. Monitoring Locations

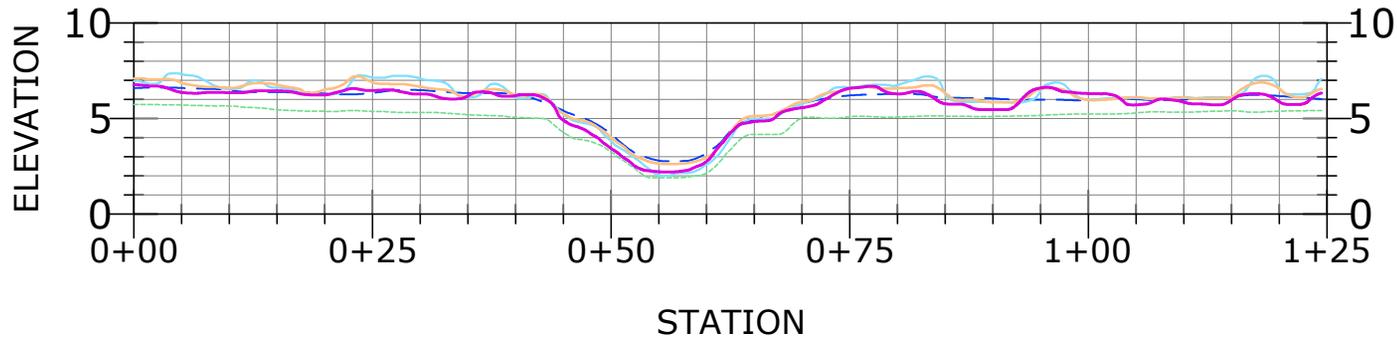


▭ As-Built Marsh Extent: (4.30 ac.)
▭ Elevated Nickel Area: (0.50 ac.)
— Cross Section

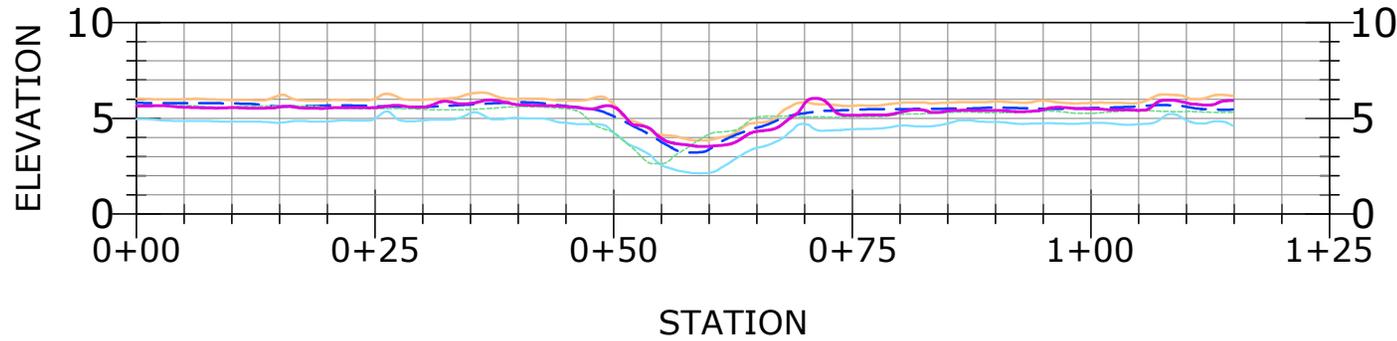
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Sources: 2022 UAV Aerial, WRA | Prepared By: gillespie, 11/11/2024

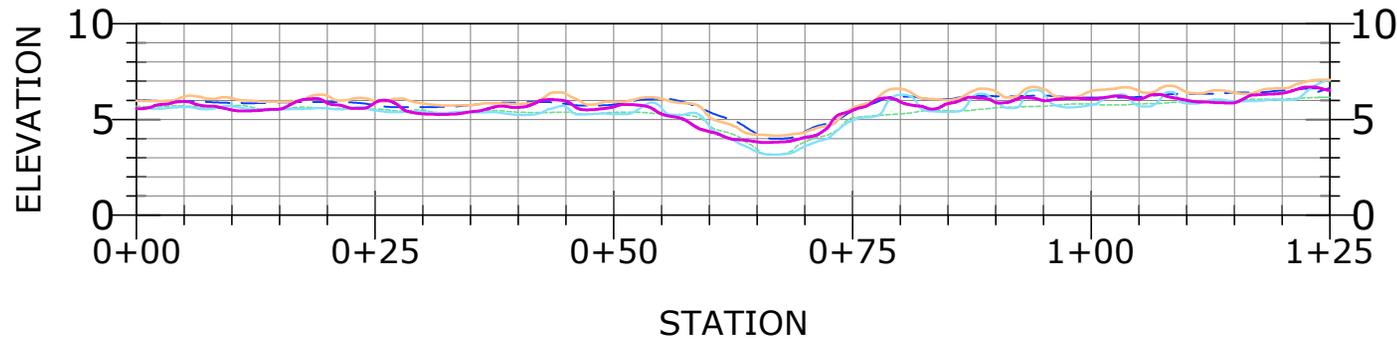
Figure 3. Cross Section Overview



① CROSS SECTION 1
2H:1V



② CROSS SECTION 2
2H:1V



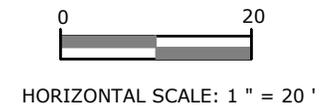
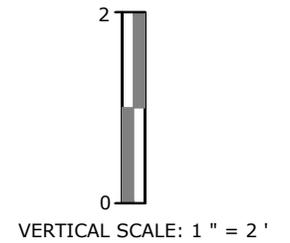
③ CROSS SECTION 3
2H:1V

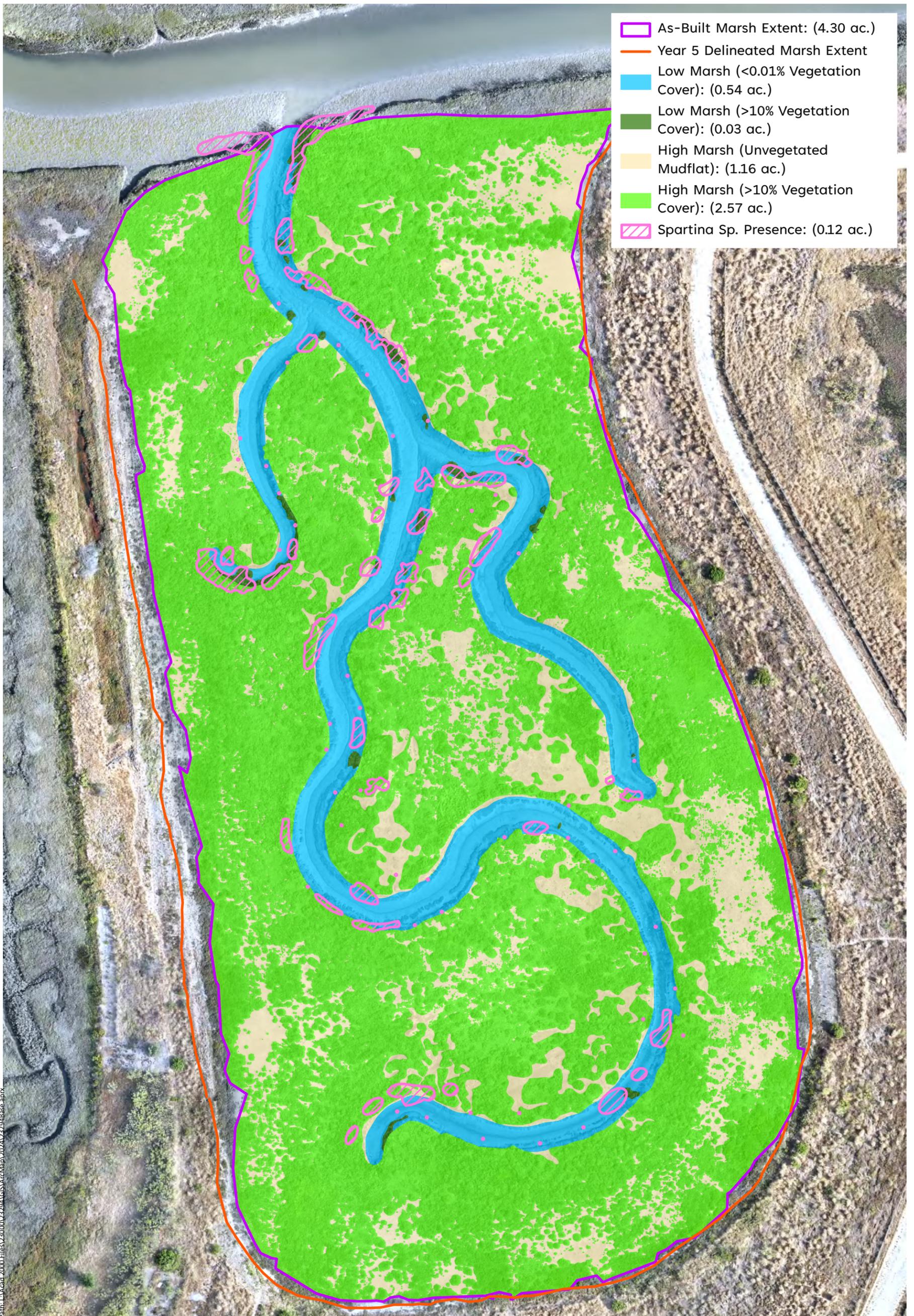
FIGURE 4.
CHANNEL CROSS SECTIONS

CORTE MADERA 4-ACRE TIDAL MARSH
RESTORATION PROJECT
MARIN COUNTY, CALIFORNIA

LEGEND

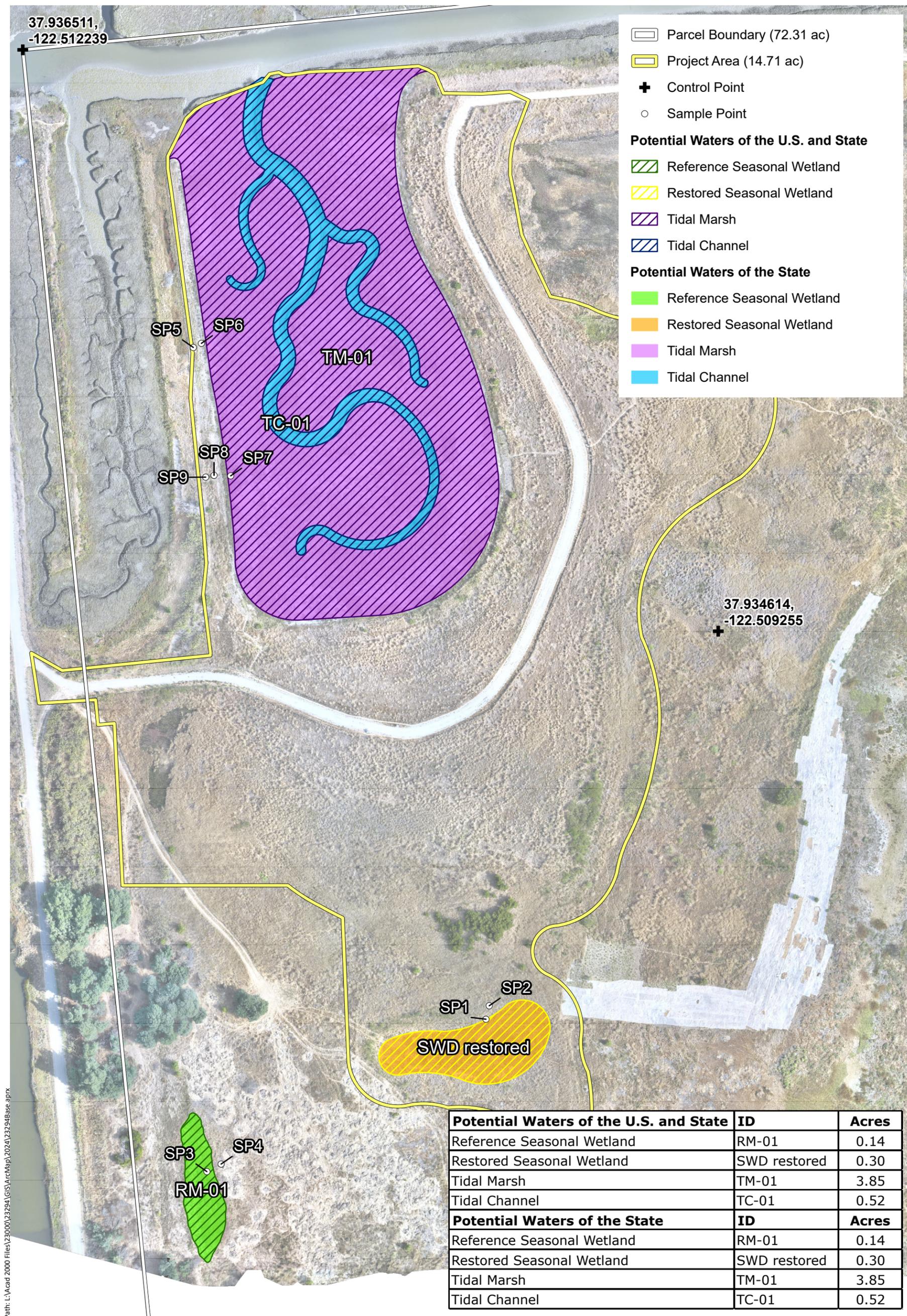
- AS-BUILT DRONE SURVEY (WRA, 2021)
- YEAR 2 DRONE SURVEY (WRA, 2022)
- YEAR 3 DRONE SURVEY (WRA, 2023)
- YEAR 4 DRONE SURVEY (WRA, 2024)
- YEAR 5 DRONE SURVEY (WRA, 2025)





Sources: 2023 UAV Aerial, WRA | Prepared By: jander, 11/10/2025

Figure 5. Marsh Vegetation Monitoring Results



Sources: Aerial Imagery 08/26/2025, WRA | Prepared By: gillespie, 1/26/2026

Figure 6. Potential Waters of the U.S. and State

APPENDIX B. HABITAT MITIGATION AND MONITORING PLAN



Habitat Mitigation and Monitoring Plan - Revised

CORTE MADERA FOUR-ACRE TIDAL MARSH RESTORATION PROJECT CORTE MADERA, MARIN COUNTY, CALIFORNIA

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Date:

September 12, 2019
Revised June 25, 2020

WRA Project #:

23294



DISTRIBUTION PAGE

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1.0 INTRODUCTION

The purpose of this Habitat Mitigation and Monitoring Plan (HMMP) is to describe the goals and components of the restoration plan as well as the criteria and methods to monitor performance during the five years following completion of the Golden Gate Bridge, Highway & Transportation District Corte Madera 4-acre Tidal Marsh Restoration Project (“Project”; RWQCB Place ID 857558, BCDC Permit No. M2019.011.00, and US Army Corps of Engineers [USACE] File Number 1999-24251N).

The Golden Gate Bridge Highway & Transportation District (District, Applicant) is proposing to restore approximately 4.3 acres of tidal marsh habitat on its 72-acre property located in the Town of Corte Madera, Marin County, California (see Figure 1, attached). The Project Area includes a 14.7-acre portion of the property in which ground disturbance will occur (see Figure 1).

The proposed Project meets the needs of the District’s outstanding restoration obligations to restore 4 acres of tidal marsh habitat suitable for California Ridgway’s rail (*Rallus longirostris obsoletus*, Federal Endangered). The proposed Project will fulfill this commitment by restoring approximately 4.3 acres of tidal marsh habitat. The proposed restoration efforts will temporarily impact an existing 0.18 acre of tidal marsh and 0.28 acre of seasonal wetlands. The Project will relocate 0.28 acre of seasonal wetlands within the Project Area. The Project will result in restored tidal connectivity to the Project Area and provide tidal marsh habitat in support of Federal-listed species such as the California Ridgway’s rail and salt marsh harvest mouse (*Reithrodontomys raviventris*, Federal Endangered).

2.0 EXISTING CONDITIONS

The proposed Project is located within the limits of the Town of Corte Madera, approximately 0.25 mile east of Highway 101 and 0.6 mile south of Sir Francis Drake Boulevard (see Figure 1). The Project Area is approximately 14.7 acres located in the northwestern portion of a 72-acre parcel owned by the GGBHTD (see Figure 2). The subject parcel is bordered on three sides by tidal salt marsh of the California Department of Fish and Wildlife (CDFW) Corte Madera Marsh Ecological Reserve (CMER): to the north by Heerdt Marsh; to the east by North Muzzi Marsh; and to the south by Muzzi Marsh. Shorebird Marsh is located just west of the northern extent of the Project Area and collects treated stormwater from the Town. In the greater vicinity of the Project Area to the west, land uses include the Redwood Highway and commercial development.

The Project Area occurs on diked former baylands along the margins of San Francisco Bay. Based on a review of historic aerial photographs, it was determined that the tidal salt marsh adjacent to and including the Project Area was diked and reconfigured starting in the 1950s, with man-made berms disrupting tidal influence to the baylands. In the 1970s, an inner set of berms was constructed on and around the perimeter of the subject parcel and tidal activity was returned north, east, and south of the perimeter berm.

The lands outboard of the perimeter berm and the surrounding CMER marshes currently support healthy stands of native tidal salt marsh vegetation. However, the subject parcel remains

disconnected from tidal activity by the perimeter berm. Over time, elevations within this diked portion of the subject parcel have subsided, resulting in the mix of seasonal wetlands and ruderal uplands that exists today. These lands contain a mix of highly disturbed habitat. Most of the plant communities on the Project Area, including seasonal wetland plant communities, are dominated by non-native, invasive plant species and are of relatively low quality for wildlife.

The Project Area contains 0.28 acre of seasonal wetlands and 0.18 acre of tidal marsh (high marsh pickleweed bench) subject to jurisdiction of the USACE as “Waters of the U.S.” and to RWQCB as “Waters of the State” (Figure 2). The proposed Project will include impacting the existing seasonal wetlands by excavation of fill previously deposited in the Project Area, grading to the appropriate elevations to establish tidal marsh, and excavating new tidal channels to connect to an existing tidal channel (the northern drainage channel) by breaching the existing northern berm. Temporary impacts of the Project are summarized in Table 1. The Project has been designed to maximize the amount of wetland habitat restoration and enhancement, while minimizing impacts to existing wetland features. Existing tidal marsh impacted by the opening of the new tidal channel are mitigated for by the project design. Seasonal wetlands impacted by the creation of the new tidal channel will be mitigated by creating new seasonal wetlands at an area south of the new tidal marsh (Figure 2).

Table 1. Temporary Projects Impacts to Section 401/401 Wetlands and Non-Wetland Waters

JURISDICTIONAL FEATURES	TEMPORARY IMPACTS (ACRES)
Seasonal Wetlands	0.28
Pickleweed Bench	0.18
TOTAL	0.46

3.0 RESTORATION PLAN

3.1 Restoration Goals

The goals of the Project are to restore approximately 4.3 acres of tidal salt marsh and create habitat for Ridgway’s rail. This includes restoring native plant species within the tidal marsh area and transition zone and reducing the presence of invasive plant species throughout the Project Area. In addition, the Project will be monitored to ensure success and that there is no adverse erosion or sedimentation within the restored tidal marsh or adjacent northern drainage channel. The total restored acreages of jurisdictional wetlands are summarized in Table 2.

Summary of restoration goals:

- restore tidal wetlands in an area that was historically tidal wetlands;
- provide habitat for Ridgway’s rail;
- create seasonal wetland habitat to mitigate for the project’s impacts to existing seasonal wetlands;
- restore native plant vegetation within the tidal marsh area, the transition zone; and upland refugia areas of the Project;
- reduce cover and control the spread of invasive plant species within the tidal marsh and transition zone in the Project Area; and

- minimize adverse sedimentation and channel erosion in the tidal channels of the new marsh and the adjacent northern drainage channel.

Table 2. Proposed Section 404/401 Habitat Restoration

JURISDICTIONAL FEATURES	RESTORED AREA (ACRES)
Seasonal Wetlands	0.28
Tidal Habitats (Total)	4.30
<i>Tidal Marsh – Channel</i>	<i>0.30</i>
<i>Tidal Marsh – Low Marsh</i>	<i>0.23</i>
<i>Tidal Marsh – High Marsh</i>	<i>3.77</i>

3.2 Earthwork

3.2.1 Earthwork for the Creation of the Tidal Marsh

The restored tidal marsh will be created by excavating historic Bay sediments and lowering the existing grades to create a tidal marsh plain to appropriate elevations for low marsh (3.75-4.75 feet NAVD88) and high marsh (4.75-6.5 feet NAVD88) tidal zones. In addition, a system of tidal channels will be excavated (2.0-3.75 feet NAVD88) and connected to the northern drainage channel in order to provide full tidal hydrology to the site. The excavated material will be reused on-site and configured to create a perimeter berm and a low mound to the south and east of the restored tidal marsh area. There will be a 10:1 slope from the tidal marsh area to the surrounding upland areas. In all, approximately 28,000 cubic yards of material would be excavated to create the new tidal marsh and deposited on-site to re-create a berm and low mound adjacent to the restored area.

The internal tidal channels have been sized to provide full tidal hydrology for the new tidal marsh. In addition, the channels have been designed to convey water at velocities within a range that will not cause scouring and preclude the channels from accumulating sediment. The size and configuration of the tidal channels is expected to develop and mature over time into a state of equilibrium.

3.2.2 Earthwork for the Creation of the Seasonal Wetland

Creation of new seasonal wetland habitat would necessitate the excavation of approximately 600 cubic yards of soils. This will involve creating a shallow depression with a maximum depth of 4 to 6 inches. The material removed to create the seasonal wetland will be reused on-site to create the low mound discussed in the previous section.

3.3 Revegetation Plan

Revegetation within the tidal marsh plain will consist of plugs or plantings sourced from local nurseries. In addition, as part of the restoration design, native tidal marsh species are expected to naturally colonize in the restored tidal areas, as seeds and vegetative propagules capable of

rooting in mudflats are carried on-site via tidal flows. Project design is intended to promote rapid colonization by creating suitable substrates and elevation profiles for the establishment of salt marsh vegetation.

Revegetation of the site will focus on establishing native plant species throughout the tidal marsh and transition zone. The Project will rely on a combination of active planting and natural recruitment to establish tidal marsh vegetation. The low marsh will not be actively planted based on recommendations from the Invasive *Spartina* Project (ISP). Due to the presence of invasive non-native *Spartina alterniflora* in the vicinity, there is a potential for it to hybridize with the native cordgrass, *Spartina foliosa*. To provide a seed source within the restored tidal area, 10% of the high marsh will be planted with pickleweed and other high marsh plant species. Seed production from this small area of planting is expected to augment seed input from adjacent tidal marsh.

Prior to planting, a temporary spray irrigation system will be installed within the transition zone planting area to provide supplemental water during the first two to three years following implementation. Irrigation will be applied during the dry season (summer) and during dry winters to supplement any deficiency in rainfall that may occur to ensure successful establishment of the plants. The transition zone will be revegetated with a combination of native grass and shrub species in order to provide vegetative cover for Ridgway's rail, which are likely to use these areas for refugia during extreme high tide events. In addition, the transition zone and upland disturbed areas throughout the Project footprint will be hydroseeded with a seed mix at appropriate densities as indicated in Table 3 in conjunction with erosion control seed mix void of invasive plant species. The planting palette was chosen based on previous restoration experience in the Bay and the current vegetation inhabiting the adjacent, functioning marsh.

Planting and seeding will occur following the final site grading and during the rainy season. Table 3 summarizes the revegetation plan for the Project.

Table 3. Planting Palette and Seeding Rates by Biological Community

	BOTANICAL NAME	COMMON NAME	SIZE	SPACING (O.C.# FEET)	% COVER	QUANTITY TOTAL
High Marsh Zone	<i>Distichlis spicata</i>	salt grass	4" or equivalent	1.0	1.5%	2,462
	<i>Jaumea carnosa</i>	marsh jaumea	4" or equivalent	1.0	1.5%	2,462
	<i>Limonium californicum</i>	western marsh rosemary	4" or equivalent	1.0	0.5%	821
	<i>Salicornia pacifica</i>	California pickleweed	TB2° or equivalent	1.0	6.5%	10,668
	TOTAL				10%	16,413
Transition Zone	<i>Baccharis glutinosa</i>	salt marsh baccharis	D16† or equivalent	3.0	6.66%	189
	<i>Grindelia stricta</i>	coastal gumweed	D16† or equivalent	3.0	6.66%	189
	<i>Baccharis pilularis</i>	coyote brush	D16† or equivalent	6.0	6.66%	108
	TOTAL				20%	486

° Treeband 2 (TB2) pots are 2.38 in. square by 5 in. deep for a total volume of 24 in³

† Deepot 16 (D16) pots are 2 in. in diameter by 7 in. deep for a total volume of 16 in³

On-center spacing (O.C.)

Table 3. Planting Palette and Seeding Rates by Biological Community (continued)

	BOTANICAL NAME	COMMON NAME	PURE LIVE SEED (LBS./ACRE)	PURE LIVE SEED (TOTAL LBS.)
Seasonal Wetland Seed Mix	<i>Carex praegracilis</i>	field sedge	2.00	0.56
	<i>Eleocharis macrostachya</i>	creeping spike rush	1.00	0.28
	<i>Elymus triticoides</i>	creeping wild rye	4.00	1.12
	<i>Hordeum brachyantherum</i>	meadow barley	6.00	1.68
	<i>Juncus bufonius</i>	toad rush	1.00	0.28
	<i>Juncus phaeocephalus</i>	brownhead rush	1.00	0.28
	<i>Oenothera elata</i>	evening primrose	2.00	0.56
	TOTAL			17.00
Upland/ Transition Seed Mix	<i>Baccharis pilularis</i>	coyote brush	3.00	30.00
	<i>Bromus carinatus</i>	California brome	3.00	30.00
	<i>Castilleja exserta</i>	Purple owl's clover	3.00	30.00
	<i>Danthonia californica</i>	California oatgrass	3.00	30.00
	<i>Elymus glaucus</i>	blue wild rye	6.00	60.00
	<i>Eschscholzia californica</i>	California poppy	4.00	40.00
	<i>Festuca microstachys</i>	three weeks fescue	6.00	60.00
	<i>Hordeum brachyantherum</i>	meadow barley	8.00	80.00
	<i>Sisyrinchium bellum</i>	blue-eyed grass	3.00	30.00
	<i>Stipa pulchra</i>	purple needlegrass	4.00	40.00
	TOTAL			43.00

3.3.1 Coordination with the San Francisco Estuary Invasive *Spartina* Project

The Project Applicant consulted with the San Francisco Estuary Invasive *Spartina* Project (ISP) regarding the planting of *Spartina foliosa* and received a letter with the following recommendations:

- There are known occurrences of invasive *Spartina* in the vicinity of the project site;
- The ISP strongly recommends that the project not actively plant *Spartina foliosa* because of the risk of infestation and hybridization of invasive *Spartina*; and
- The ISP expects passive recruitment of native *Spartina foliosa* at this site because there are existing populations of native *Spartina* within adjacent tidal marsh areas.

As a result, the Project will not plant *Spartina foliosa*, and the construction documents have been modified to remove *Spartina foliosa* from the planting palette. No alternatives for planting in the

low marsh are available since the native cordgrass *Spartina foliosa* is the only native species that grows at low marsh elevations. The Project will rely on natural recruitment for establishing vegetation in the low marsh. As requested, the ISP will be notified if monitoring detects *Spartina* colonization within the restoration area to allow them to incorporate the site into their monitoring plans.

3.4 Resilience to Sea Level Rise

The Project design was evaluated for resilience to rising sea levels. Sea level rise projections for this Project were selected from the Ocean Protection Council's State of California Sea Level Rise 2018 Guidance report. The report acknowledges an increase in uncertainty of sea level rise projections after the year 2100 due to a lack of available climate model experiments that extend beyond this date. Therefore, sea level rise estimates were selected from the earliest available years, 2030 to 2100. Specifically, the estimates selected are based on the San Francisco tide gauge for the years 2030, 2060, 2080, and 2100 in order to assess the impact of sea level rise in the Project Area over time. An average of the high and low projection values was used for these selected years. The report provides low, medium-high, and extreme risk aversion scenarios.

Sea level rise predictions were used for the low risk aversion scenario because this scenario is appropriate for the projects with "minimal consequences, flexibility to adapt, or low economic burden as a result of sea-level rise". Using these predictions, the restored tidal marsh plain will remain as pickleweed through 2030, and by 2060, it will mostly convert to low marsh habitat comprised of cordgrass. By 2080, tidal areas adjacent to the tidal channel within the Project Area will begin shifting to mudflat, as will adjacent marshes to the north of the Project Area. By 2100, only the edge of the proposed tidal marsh plain will remain as low marsh habitat, and the remainder of the tidal marsh plain will be mudflat. While the projection shows an eventual conversion of tidal marsh to mudflat, the Project's proposed elevations are appropriate because they correspond with the elevation of the existing tidal marsh in the adjacent CMER. Therefore, conversion of habitat in the Project Area will align with changes in the surrounding marsh.

3.5 Access Control and Species Protection Fencing

A permanent access control fence is proposed to be installed on either side of the berm and informal trail located south and east of the restored area to minimize anthropogenic disturbance to the created tidal marsh, transition zone, and upland refugia areas. The fence will isolate an upland refugia area adjacent to the created marsh that will vary in width from 50 to 135 feet and will also restrict recreational access to the center portions of the parcel, which is currently prohibited per posted no-trespassing signs. The fence will consist of galvanized wire mesh mounted on wooden or metal posts. The maximum height of the fence will be approximately 50 inches. The woven wire mesh will be mounted 8 inches above the ground to allow wildlife to move underneath the fence. Fence posts will be installed at eight foot intervals.

During construction, the Project will use temporary exclusionary fencing to keep small mammals, including the salt marsh harvest mouse, from entering the active construction site. Prior to installing the fence, the vegetation inside the work area will be removed, per details developed, reviewed, and approved by the US Fish and Wildlife Service (USFWS) through the consultation process under Section 7 of the Endangered Species Act.

3.6 Construction Schedule

To minimize disturbance to wildlife in adjacent tidal marshes, all construction activities including planting will be scheduled to avoid the California Ridgway's rail breeding season, which spans February through August. Construction will take approximately five months in total, and is anticipated to occur between September 1, 2020, and January 31, 2021. Construction mobilization and earthwork is expected to comprise the first three months of this period, with marsh planting to follow during the rainy season. Construction will occur during daytime hours, 7:00 AM to 5:00 PM on Monday through Friday, and between 10:00 AM and 5:00 PM on Saturdays and Sundays (if needed), in accordance with the Town's Noise Ordinance.

3.7 As-Built Conditions

As-built conditions will be documented following completion of restoration efforts, including a bathymetry and LiDAR survey of the Project Area and the northern drainage channel. A brief letter report outlining the as-built conditions of the restoration area will be prepared and submitted to the regulatory agencies within three months of the completion of all restoration activities, inclusive of planting.

4.0 PERFORMANCE AND MAINTENANCE MONITORING

4.1 Success Criteria

Monitoring will be performed to demonstrate that the Project accomplishes all of the restoration goals listed in Section 3.1, and will identify the need for maintenance activities. Monitoring will demonstrate performance of the following:

- Tidal hydrology;
- Erosion and siltation within tidal channels;
- Seasonal wetland hydrology;
- Revegetation of the tidal marsh area, transition zone, and upland refugia areas; and
- Revegetation of the seasonal wetland.

Monitoring that would trigger maintenance activities will focus on the following:

- Identify areas of excess erosion or siltation within tidal channels;
- Identify the need to implement invasive weed control; and
- Identify the need to repair or replace the access control fence.

The monitoring program will span for five years, or until success criteria are achieved. Quantitative monitoring will be performed to evaluate performance in years specified in Tables 4 and 5. The final report will include an as-built topo survey of the Project Area and an updated wetland delineation determination.

Table 4. Success Criteria for Restored Tidal Habitats

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
Tidal Marsh, Transition Zone, and Upland Refugia	Erosion and/or Sedimentation	<p>Document baseline topography using low altitude, high resolution imagery</p> <p>Qualitative monitoring to observe signs of erosion/ sedimentation</p>	<p>Compare digital topographic data with hydrology monitoring data to identify sedimentation/ erosion reducing MHHW or cover over area with elevated nickel</p>	<p>Compare digital topographic data with hydrology monitoring data to identify sedimentation/ erosion reducing MHHW or cover over area with elevated nickel</p>	<p>Compare digital topographic data with hydrology monitoring data to identify sedimentation/ erosion reducing MHHW or cover over area with elevated nickel</p> <p>Sedimentation does not contribute to reduction in MHHW by more than 0.3 ft</p> <p>Depth of cover over area with elevated nickel is at least 0.5 ft</p>
	Hydrology	<p>Install water-depth data loggers in main tidal channel, secondary tidal channel, and two within the marsh plain</p>	<p>Compare hydrographs; calculate and compare the tidal datum</p>	<p>Compare hydrographs; calculate and compare the tidal datum</p>	<p>MHHW within the tidal marsh is within 0.3 ft of MHHW within the Northern Drainage Channel.</p>
	Vegetation	<p>N/A</p> <p>No active planting of low marsh will be conducted.</p>	<p>Following native cordgrass establishment, <u>low marsh cover</u> will increase 5 percent annually.</p>	<p>Following native cordgrass establishment, <u>low marsh cover</u> will increase 5 percent annually.</p>	<p>Following native cordgrass establishment, <u>low marsh cover</u> will increase 5 percent annually.</p>

Table 4. Success Criteria for Restored Tidal Habitats (continued)

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
		N/A The high marsh will be planted with native species in year 1.	Native plant cover within the restored <u>high marsh</u> will be ≥ 15 percent.	Native plant cover within the restored <u>high marsh</u> will be ≥ 22.5 percent.	Native plant cover within the restored <u>high marsh</u> will be ≥ 50 percent.
		N/A The transition zone will be planted with native shrubs in year 1.	Native shrub survival within the <u>transition zone</u> will be 90%.	Native shrub survival within the <u>transition zone</u> will be 80%.	Native shrub survival within the <u>transition zone</u> will be 80%.
		Invasive plants ranked by the California Invasive Plant Council (Cal-IPC) as “High” will not exceed 5 percent absolute cover within the tidal marsh, transition zone, and upland refugia, exclusive of annual grasses.			
		Report presence of <i>Spartina</i> sp. to facilitate on-site genetic testing and control of invasive and hybrid <i>Spartina</i> by the Invasive Spartina Project (ISP).			No invasive or hybrid <i>Spartina</i> within the tidal restoration area.
	Wetland Delineation	N/A	A protocol-level wetland delineation will be completed to verify boundaries of wetlands and non-wetland waters.		

Table 5. Success Criteria for Restored Seasonal Wetland Habitat

HABITAT ZONE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 5
Seasonal Wetland	Hydrology	Soils in the restored seasonal wetland will be inundated or saturated within 12 inches of the soil surface for at least 14 consecutive days.			
	Vegetation	Relative native plant cover within the restored seasonal wetland will be \geq 40 percent relative cover of total plant cover in the reference seasonal wetland.	Relative native plant cover within the restored seasonal wetland will be \geq 50 percent of total plant cover in the reference seasonal wetland.	Relative native plant cover within the restored seasonal wetland will be \geq 60 percent of total plant cover in the reference seasonal wetland.	Relative native plant cover within the restored seasonal wetland will include 100 percent of total plant cover in the reference seasonal wetland.
		Invasive plants ranked by the Cal-IPC as "High" will not exceed 5 percent absolute cover within the seasonal wetland.			
	Wetland Verification	N/A			A protocol-level wetland delineation will be completed to verify boundaries of wetlands and non-wetland waters.

Success of the proposed restoration activities will require the successful establishment of wetland vegetation, demonstration of channel stability (i.e. lack of significant erosion and sedimentation indicators), and control of noxious weed species that may invade the newly constructed jurisdictional features. Success criteria will be used to evaluate the development of the restored wetland habitats. The success criteria include:

- 50 percent total cover of native high marsh vegetation by Year 5;
- Control of invasive species;
- Absence of significant erosion affecting upper tidal range or cover over area of elevated nickel;
- Presence of a functioning, self-sustainable wetland system;
- The restored seasonal wetland shall perform similarly to reference wetland conditions within the parcel by Year 5; and
- Permanent photo-documentation points will be established at several locations in order to visually track the progress of the restoration site toward meeting final success criteria described below.

Tables 4 and 5 summarize success criteria for completing annual monitoring in Years 1, 2, 3, and 5 for the restored tidal marsh, transition zone, upland refugia, and seasonal wetland habitats.

4.2 Monitoring Methods

The following section outlines the monitoring methods that will be used to measure the success criteria for the Project including an as-built topography survey of the Project (Section 3.7). Vegetation monitoring efforts will be conducted in the spring during appropriate plant growth season to assess vegetation across the restored wetlands

4.2.1 Photographic Documentation

A minimum of ten permanent monitoring locations will be established where photographs will be taken to document the development of restored habitats and to illustrate that normal sediment transport processes are occurring within the Project Area over time. Photographs will be taken with a hand held camera from ground level or from a camera mounted on an unmanned aerial vehicle (UAV).

These photographs will capture the development (revegetation success) and status of the following:

- Tidal marsh area, including potential signs of erosion and/or sedimentation within tidal channels;
- Transition zone;
- Upland refugia;
- Seasonal wetland; and
- Access control fence.

4.2.2 Erosion and Sedimentation

The potential adverse effects of erosion and sedimentation will be monitored over a period of 5

years using digital topographic data developed from aerial photographs. Following construction and in years 2, 3, and 5 low altitude, high-resolution color imagery will be acquired using an unmanned autonomous vehicle (UAV) for use in assessing both erosion and vegetative cover. Imagery will be acquired at low tide in order to expose the entire restoration area. Photogrammetry software will be used generate a high-resolution topography (digital terrain model) from the color imagery. Topographic data will be compared to post-construction baseline data to determine changes in marsh surface and tidal channel geometry and evaluate performance criteria. Should any significant adverse erosion or sedimentation be observed, the District will notify the regulatory permitting agencies to determine appropriate corrective actions.

4.2.3 Tidal Hydrology

Tidal hydrology will be considered successful by demonstrating that the new tidal marsh area is exposed to full tidal hydrology. Tidal hydrology will be verified through use of pressure / water-level data loggers to measure and confirm full tidal inundation as well as biannual photographic evidence that the site is inundated fully at high tide events. Pressure transducers equipped with data loggers will be installed in the northern drainage channel and in the new tidal marsh channel network, within a slotted PVC housing. Elevations of the housings will be surveyed relative to the North American Vertical Datum of 1988; coordinates will be surveyed using the California State Plane. Data from the devices will be collected and included in the annual monitoring report.

4.2.4 Vegetation Coverage in the Tidal Marsh

The development of vegetation coverage within the tidal marsh will be monitored to demonstrate that the rate of revegetation is on-track based on the success requirements for the Project. This will include the low marsh and high marsh areas of the Project Area. The absolute cover of vegetation within the tidal marsh will be measured through using one of the following or an equivalent method:

- Manual monitoring of vegetated areas using the transect-quadrat method; or
- Acquire high-resolution aerial imagery collected with a UAV, estimate percent coverage manually or using eCognition software, and verify desktop analysis on-the-ground.

Transect-Quadrat Vegetation Monitoring

To evaluate vegetation performance standards, wetland types are monitored using transects, including the tidal marsh. Each transect serves as the sample unit and the quadrats are averaged to obtain transect cover. Twelve transects will be spaced approximately every 50 feet) to capture the restored 4.3-acre tidal marsh and are laid out perpendicular to and across the primary channel to capture the full extent of the tidal marsh zones (see Figure 2, attached). At each transect, a random number will be chosen from 0 through 9 using a random number generator to select the first sampling location in meters. At each sampling location, an approximately 3 foot by-3 foot (1-m by 1m) quadrat will be used to assess plant cover and species richness. Subsequent quadrats will then be placed approximately every 15 feet (5 m) so that one quadrat is sampled approximately every 30 feet (10 m) of transect length. Quadrat locations along each transect will be noted on field data forms. Approximately 6-foot- (2-m)-wide belt transects will be used along the north side of each transect to record species richness by capturing additional species not detected in the quadrats.

Vegetation data will be stratified based on low- and high-marsh zones and will be used to quantify the average percent cover within both tidal marsh zones, as well as capturing percent invasion by plants ranked by Cal-IPC as “High.”

The San Francisco Bay Invasive *Spartina* Project will be consulted to verify that cordgrass growing within the Project site is native Pacific cordgrass (*Spartina foliosa*) and not one of the four invasive *Spartina* species or hybrids found in San Francisco Bay. Their biologist will be given permission to access the site and verify that the Project site has only the native species.

Aerial Imagery with eCognition

An alternative method to analyzing vegetation performance can be achieved with the remote-sensing analysis called “eCognition” of high-resolution aerial imagery collected for the Project Area via UAV. The eCognition software is a remote-sensing software package that allows users to classify different signature outputs of satellite images and aerial photographs. Using a high-resolution aerial image, aggregate area data can be utilized to determine the percent cover of vegetative cover.

Using aerial imagery, eCognition software can interpret signatures of the vegetation and the software can automatically define the boundaries of every color signature on the color aerial photograph, which is also known as a multi-resolution segmentation analysis. This generates polygons that require classification in the aerial imagery by a trained geospatial analyst familiar with the software and tidal ecology. A biologist would complete a site visit using a georeferenced map of the eCognition analysis results to confirm that the classification analyses accurately captures the vegetation composition and aerial cover observed. During this site visit, the biologist will also quantify any observed invasive species within the tidal marsh and complete monitoring for other required success criteria.

4.2.5 Vegetation Coverage in the Transition Zone

The development of the vegetation coverage within the transition zone will be measured to demonstrate that this area has sufficient shrub coverage to support Ridgway’s rail refugia vegetation coverage. The monitoring will measure absolute coverage of shrubs in the transition zone or the density of shrubs in the transition zone. Density of shrubs will be used to measure success in the early years when individual shrubs are still small. Absolute coverage of shrubs will be used in later years when the size of the shrubs start to become substantial. The vegetation coverage of shrubs will be measured using one of the following methods:

- Vegetation count of live shrubs species within the transition zone; and/or
- Acquire high-resolution aerial imagery collected with a UAV, estimate percent coverage manually or using eCognition software, and verify desktop analysis on-the-ground.

Vegetation Counts

Utilizing the planting palette developed for the transition zone, qualified biologists will walk the transition zone and monitor all live shrub species within this zone to determine the planting success.

Aerial Imagery with eCognition

Similar analyses will be completed as that described above for the tidal marsh.

4.2.6 Seasonal Wetland Hydrology

The hydrology of the seasonal wetland will be measured by collecting data that demonstrates that the soils within the seasonal wetland are saturated or inundated for the required minimum duration of 14 consecutive days. Data will be collected using one of the following or an equivalent method:

- Installation and data collection from a shallow groundwater well;
- Installation and inspection of a staff gauge; or
- Field verification of inundation.

4.2.7 Vegetation Coverage in the Seasonal Wetlands

The development of vegetation coverage within the created seasonal wetland and a reference seasonal wetland identified within the parcel will be monitored to demonstrate that the rate of revegetation is on-track based on the performance requirements for the Project as outlined in Table 5. The established reference wetland will be a local depressional wetland within undisturbed areas of the property of similar size to the restored seasonal wetland. The absolute cover of vegetation within the restored seasonal wetland and reference seasonal wetland will be measured through using the following or an equivalent method:

- Manual monitoring of vegetated areas using the transect-quadrat method

Transect-Quadrat Vegetation Monitoring

Similar transect-quadrat methods as discussed above will be utilized for monitoring both the restored seasonal wetland and reference seasonal wetland habitat (see Figure 2, attached). The restored and reference seasonal wetland will have transects established; spaced 50 feet apart across the longest portion of the wetland and one transect extending perpendicular through the narrowest portion of the wetland. Given the relatively smaller size of the seasonal wetlands, the perpendicular transect has been included to ensure that transects adequately capture the variation of depth within each depressional feature. The application of quadrats will follow the same random number assignment and spacing as described above. Species composition and percent cover will be collected through this methodology.

4.2.8 Access Control Fence

The access control fence will be inspected during annual monitoring site visits to confirm it remains in working condition. The fence will be repaired or replaced as-needed. The tidal marsh areas, transition zone, and upland refugia area will be inspected for evidence of significant anthropogenic disturbances.

4.3 Remedial Actions

If annual or final success criteria are not met, the District will prepare an analysis of the potential cause(s) of failure and, if determined necessary by the permitting agencies, propose remedial action for approval. Subsequent annual and final monitoring reports may be required to confirm that remedial actions were successful. The District will be responsible for reasonably funding the remedial actions necessary for successful completion of the mitigation efforts. Remedial actions may include additional planting of native wetland species, noxious weed abatement activities, or modification of Project features to ensure proper hydrological functioning.

4.4 Reporting

The first year's Annual Report will be submitted by January 31 after the first full growing season and associated performance monitoring activities have been completed. Subsequent Annual Reports will cover the monitoring year beginning at the start of the rainy season (approximately October 1st), and will cover 12 calendar months forward from that point, with submittal occurring by January 31 of the following year. Reports will summarize the monitoring results and make recommendations for maintenance or management, if determined necessary. The condition of seeded wetland areas shall be described, as well as any observed threats to these restored areas. New colonization of invasive species and plans for their removal or control shall be detailed, as necessary. The Final (Year 5) Annual Report will also include a formal delineation of jurisdictional wetlands and present an evaluation of whether the restoration area has become sufficiently self-sustaining or whether additional invasive species control work or other monitoring should be performed.

5.0 COMPLETION OF MITIGATION

5.1 Notification of Completion

Upon completion of the monitoring period, final reports will be sent to the permitting agencies detailing the results of the final year of monitoring. In addition, a Notice of Completion will be prepared, signed by the District, and submitted to the permitting agencies to confirm successful completion of the restoration effort.

6.0 REFERENCES

California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. California Invasive Plant Council, Berkeley, CA. Available online: <https://www.cal-ipc.org/plants/inventory/>.

San Francisco Bay Conservation and Development Commission. 1968. San Francisco Bay Plan. Reprinted March 2012.

WRA. 2015. Jurisdictional Delineation Report. Wetland Restoration Design and Permitting Support Services at Corte Madera Ecological Reserve. Prepared for Golden Gate Bridge Highway and Transportation District.

FIGURES

Figure 1. Vicinity Map - Project Area Location



Sources: National Geographic, WRA | Prepared By: mweidenbach, 7/24/2019

Figure 1. Vicinity Map - Project Area Location

Corte Madera Four-Acre
 Tidal Marsh Restoration Project
 Town of Corte Madera, Marin County, California

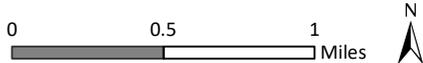


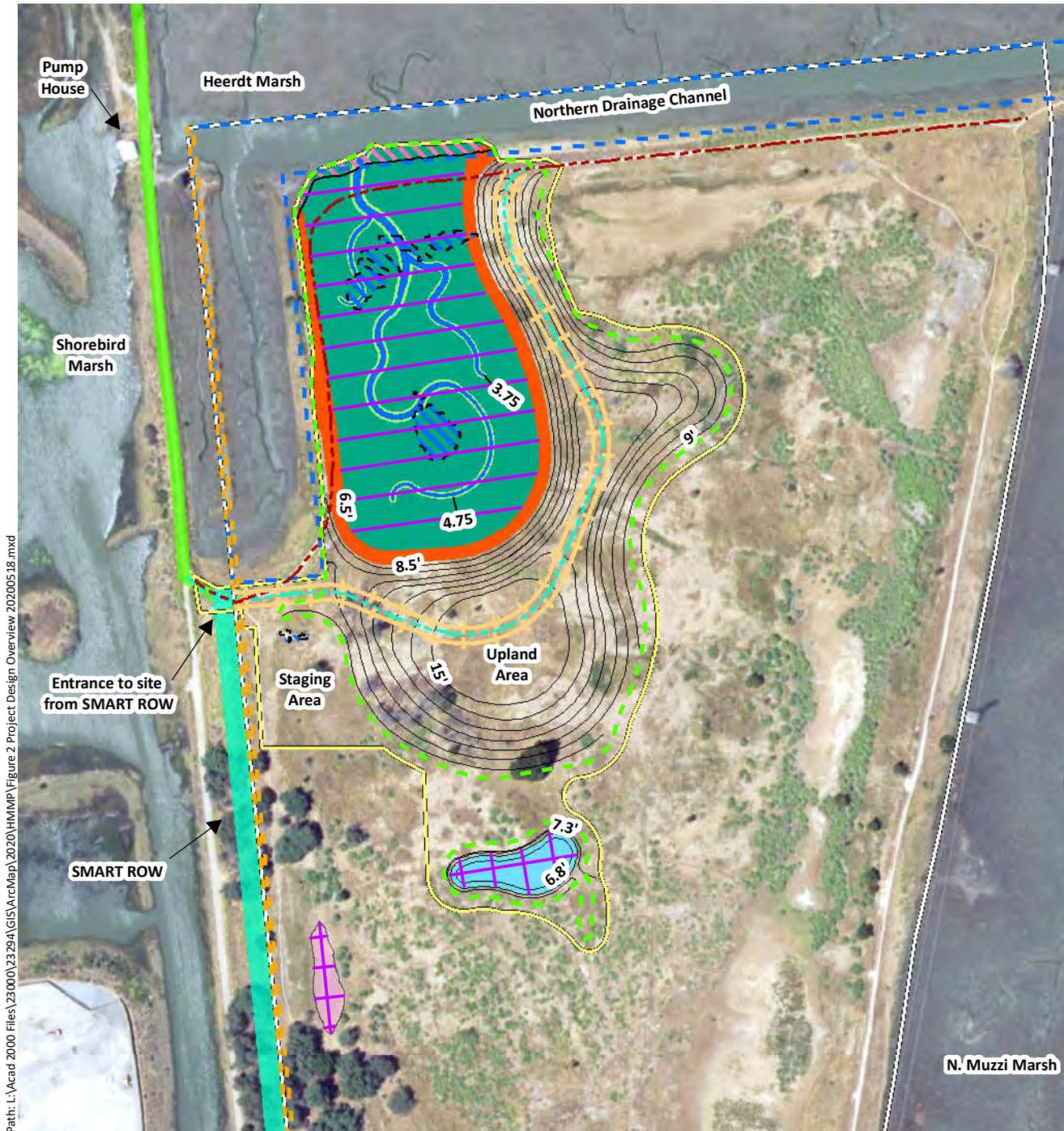
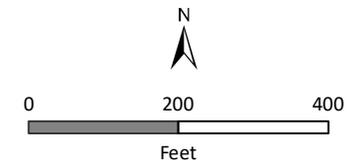
Figure 2. Project Design Overview

Figure 2.
Project Design Overview

Corte Madera Four-Acre
Tidal Marsh Restoration Project
Town of Corte Madera,
Marin County, California

-  Parcel Boundary (72.31 ac)
-  Project Area (14.71 ac)
-  Monitoring Transects
-  Reference Wetland
-  Existing Unsanctioned Trail
-  Proposed Informal Trail
-  Pedestrian/Animal Exclusion Fence
-  Limit of Grading (12.16 ac)
-  Grading Contours
- Existing Seasonal Wetlands**
-  Permanent Impact (0.28 ac)
- Existing Tidal Marsh**
-  Temporary Impact (0.18 ac)*
- Existing Easements (surveyed)**
-  Town of Corte Madera Drainage Easement
-  AT&T Easement
- District Access Easements (mapped from legal descriptions)**
-  20' Public Access Easement within SMART ROW
-  35' Public Access Easement within SMART ROW
- Proposed Habitat Restoration**
-  Tidal Marsh - Channel (0.30 ac)
-  Tidal Marsh - Low Marsh (0.23 ac)
-  Tidal Marsh - High Marsh (3.77 ac)
-  Upland Transition Zone (0.75 ac)
-  Seasonal Wetlands (0.28 ac.)

*This impact will result in the conversion of 0.01 ac. of High Marsh to Tidal Channel



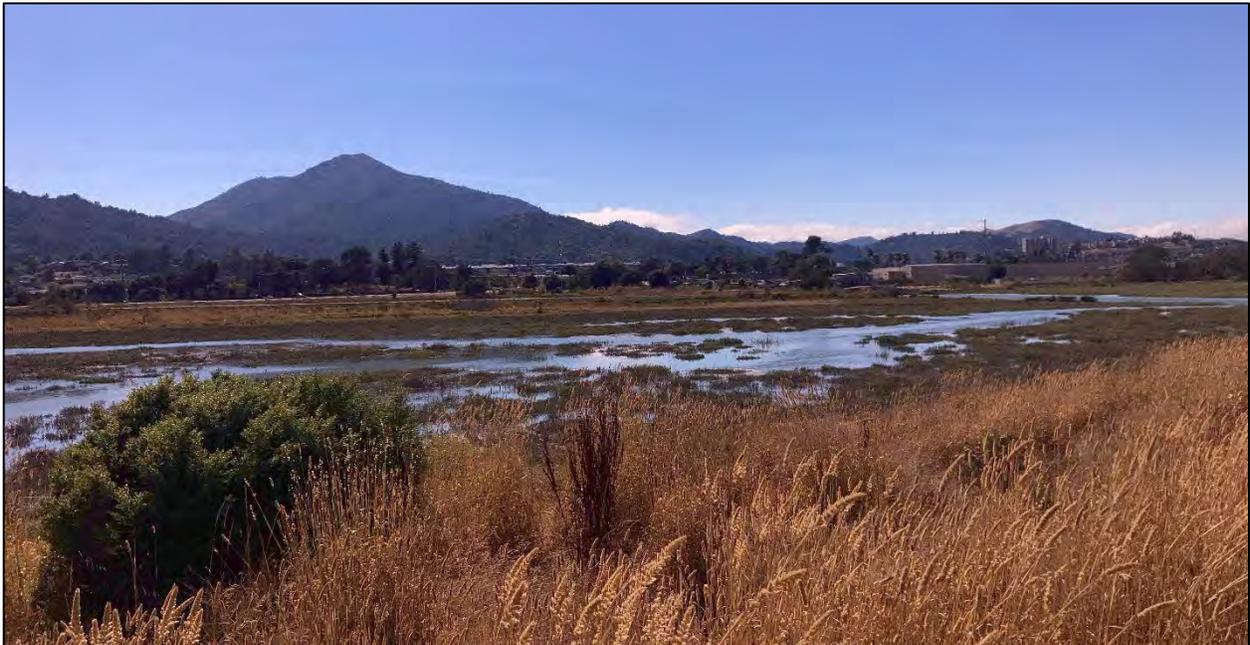
Path: L:\Acad 2000 Files\23\000\23\294\GIS\ArcMap\2020\HMMP\Figure 2 Project Design Overview 20200518.mxd

APPENDIX C. SITE PHOTOGRAPHS





Photograph 1. Photo-monitoring Location 1. View of transition zone and tidal marsh, facing west. Photo was taken at high tide – predicted at 5.82 ft MLLW at 4:05 pm. Photo taken August 13, 2025.



Photograph 2. Photo-monitoring Location 2. View of tidal marsh (background), transition zone (a narrow band adjacent to the tidal marsh), and uplands (foreground), facing northwest. Photo was taken at high tide – predicted at 5.82 ft MLLW at 4:05 pm. Photo taken August 13, 2025.



Photograph 3. Photo-monitoring Location 3. View of trail and exclusion fence, facing southeast. Photo taken August 13, 2025.



Photograph 4. Photo-monitoring Location 4. View from trail and exclusion fence, facing east. Photo taken October 17, 2025.



Photograph 5. Photo-monitoring Location 5. View of upland disposal area with seasonal wetland in background, facing south. Photo taken June 13, 2025.



Photograph 6. Photo-monitoring Location 6. View of restored seasonal wetland, facing west. Photo taken June 13, 2025.



Photograph 7. Photo-monitoring Location 7. View of restored seasonal wetland, facing east. Photo taken June 13, 2025.



Photograph 8. Photo-monitoring Location 8. View of transition zone and tidal marsh, facing northeast. The tidal marsh vegetation in view is pickleweed (*Salicornia pacifica*) and the transition zone vegetation is blocked in the foreground by emerging Harding grass (*Phalaris aquatica*). Photo was taken at high tide – predicted at 5.82 ft MLLW at 4:05 pm. Photo taken August 13, 2025.



Photograph 9. Photo-monitoring Location 9. View of tidal marsh, facing east. Tidal marsh vegetation in view is dominated by pickleweed. Photo was taken at high tide – predicted at 5.82 ft MLLW at 4:05 pm. Photo taken August 13, 2025.



Photograph 10. Photo-monitoring Location 10. View of restored tidal marsh and adjacent previously existing marsh, facing north. Tidal marsh vegetation is dominated by pickleweed. Photo was taken at high tide – predicted at 5.82 ft MLLW at 4:05 pm. Photo August 13, 2025



Photograph 11. View of the high marsh in the restored tidal marsh. Image shows expanding native plantings, primarily a robust population of pickleweed, as well as natural native species recruits. Photo taken September 26, 2025.



Photograph 12. View of the low marsh (channel) and high marsh in the restored tidal marsh, facing west. Image shows expanding native plantings as well as natural native species recruits, primarily cordgrass. Photo taken September 26, 2025.



Photograph 13. View of the restored seasonal wetland, facing west. Image shows the wetland fully inundated. Photo taken January 23, 2025.



Photograph 14. View of restored seasonal wetland, facing southwest. Image shows the wetland fully inundated. Photo taken on February 13, 2025.



Photograph 15. View of restored seasonal wetland, facing southwest. Wetland was fully inundated. Photo taken on February 28, 2025.



Photograph 16. View of the restored seasonal wetland, facing east. Wetland soils were damp but no longer saturated at the time of the visit. Photo taken May 02, 2025.



Photograph 17. Harding grass (*Phalaris aquatica*) plastic solarization sheeting at the northeast end of the restored season wetland area. View facing southwest. Photo taken May 28, 2025.



Photograph 18. Harding grass plastic solarization sheeting at the northeast end of the restored seasonal wetland area. View facing northeast. Photo taken June 13, 2025.



Photograph 19. Excavator digging up pampas grass (*Cortaderia selloana*) north of the restored seasonal wetland. Photo taken on August 6, 2025.



Photograph 20. Trimming leaves from pampas grass to prep it for excavation. Photo taken August 1, 2025.



Photo 21: Photo of *Elymus triticoides* patches throughout the restored seasonal wetland. Photo taken facing east from the west terminus of the restored seasonal wetland. Robust patches were not present during annual vegetation monitoring in June 2025 (See Photo 7). Photograph taken on October 17, 2025.



Photo 22: Photo of *Elymus triticoides* patches throughout the restored seasonal wetland. Photo taken facing west from the east terminus of the restored seasonal wetland. Robust patches were not present during annual vegetation monitoring in June 2025 (See Photo 7). Photograph taken on October 17, 2025.



Photo 23: Photo of *Elymus triticoides* patches throughout the restored seasonal wetland. Photo taken facing east from the middle of the northern border of the restored seasonal wetland. Robust patches were not present during annual vegetation monitoring in June 2025 (See Photo 7). Photograph taken on October 17, 2025.



Photo 24: Photo of *Elymus triticoides* patches throughout the restored seasonal wetland. Photo taken facing north from the middle of the southern border of the restored seasonal wetland. Robust patches were not present during annual vegetation monitoring in June 2025 (See Photo 7). Photograph taken on October 17, 2025.



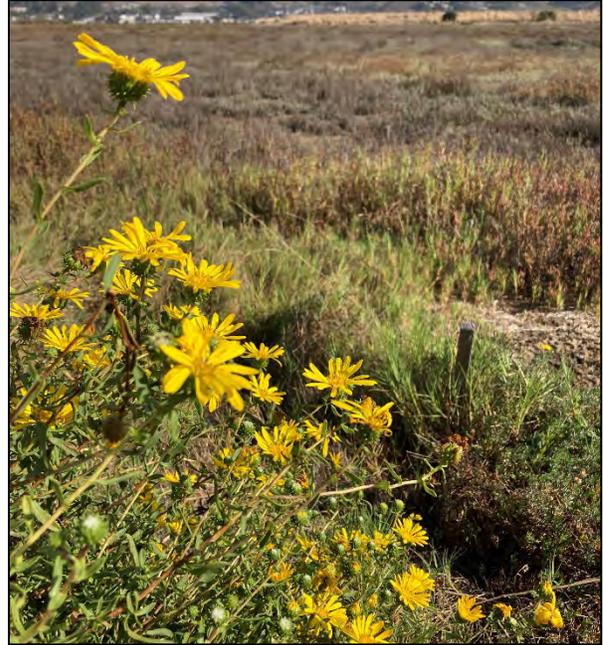
Photo 25: Large, dense patches of *Elymus triticoides* shown growing in the north margin of the seasonal wetland. Photo taken December 10, 2025.



Photo 26: Large, dense patches of *Elymus triticoides* shown growing in the south margin of the seasonal wetland. Photo taken December 10, 2025.



Photograph 27. *Elymus triticoides* successfully colonizing areas reseeded in restored seasonal wetland. Photo taken on October 17, 2025.



Photograph 29. *Grindelia stricta* plantings growing in the transition zone. Photo taken on September 26, 2025.



Photograph 28. *Baccharis glutinosa* growing vigorously in the transition zone, growing interspersed with Harding grass. Photo taken on September 3, 2025.

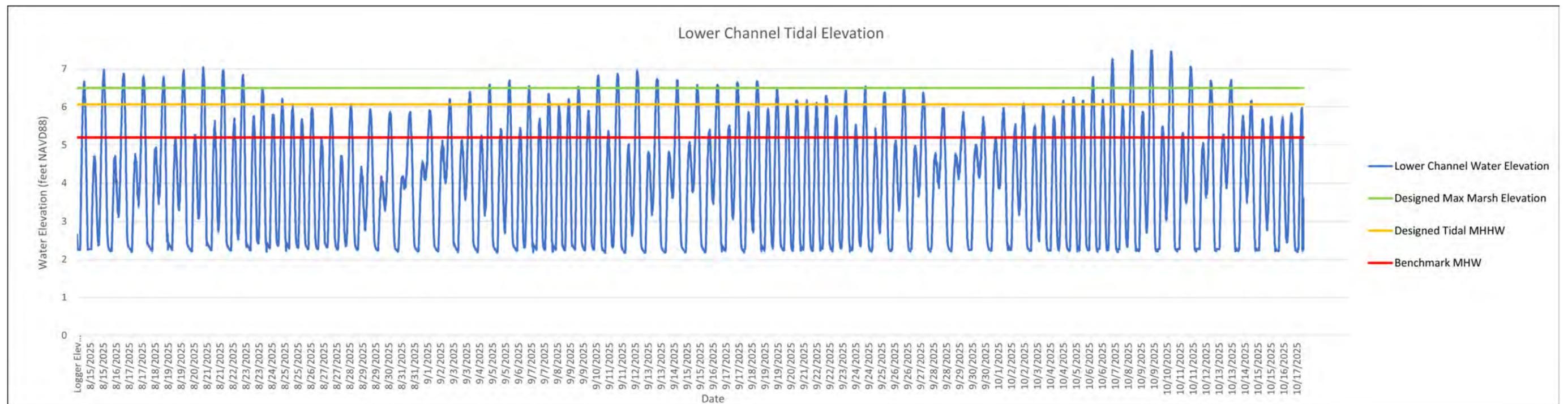
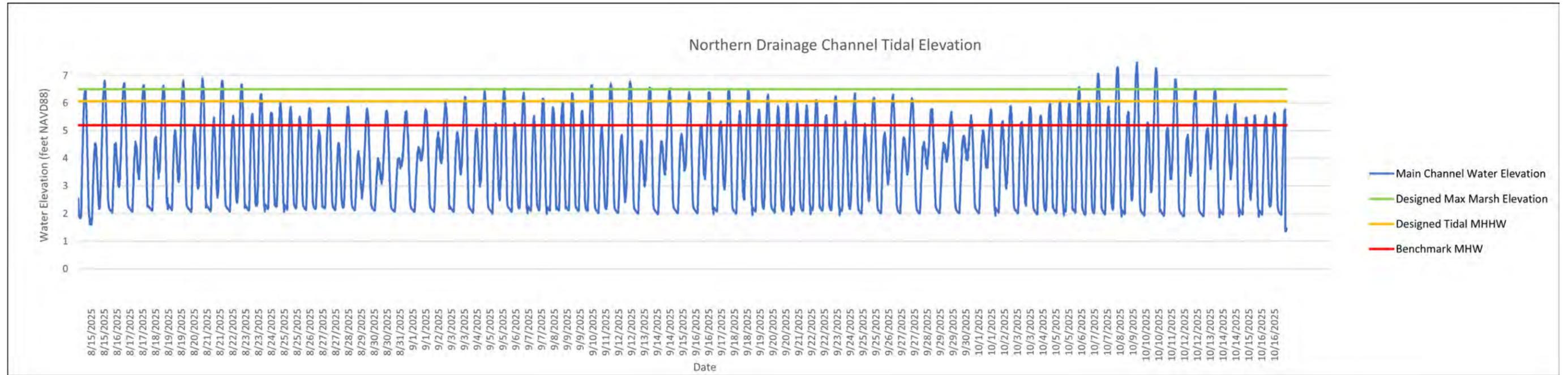


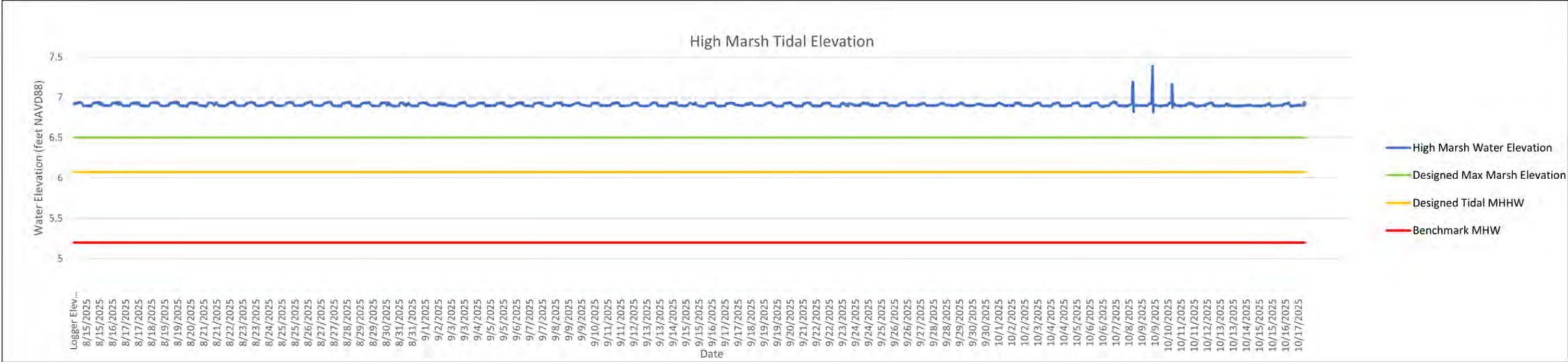
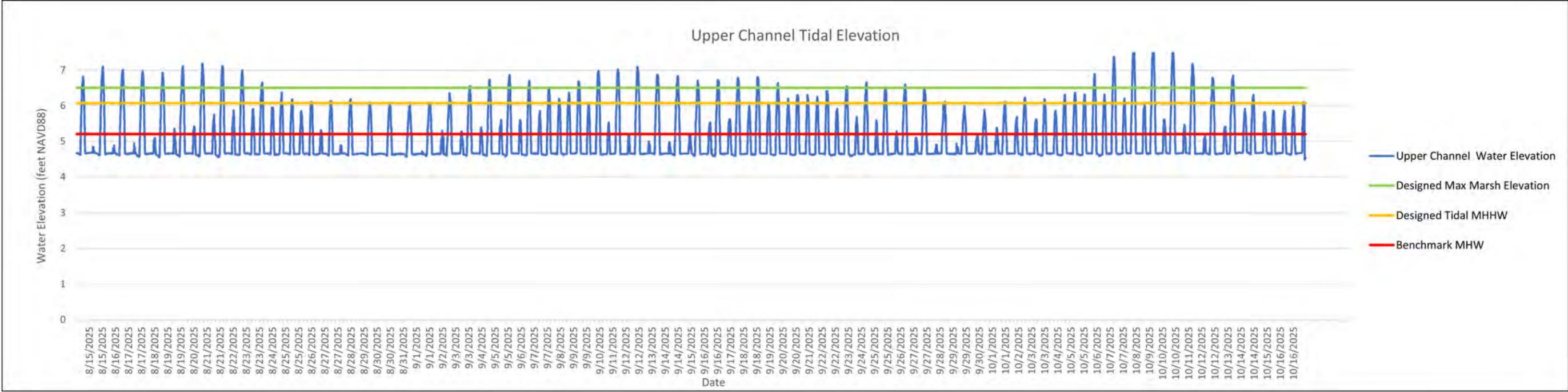
Photograph 30. Representative photograph of the transition zone. *Baccharis pilularis* grows robustly in the transition zone. Photo taken on January 23, 2025.

APPENDIX D. TIDAL ELEVATION MONITORING DATA



Appendix D. Tidal Elevation Monitoring Data





APPENDIX E. VEGETATION MONITORING DATA



Appendix E. Vegetation Monitoring Data

YEAR 4 MONITORING OBSERVERS: LAURA POWERS, CAROLINE ERICKSON DATE: 6/13/2025				AVERAGE FOR RESTORED SEASONAL WETLAND		RESTORED SEASONAL WETLAND																							
SPECIES	COMMON NAME	ORIGIN	CAL-IPC STATUS	ABSOLUTE PERCENT	PRESENT?	ABSOLUTE PERCENT COVER (%)																							
						Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
<i>Agrostis avenacea</i>	Pacific bentgrass	Exotic	Cal-IPC Limited	12.8	Y	7	15	t	t	3	0	5	0	0	5	7	20	10	10	30	t	10	3	0	10	85	5	0	0
<i>Atriplex prostrata</i>	Fat-hen	Exotic	Exotic	0.3	Y	0	0	0	0	0	2	7	1	0	0	0	0	t	0	0	0	0	0	0	t	0	1	0	2
<i>Cenchrus clandestinus</i>	Kikuyu grass	Exotic	Cal-IPC Limited	0.5	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0
<i>Cortaderia selloana</i>	pampas grass	Invasive	Cal-IPC High	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cotula coronopifolia</i>	brassbuttons	Exotic	Cal-IPC Limited	13.2	Y	15	15	35	35	40	60	70	10	5	95	55	10	0	5	20	0	1	15	25	10	0	5	15	5
<i>Cyperus eragrostis</i>	tall flatsedge	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diplachne fusca</i>	sprangletop	Native	Native	0.1	Y	0	0	0	0	0	t	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Dittrichia graveolens</i>	stinkwort	Exotic	Cal-IPC Moderate	0.7	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	t	0	0	0	0	0	0	7
<i>Eleocharis macrostachya</i>	common spike rush	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Elymus triticoides</i>	creeping wild rye	Native	Native	9.2	Y	0	3	0	0	0	0	0	0	0	0	5	0	2	2	0	0	0	0	0	0	0	0	0	7
<i>Festuca perennis</i>	Italian rye grass	Exotic	Cal-IPC Moderate	0.1	Y	0	0	0	0	0	0	0	t	0	0	0	0	0	0	0	2	0	0	0	0	t	0	0	1
<i>Hordeum brachyantherum</i>	meadow barley	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lotus corniculatus</i>	birdsfoot trefoil	Exotic	Exotic	1.1	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lythrum hyssopifolia</i>	hyssop loosestrife	Exotic	Cal-IPC Moderate	t	Y	0	0	0	0	0	0	t	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	t
<i>Phalaris aquatica</i>	Harding grass	Exotic	Cal-IPC Moderate	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polygonum aviculare</i>	prostrate knotweed	Exotic	Exotic	9.5	Y	0	0	t	t	5	10	t	2	90	0	0	0	2	0	0	2	25	5	t	1	0	1	4	5
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Exotic	Cal-IPC Limited	12.1	Y	t	0	t	0	2	10	10	2	0	t	0	20	10	0	0	0	0	0	0	0	0	t	2	0
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	Exotic	Exotic	t	Y	0	0	0	0	0	0	t	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rumex crispus</i>	curly dock	Exotic	Cal-IPC Limited	0.3	Y	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

YEAR 4 MONITORING OBSERVERS: LAURA POWERS, CAROLINE ERICKSON DATE: 6/13/2025						RESTORED SEASONAL WETLAND																							
SPECIES	COMMON NAME	ORIGIN	CAL-IPC STATUS	ABSOLUTE PERCENT	PRESENT?	ABSOLUTE PERCENT COVER (%)																							
						Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
<i>Symphoricarum subulatum</i>	eastern annual saltmarsh aster	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Vicia</i> sp.	vetch sp.	NA	NA	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xanthium strumarium</i>	rough cocklebur	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Litter/Thatch				18.3	-	63	10	10	10	20	1	2	35	5	0	2	50	12	20	40	60	19	50	5	15	15	12	30	29
Bare Ground				7.5	-	0	0	0	0	t	0	0	0	t	t	0	0	t	0	0	26	20	0	0	0	0	0	0	0
Biotic Crust				18.6	-	15	47	55	55	30	17	6	50	t	0	31	0	64	63	10	10	0	27	70	64	0	76	49	43
Average Plant Cover				57.0	-	22	43	35	35	50	82	92	15	95	100	67	50	24	17	50	4	61	23	25	21	85	12	21	28
Average Number Native Plant Species				0.5	-	0	1	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	2
Average Native Cover				9.2	-	0	3	0	0	0	0	0	0	0	0	5	0	2	2	0	0	0	0	0	0	0	0	0	7
Relative Native Cover				12.5	-	0	7	0	0	0	0	0	0	0	0	7	0	8	12	0	0	0	0	0	0	0	0	0	25
Average Number Invasive (Cal-IPC High) Plant Species				0.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Invasive (Cal-IPC High) Cover				0.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Table continued below (Q25–Q48)

YEAR 4 MONITORING OBSERVERS: LAURA POWERS, CAROLINE ERICKSON DATE: 6/13/2025						RESTORED SEASONAL WETLAND																							
AVERAGE FOR RESTORED SEASONAL WETLAND						ABSOLUTE PERCENT COVER (%)																							
SPECIES	COMMON NAME	ORIGIN	CAL-IPC STATUS	ABSOLUTE PERCENT	PRESENT?	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	Q43	Q44	Q45	Q46	Q47	Q48
<i>Agrostis avenacea</i>	Pacific bentgrass	Exotic	Cal-IPC Limited	12.8	Y	1	2	6	20	3	0	30	15	10	0	t	10	20	30	40	15	50	2	15	0	5	5	20	40
<i>Atriplex prostrata</i>	Fat-hen	Exotic	Exotic	0.3	Y	0	t	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cenchrus clandestinus</i>	Kikuyu grass	Exotic	Cal-IPC Limited	0.5	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cortaderia selloana</i>	pampas grass	Invasive	Cal-IPC High	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cotula coronopifolia</i>	brassbuttons	Exotic	Cal-IPC Limited	13.2	Y	70	15	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyperus eragrostis</i>	tall flatsedge	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diplachne fusca</i>	sprangletop	Native	Native	0.1	Y	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dittrichia graveolens</i>	stinkwort	Exotic	Cal-IPC Moderate	0.7	Y	0	0	0	0	t	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	5	0	0	0
<i>Eleocharis macrostachya</i>	common spike rush	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Elymus triticoides</i>	creeping wild rye	Native	Native	9.2	Y	0	0	0	40	0	35	1	0	0	20	80	0	0	15	1	10	0	50	0	55	60	10	15	30
<i>Festuca perennis</i>	Italian rye grass	Exotic	Cal-IPC Moderate	0.1	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hordeum brachyantherum</i>	meadow barley	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lotus corniculatus</i>	birdsfoot trefoil	Exotic	Exotic	1.1	Y	0	0	0	0	0	0	0	0	0	0	0	25	0	0	30	0	0	0	0	0	0	0	0	0
<i>Lythrum hyssopifolia</i>	hyssop loosestrife	Exotic	Cal-IPC Moderate	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	t	0
<i>Phalaris aquatica</i>	Harding grass	Exotic	Cal-IPC Moderate	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polygonum aviculare</i>	prostrate knotweed	Exotic	Exotic	9.5	Y	0	10	0	0	70	0	5	0	30	0	0	35	5	0	0	0	1	10	20	20	10	50	0	0
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Exotic	Cal-IPC Limited	12.1	Y	2	3	40	30	10	60	25	25	40	65	10	6	40	10	0	20	10	0	15	1	3	15	35	10
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	Exotic	Exotic	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rumex crispus</i>	curly dock	Exotic	Cal-IPC Limited	0.3	Y	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Symphoricarum subulatum</i>	eastern annual saltmarsh aster	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

YEAR 4 MONITORING OBSERVERS: LAURA POWERS, CAROLINE ERICKSON DATE: 6/13/2025						AVERAGE FOR RESTORED SEASONAL WETLAND		RESTORED SEASONAL WETLAND																											
						ABSOLUTE PERCENT COVER (%)																													
SPECIES	COMMON NAME	ORIGIN	CAL-IPC STATUS	ABSOLUTE PERCENT	PRESENT?	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	Q43	Q44	Q45	Q46	Q47	Q48						
<i>Vicia</i> sp.	vetch sp.	NA	NA	t	Y	0	0	0	t	0	0	0	t	0	t	0	0	0	0	0	0	t	t	t	t	0	0	0	0	0					
<i>Xanthium strumarium</i>	rough cocklebur	Native	Native	t	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Litter/Thatch				18.3	-	0	0	53	0	7.5	0	19	0		7.5	0	0	30	20	20	10	15	38	35	5	17	20	30	20						
Bare Ground				7.5	-	0	0	0	9	7.5	5	20	58	20	7.5	10	4	5	25	9	45	24	0	15	19	0	0	0	0						
Biotic Crust				18.6	-	27	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Average Plant Cover				57.0	-	73	35	47	91	85	95	61	42	80	85	90	96	65	55	71	45	61	62	50	76	83	80	70	80						
Average Number Native Plant Species				0.5	-	0	1	0	1	0	1	1	0	0	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1						
Average Native Cover				9.2	-	0	0	0	40	0	35	1	0	0	20	80	0	0	15	1	10	0	50	0	55	60	10	15	30						
Relative Native Cover				12.5	-	0	0	0	44	0	37	2	0	0	24	89	0	0	27	1	22	0	81	0	72	72	13	21	38						
Average Number Invasive (Cal-IPC High) Plant Species				0.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Average Invasive (Cal-IPC High) Cover				0.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						

YEAR 4 MONITORING		OBSERVERS: LAURA POWERS, CAROLINE ERICKSON		DATE: 6/13/20225		AVERAGE FOR REFERENCE SEASONAL WETLAND		REFERENCE SEASONAL WETLAND																	
SPECIES	COMMON NAME	ORIGIN	CAL-IPC STATUS	ABSOLUTE PERCENT COVER (%)	PRESENT?	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
						Absolute Percent Cover (%)																			
<i>Agrostis avenacea</i>	pacific bentgrass	Exotic	Cal-IPC Limited	3.8	Y	35	7	t	0	0	0	0	0	0	3	5	0	10	0	t	0	5	0	3	0
<i>Atriplex prostrata</i>	fat-hen	Exotic	Exotic	0.1	Y	0	0	0	t	0	0	0	1	0	0	0	0	0	0	0	t	0	0	0	0
<i>Cotula coronopifolia</i>	brassbuttons	Exotic	Cal-IPC Limited	27.4	Y	0	10	50	20	t	5	50	30	40	40	45	50	3	12	20	35	10	15	35	50
<i>Festuca perennis</i>	Italian rye grass	Exotic	Cal-IPC Moderate	3.5	Y	35	t	0	0	0	0	0	0	0	0	0	1	7	10	t	0	5	0	1	t
<i>Lotus corniculatus</i>	birdsfoot trefoil	Exotic	Exotic	-	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polygonum aviculare</i>	Prostrate knotweed	Exotic	Exotic	2.6	Y	0	0	0	0	0	0	t	t	0	0	0	0	45	0	0	0	0	0	0	1
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Exotic	Cal-IPC Limited	-	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rumex crispus</i>	curly dock	Exotic	Cal-IPC Limited	-	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sesuvium verrucosum</i>	western sea-purslane	Native	Native	-	Y	0	0	0	0	t	t	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Spergularia macrotheca</i>	sticky sand-spurrey	Native	Native	-	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	t
<i>Xanthium orientale</i>	cocklebur	Native	Native	3.1	Y	10	0	2	7	0	15	0	10	0	0	t	2	3	3	0	1	5	0	0	0
Litter/Thatch				43.0		10	75	37	68	75	55	37	37	25	17	30	17	27	70	60	50	50	60	31	29
Bare Ground				9.3		5	0	1	5	15	20	10	12	20	0	0	0	5	5	10	12	25	15	20	5
Biotic Crust				10.7		5	8	10	0	10	5	3	10	15	40	20	30	0	0	10	2	t	10	10	15
Average Plant Cover				37.6	-	80	17	52	27	0	20	50	41	40	43	50	53	68	25	20	36	25	15	39	51
Average Number Native Plant Species				0.7	-	1	0	1	1	1	2	0	1	0	0	1	1	1	1	0	1	1	0	0	0
Average Native Cover				2.9	-	10	0	2	7	0	15	0	10	0	0	0	2	3	3	0	1	5	0	0	0
Relative Native Cover				9.2	-	12.5	0	3.85	25.9	0	75	0	24.4	0	0	0	3.77	4.41	12	0	2.78	20	0	0	0
Average Number Invasive (Cal-IPC High) Plant Species				0.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Invasive (Cal-IPC High) Cover				0.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX F. WETLAND DELINEATION DATA FORMS



Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP1
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc) toeslope Local Relief (concave, convex, none) none Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.933297°N Long: 122.510198°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks: _____)
 Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks) _____

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Wetland sample point paired with SP2 within restored seasonal wetland.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u>Agrostis avenacea</u>	<u>5' radius</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Elymus triticoides</u>		<u>7</u>	<u>No</u>	<u>FAC</u>	
3. <u>Lotus corniculatus</u>		<u>5</u>	<u>No</u>	<u>FAC</u>	
4. <u>Grindelia camporum</u>		<u>3</u>	<u>No</u>	<u>FACW</u>	
5. <u>Rumex crispus</u>		<u>2</u>	<u>No</u>	<u>FAC</u>	
6. <u>Cotula coronopifolia</u>		<u>2</u>	<u>No</u>	<u>OBL</u>	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>39</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____	_____	_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>6</u> % cover of biotic crust <u>0</u>					

Remarks: Vegetation passes dominance test. Hydrophytic vegetation present.

SOIL

Sampling Point SP1

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-4	2.5 Y 3/1	100					clay loam	high percentage of roots
4-7	2.5 Y 4/2	70	10 YR 4/6	30	C	M	clay loam	redox concentrations (INSERT)
7-10	2.5 Y 4/2	70	10 YR 5/6	30	C	M	clay loam	redox concentrations (INSERT)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Stripped Matrix |
| <input type="checkbox"/> Black Histic | <input type="checkbox"/> Loamy Mucky Mineral |
| <input type="checkbox"/> Hydrogen Sulfide | <input type="checkbox"/> Loamy Gleyed Matrix |
| <input type="checkbox"/> Stratified Layers (A5)(LRR) | <input checked="" type="checkbox"/> Depleted Matrix |
| <input type="checkbox"/> 1cm Muck (A9)(LRR) | <input type="checkbox"/> Redox Dark Surface |
| <input type="checkbox"/> Depleted Below Dark Surface | <input type="checkbox"/> Depleted Dark Surface |
| <input type="checkbox"/> Thick Dark Surface | <input type="checkbox"/> Redox Depressions |
| <input type="checkbox"/> Sandy Mucky Mineral | <input type="checkbox"/> Vernal Pools |
| <input type="checkbox"/> Sandy Gleyed Matrix | |

Indicators for Problematic Hydric Soils³:

- 1cm Muck (A9) (LRR)
- 2cm Muck (A10)(LRR)
- Reduced Vertic
- Red Parent Material
- Other (explain in _____)

³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: none
 Depth (inches): N/A

Hydric Soil Present ? Ye No

Remarks: Depleted matrix (F3) hydric soil indicator present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|---|---|
| <input checked="" type="checkbox"/> Surface Water | <input type="checkbox"/> Salt Crust |
| <input checked="" type="checkbox"/> High Water Table | <input type="checkbox"/> Biotic Crust |
| <input checked="" type="checkbox"/> Saturation | <input type="checkbox"/> Aquatic Invertebrates |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots |
| <input checked="" type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron |
| <input type="checkbox"/> Surface Soil Cracks | <input type="checkbox"/> Recent Iron Reduction in PLOWed Soils |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery | <input type="checkbox"/> Other (Explain in _____) |
| <input type="checkbox"/> Water-Stained Leaves | |

Secondary Indicators (2 or more required)

- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Drainage Patterns
- Dry-Season Water Table
- Thin Muck Surface
- Crayfish Burrows
- Saturation Visible on Aerial Imagery
- Shallow Aquitard
- FAC-Neutral Test

Field Observations:

Surface water present? Yes No Depth (inches): 0
 Water table present? Yes No Depth (inches): 0
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present ? Ye No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Surface water present within 5 feet of sample point. Surface water (A1), high water table (A2), and saturation (A3) hydrology indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP2
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) convex Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.933333°N Long: 122.510178°W Datum: _____
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: Upland sample point paired with SP1	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>3</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>33</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <i>Genista monspessulana</i>	<u>10' radius</u>	<u>5</u>	<u>Yes</u>	<u>NL</u>	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: <u>5</u>					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <i>Phalaris aquatica</i>	<u>5' radius</u>	<u>60</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Festuca perennis</i>		<u>15</u>	<u>Yes</u>	<u>FAC</u>	
3. <i>Vicia</i> sp.		<u>+</u>	<u>No</u>	<u>-</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>75</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____	_____	_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>25</u>		% cover of biotic crust <u>0</u>			

Remarks: Vegetation does not pass dominance test. Hydrophytic vegetation not present.

SOIL

Sampling Point SP2

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-0.5								roots
0-16	10 YR 4/2	90	10 YR 3/6	10	C	M	clay	redox concentrations (INSERT)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Black Histic <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Stratified Layers (A5)(LRR) <input type="checkbox"/> 1cm Muck (A9)(LRR) <input type="checkbox"/> Depleted Below Dark Surface <input type="checkbox"/> Thick Dark Surface <input type="checkbox"/> Sandy Mucky Mineral <input type="checkbox"/> Sandy Gleyed Matrix	<input type="checkbox"/> Sandy Redox <input type="checkbox"/> Stripped Matrix <input type="checkbox"/> Loamy Mucky Mineral <input type="checkbox"/> Loamy Gleyed Matrix <input checked="" type="checkbox"/> Depleted Matrix <input type="checkbox"/> Redox Dark Surface <input type="checkbox"/> Depleted Dark Surface <input type="checkbox"/> Redox Depressions <input type="checkbox"/> Vernal Pools	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR) <input type="checkbox"/> 2cm Muck (A10)(LRR) <input type="checkbox"/> Reduced Vertic <input type="checkbox"/> Red Parent Material <input type="checkbox"/> Other (explain in _____)
--	---	---

³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>none</u> Depth (inches): <u>N/A</u>	Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No
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Remarks: Redox features continue upslope despite dry conditions and upland vegetation. Depleted matrix (F3) hydric soil indicator present.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water <input type="checkbox"/> High Water Table <input type="checkbox"/> Saturation <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Surface Soil Cracks <input type="checkbox"/> Inundation Visible on Aerial Imagery <input type="checkbox"/> Water-Stained Leaves	<input type="checkbox"/> Salt Crust <input type="checkbox"/> Biotic Crust <input type="checkbox"/> Aquatic Invertebrates <input type="checkbox"/> Hydrogen Sulfide Odor <input type="checkbox"/> Oxidized Rhizospheres along Living Roots <input type="checkbox"/> Presence of Reduced Iron <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils <input type="checkbox"/> Other (Explain in _____)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Drainage Patterns <input type="checkbox"/> Dry-Season Water Table <input type="checkbox"/> Thin Muck Surface <input type="checkbox"/> Crayfish Burrows <input type="checkbox"/> Saturation Visible on Aerial Imagery <input type="checkbox"/> Shallow Aquitard <input type="checkbox"/> FAC-Neutral Test
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Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>17</u> (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Ye <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Saturation present at too deep below ground surface to qualify as Saturation (A3) indicator. No wetland hydrology present.

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP3
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) concave Slope(%) 0-2
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.932768°N Long: 122.511361°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Wetland sample point in reference seasonal wetland. Paired with SP4	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1.	<u>N/A</u>				Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2.					
3.					
4.					
Tree Stratum Total Cover: <u>-</u>					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1.	<u>N/A</u>				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2.					
3.					
4.					
Sapling/Shrub Stratum Total Cover: <u>-</u>					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1.	<u>5' radius</u>				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2.					
3.					
4.					
5.					
6.					
7.					
8.					
Herb Stratum Total Cover: <u>35</u>					
Woody Vines Total Cover: <u>-</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1.	<u>N/A</u>				Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2.					
Woody Vines Total Cover: <u>-</u>					
% Bare ground in herb stratum <u>15</u> % cover of biotic crust <u>50</u>					

Remarks: Agrostis avenacea and Polygonum aviculare young, but identifiable. Crust is present, but not algal. Appears to be last year's annual plants. Waterlogged and degraded. Vegetation passes dominance test. Hydrophytic vegetation present.

SOIL

Sampling Point SP3

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-0.5								O horizon
0-3	10 YR 4/2	90	10 YR 4/6	10	C	PL	clay	oxidized rhizospheres
3-16	10 YR 4/2	80	10 YR 4/6	20	C	M	clay	redox along cracks

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon
- Black Histic
- Hydrogen Sulfide
- Stratified Layers (A5)(LRR)
- 1cm Muck (A9)(LRR)
- Depleted Below Dark Surface
- Thick Dark Surface
- Sandy Mucky Mineral
- Sandy Gleyed Matrix
- Sandy Redox
- Stripped Matrix
- Loamy Mucky Mineral
- Loamy Gleyed Matrix
- Depleted Matrix
- Redox Dark Surface
- Depleted Dark Surface
- Redox Depressions
- Vernal Pools

Indicators for Problematic Hydric Soils³:

- 1cm Muck (A9) (LRR)
- 2cm Muck (A10)(LRR)
- Reduced Vertic
- Red Parent Material
- Other (explain in _____)

³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: none
 Depth (inches): N/A

Hydric Soil Present ? Ye No

Remarks: Soils very crumbly. Depleted matrix (F3) hydric soil indicator present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water
- High Water Table
- Saturation
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Surface Soil Cracks
- Inundation Visible on Aerial Imagery
- Water-Stained Leaves
- Salt Crust
- Biotic Crust
- Aquatic Invertebrates
- Hydrogen Sulfide Odor
- Oxidized Rhizospheres along Living Roots
- Presence of Reduced Iron
- Recent Iron Reduction in PLOWed Soils
- Other (Explain in _____)

Secondary Indicators (2 or more required)

- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Drainage Patterns
- Dry-Season Water Table
- Thin Muck Surface
- Crayfish Burrows
- Saturation Visible on Aerial Imagery
- Shallow Aquitard
- FAC-Neutral Test

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): 2
 Saturation Present? Yes No Depth (inches): 2
 (includes capillary fringe)

Wetland Hydrology Present ? Ye No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: High water table (A2) and saturation (A3) wetland hydrology indicators present.

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP04
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) concave Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.932796°N Long: 122.511302°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: Upland sample point paired with SP03, Upland from reference seasonal wetland	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? _____ (A) Total number of dominant species across all strata? _____ (B) % of dominant species that are OBL, FACW, or FAC? _____ (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species <u>15</u> x3 <u>45</u> FACU species <u>40</u> x4 <u>160</u> UPL species _____ x5 _____ Column Totals <u>55</u> (A) <u>205</u> (B) Prevalence Index = B/A = <u>3.7</u>
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u>Cortaderia sellanoa</u>	<u>5'</u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca perennis</u>		<u>10</u>	<u>No</u>	<u>FAC</u>	
3. <u>Lotus corniculatus</u>		<u>5</u>	<u>No</u>	<u>FAC</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>55</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>45</u>		% cover of biotic crust <u>0</u>			

Remarks: Trace coverage of cotyledons that are too young to ID accurately.

SOIL

Sampling Point SP04

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
-03-0								Abundant roots
0-12	10 YR 5/1	75	10 YR 3/6	25	C	M	Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon</p> <p><input type="checkbox"/> Black Histic</p> <p><input type="checkbox"/> Hydrogen Sulfide</p> <p><input type="checkbox"/> Stratified Layers (A5)(LRR)</p> <p><input type="checkbox"/> 1cm Muck (A9)(LRR)</p> <p><input type="checkbox"/> Depleted Below Dark Surface</p> <p><input type="checkbox"/> Thick Dark Surface</p> <p><input type="checkbox"/> Sandy Mucky Mineral</p> <p><input type="checkbox"/> Sandy Gleyed Matrix</p> <p><input type="checkbox"/> Sandy Redox</p> <p><input type="checkbox"/> Stripped Matrix</p> <p><input type="checkbox"/> Loamy Mucky Mineral</p> <p><input type="checkbox"/> Loamy Gleyed Matrix</p> <p><input checked="" type="checkbox"/> Depleted Matrix</p> <p><input type="checkbox"/> Redox Dark Surface</p> <p><input type="checkbox"/> Depleted Dark Surface</p> <p><input type="checkbox"/> Redox Depressions</p> <p><input type="checkbox"/> Vernal Pools</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1cm Muck (A9) (LRR)</p> <p><input type="checkbox"/> 2cm Muck (A10)(LRR)</p> <p><input type="checkbox"/> Reduced Vertic</p> <p><input type="checkbox"/> Red Parent Material</p> <p><input type="checkbox"/> Other (explain in _____)</p> <p>³Indicators of hydric vegetation and wetland hydrology must be present.</p>
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<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
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Remarks: The top 3 inches of soil have abundant small roots. The soil at SP04 have very similar upland soils as SP02.

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <p><input type="checkbox"/> Surface Water</p> <p><input type="checkbox"/> High Water Table</p> <p><input type="checkbox"/> Saturation</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Surface Soil Cracks</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Salt Crust</p> <p><input type="checkbox"/> Biotic Crust</p> <p><input type="checkbox"/> Aquatic Invertebrates</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor</p> <p><input type="checkbox"/> Oxidized Rhizospheres along Living Roots</p> <p><input type="checkbox"/> Presence of Reduced Iron</p> <p><input type="checkbox"/> Recent Iron Reduction in PLOWed Soils</p> <p><input type="checkbox"/> Other (Explain in _____)</p>	<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Drainage Patterns</p> <p><input type="checkbox"/> Dry-Season Water Table</p> <p><input type="checkbox"/> Thin Muck Surface</p> <p><input type="checkbox"/> Crayfish Burrows</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery</p> <p><input type="checkbox"/> Shallow Aquitard</p> <p><input type="checkbox"/> FAC-Neutral Test</p>
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<p>Field Observations:</p> <p>Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____</p> <p>Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present ? <input type="checkbox"/> Ye <input checked="" type="checkbox"/> No</p>
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP05
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) concave Slope(%) 3-5
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.9355261°N Long: 122.5114925°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: Upland point. Taken on slope above the tidal marsh.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status		
1. _____	N/A	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>3</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)	
2. _____		_____	_____	_____		
3. _____		_____	_____	_____		
4. _____		_____	_____	_____		
Tree Stratum Total Cover: _____						
SAPLING/SHRUB STRATUM	Plot Size:				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____	
1. <i>Baccharis pilularis</i>	10'	t	Yes	UPL	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____		_____	_____	_____		
3. _____		_____	_____	_____		
4. _____		_____	_____	_____		
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM	Plot Size:					Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1. <i>Phalaris aquatica</i>	5'	40	Yes	FACU		
2. <i>Geranium molle</i>		25	Yes	UPL		
3. <i>Lotus corniculatus</i>		10	No	FAC		
4. <i>Rumex crispus</i>		2	No	FAC		
5. <i>Grindelia stricta</i>		1	No	FACW		
6. <i>Helminthotheca echioides</i>		1	No	FAC		
7. <i>Cynara cardunculus</i>		1	No	UPL		
8. <i>Foeniculum vulgare</i>		t	No	UPL		
Herb Stratum Total Cover: _____						
WOODY VINE STRATUM	Plot Size:					
1. _____	N/A	_____	_____	_____		
2. _____		_____	_____	_____		
Woody Vines Total Cover: _____						
% Bare ground in herb stratum <u>20</u>		% cover of biotic crust _____				

Remarks: Bare ground covered with thatch.

SOIL

Sampling Point SP05

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-3	10 YR 4/1	80	10 YR 3/6	20	C	M	Clay	Roots abundant
3-16	10 YR 4/1	60	1) YR 3/6	40	C	M	Clay	No roots

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Black Histic <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Stratified Layers (A5)(LRR) <input type="checkbox"/> 1cm Muck (A9)(LRR) <input type="checkbox"/> Depleted Below Dark Surface <input type="checkbox"/> Thick Dark Surface <input type="checkbox"/> Sandy Mucky Mineral <input type="checkbox"/> Sandy Gleyed Matrix	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1cm Muck (A9) (LRR) <input type="checkbox"/> 2cm Muck (A10)(LRR) <input type="checkbox"/> Reduced Vertic <input type="checkbox"/> Red Parent Material <input type="checkbox"/> Other (explain in
<input type="checkbox"/> Sandy Redox <input type="checkbox"/> Stripped Matrix <input type="checkbox"/> Loamy Mucky Mineral <input type="checkbox"/> Loamy Gleyed Matrix <input checked="" type="checkbox"/> Depleted Matrix <input type="checkbox"/> Redox Dark Surface <input type="checkbox"/> Depleted Dark Surface <input type="checkbox"/> Redox Depressions <input type="checkbox"/> Vernal Pools	<p>³Indicators of hydric vegetation and wetland hydrology must be present.</p>

<p>Restrictive Layer (if present): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
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Remarks: Hydric soils present as in other upland points across site.

HYDROLOGY

<p>Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water <input type="checkbox"/> High Water Table <input type="checkbox"/> Saturation <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Surface Soil Cracks <input type="checkbox"/> Inundation Visible on Aerial Imagery <input type="checkbox"/> Water-Stained Leaves	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Salt Crust <input type="checkbox"/> Biotic Crust <input type="checkbox"/> Aquatic Invertebrates <input type="checkbox"/> Hydrogen Sulfide Odor <input type="checkbox"/> Oxidized Rhizospheres along Living Roots <input type="checkbox"/> Presence of Reduced Iron <input type="checkbox"/> Recent Iron Reduction in PLOWed Soils <input type="checkbox"/> Other (Explain in	<input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Drainage Patterns <input type="checkbox"/> Dry-Season Water Table <input type="checkbox"/> Thin Muck Surface <input type="checkbox"/> Crayfish Burrows <input type="checkbox"/> Saturation Visible on Aerial Imagery <input type="checkbox"/> Shallow Aquitard <input type="checkbox"/> FAC-Neutral Test
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<p>Field Observations: Surface water present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present ? <input type="checkbox"/> Ye <input checked="" type="checkbox"/> No</p>
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP06
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) hillsploe Local Relief (concave, convex, none) concave Slope(%) 0-2
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.9355404°N Long: 122.5114583°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Transitional zone along berm. Faculative wetland above tidal marsh.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>2</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <i>Distichlis spicata</i>	<u>5'</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Baccharis salicifolia ssp. salicifolia</i>		<u>15</u>	<u>Yes</u>	<u>FAC</u>	
3. <i>Phalaris aquatica</i>		<u>t</u>	<u>No</u>	<u>FACU</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>75</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>25</u>		% cover of biotic crust <u>0</u>			

Remarks: Faculative vegetation in transitional zone

SOIL

Sampling Point SP06

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-3	10 YR 4/1	95	10 YR 3/6	5	C	M	Loam	50% roots
3-8	10 YR 4/1	65	10 YR 3/6	25	C	M	Clay loam	
			10 YR 6/2	10	C	M		
8-16	10 YR 4/1	80	10 YR 3/6	20	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Black Histic <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Stratified Layers (A5)(LRR) <input type="checkbox"/> 1cm Muck (A9)(LRR) <input type="checkbox"/> Depleted Below Dark Surface <input type="checkbox"/> Thick Dark Surface <input type="checkbox"/> Sandy Mucky Mineral <input type="checkbox"/> Sandy Gleyed Matrix	<input type="checkbox"/> 1cm Muck (A9) (LRR) <input type="checkbox"/> 2cm Muck (A10)(LRR) <input type="checkbox"/> Reduced Vertic <input type="checkbox"/> Red Parent Material <input type="checkbox"/> Other (explain in
<input type="checkbox"/> Sandy Redox <input type="checkbox"/> Stripped Matrix <input type="checkbox"/> Loamy Mucky Mineral <input type="checkbox"/> Loamy Gleyed Matrix <input checked="" type="checkbox"/> Depleted Matrix <input type="checkbox"/> Redox Dark Surface <input type="checkbox"/> Depleted Dark Surface <input type="checkbox"/> Redox Depressions <input type="checkbox"/> Vernal Pools	³ Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water <input type="checkbox"/> High Water Table <input type="checkbox"/> Saturation <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Surface Soil Cracks <input type="checkbox"/> Inundation Visible on Aerial Imagery <input type="checkbox"/> Water-Stained Leaves	<input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Drainage Patterns <input type="checkbox"/> Dry-Season Water Table <input type="checkbox"/> Thin Muck Surface <input type="checkbox"/> Crayfish Burrows <input type="checkbox"/> Saturation Visible on Aerial Imagery <input type="checkbox"/> Shallow Aquitard <input type="checkbox"/> FAC-Neutral Test
<input type="checkbox"/> Salt Crust <input type="checkbox"/> Biotic Crust <input type="checkbox"/> Aquatic Invertebrates <input type="checkbox"/> Hydrogen Sulfide Odor <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots <input type="checkbox"/> Presence of Reduced Iron <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils <input type="checkbox"/> Other (Explain in	

Field Observations: Surface water present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Oxidized rhizospheres along Distichlis spicata rhizomes

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP07
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) convex Slope(%) 0-2
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.935096°N Long: 122.511322°W Datum: _____
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Wetland point within tidal marsh.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	N/A	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? _____ (A) Total number of dominant species across all strata? _____ (B) % of dominant species that are OBL, FACW, or FAC? _____ (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
SAPLING/SHRUB STRATUM Plot Size: 5 ft					
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM Plot Size: N/A					Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Salicornia pacifica</i>		30	Yes	OBL	
2. <i>Frankenia salina</i>		5	No	FACW	
3. <i>Distichlis spicata</i>		t	No	FAC	
4. <i>Spergularia marina</i>		1	No	OBL	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
Herb Stratum Total Cover: _____					
WOODY VINE STRATUM Plot Size: N/A					Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>64</u>		% cover of biotic crust <u>0</u>			

Remarks:

SOIL

Sampling Point SP07

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-4	10 YR 4/1	85	10 YR 5/6	15	C	M	Clay	Abundant roots
4-16	10 YR 4/1	75	10 YR 5/6	25	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Black Histic <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Stratified Layers (A5)(LRR) <input type="checkbox"/> 1cm Muck (A9)(LRR) <input type="checkbox"/> Depleted Below Dark Surface <input type="checkbox"/> Thick Dark Surface <input type="checkbox"/> Sandy Mucky Mineral <input type="checkbox"/> Sandy Gleyed Matrix	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1cm Muck (A9) (LRR) <input type="checkbox"/> 2cm Muck (A10)(LRR) <input type="checkbox"/> Reduced Vertic <input type="checkbox"/> Red Parent Material <input type="checkbox"/> Other (explain in
<input type="checkbox"/> Sandy Redox <input type="checkbox"/> Stripped Matrix <input type="checkbox"/> Loamy Mucky Mineral <input type="checkbox"/> Loamy Gleyed Matrix <input checked="" type="checkbox"/> Depleted Matrix <input type="checkbox"/> Redox Dark Surface <input type="checkbox"/> Depleted Dark Surface <input type="checkbox"/> Redox Depressions <input type="checkbox"/> Vernal Pools	<p>³Indicators of hydric vegetation and wetland hydrology must be present.</p>

<p>Restrictive Layer (if present): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water <input type="checkbox"/> High Water Table <input checked="" type="checkbox"/> Saturation <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Surface Soil Cracks <input type="checkbox"/> Inundation Visible on Aerial Imagery <input type="checkbox"/> Water-Stained Leaves	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Salt Crust <input type="checkbox"/> Biotic Crust <input type="checkbox"/> Aquatic Invertebrates <input type="checkbox"/> Hydrogen Sulfide Odor <input type="checkbox"/> Oxidized Rhizospheres along Living Roots <input type="checkbox"/> Presence of Reduced Iron <input type="checkbox"/> Recent Iron Reduction in PLOWed Soils <input type="checkbox"/> Other (Explain in	<input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Drainage Patterns <input type="checkbox"/> Dry-Season Water Table <input type="checkbox"/> Thin Muck Surface <input type="checkbox"/> Crayfish Burrows <input type="checkbox"/> Saturation Visible on Aerial Imagery <input type="checkbox"/> Shallow Aquitard <input type="checkbox"/> FAC-Neutral Test
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<p>Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 " (includes capillary fringe)</p>	<p>Wetland Hydrology Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Evidence of tidal hydrology is apparent at this sample point.

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP08
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) convex Slope(%) 2-3
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.935100°N Long: 122.511389°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Wetland sample point taken in transitional zone between tidal marsh (below) and upland berm (above)	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u>Spergularia marina</u>	<u>5'</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Frankenia salina</u>		<u>5</u>	<u>No</u>	<u>FACW</u>	
3. <u>Festuca perennis</u>		<u>5</u>	<u>No</u>	<u>FAC</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>40</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>60</u>		% cover of biotic crust _____			

Remarks:

SOIL

Sampling Point SP08

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-4	10 YR 4/1	80	10 YR 5/6	20	C	M	Clay	Abundant roots
4-16	10 YR 4/1	60	10 YR 5/6	40	C	M	Clay	Less roots

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Black Histic <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Stratified Layers (A5)(LRR) <input type="checkbox"/> 1cm Muck (A9)(LRR) <input type="checkbox"/> Depleted Below Dark Surface <input type="checkbox"/> Thick Dark Surface <input type="checkbox"/> Sandy Mucky Mineral <input type="checkbox"/> Sandy Gleyed Matrix	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Redox <input type="checkbox"/> Stripped Matrix <input type="checkbox"/> Loamy Mucky Mineral <input type="checkbox"/> Loamy Gleyed Matrix <input checked="" type="checkbox"/> Depleted Matrix <input type="checkbox"/> Redox Dark Surface <input type="checkbox"/> Depleted Dark Surface <input type="checkbox"/> Redox Depressions <input type="checkbox"/> Vernal Pools	<input type="checkbox"/> 1cm Muck (A9) (LRR) <input type="checkbox"/> 2cm Muck (A10)(LRR) <input type="checkbox"/> Reduced Vertic <input type="checkbox"/> Red Parent Material <input type="checkbox"/> Other (explain in _____)
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³Indicators of hydric vegetation and wetland hydrology must be present.

<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water <input type="checkbox"/> High Water Table <input type="checkbox"/> Saturation <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Surface Soil Cracks <input type="checkbox"/> Inundation Visible on Aerial Imagery <input type="checkbox"/> Water-Stained Leaves	<input type="checkbox"/> Salt Crust <input type="checkbox"/> Biotic Crust <input type="checkbox"/> Aquatic Invertebrates <input type="checkbox"/> Hydrogen Sulfide Odor <input type="checkbox"/> Oxidized Rhizospheres along Living Roots <input type="checkbox"/> Presence of Reduced Iron <input type="checkbox"/> Recent Iron Reduction in Plowed Soils <input type="checkbox"/> Other (Explain in _____)	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Drainage Patterns <input type="checkbox"/> Dry-Season Water Table <input type="checkbox"/> Thin Muck Surface <input type="checkbox"/> Crayfish Burrows <input type="checkbox"/> Saturation Visible on Aerial Imagery <input type="checkbox"/> Shallow Aquitard <input type="checkbox"/> FAC-Neutral Test
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<p>Field Observations:</p> <p>Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____</p> <p>Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks:

Wetland Determination Data Form - Arid West Region

Project/Site Corte Madera Reserve Restoration City Corte Madera County Marin Sampling Date 1/26/2025
 Applicant/Owner Golden Gate Bridge Highway and Transportation District State CA Sampling Point SP09
 Investigator(s) Rachel Miller, Maya Avendano Section, Township, Range 1N 6W
 Landform (hillslope, terrace, etc.) Berm Local Relief (concave, convex, none) convex Slope(%) 3-5
 Subregion(LRR) LRR C (Medit. CA) Lat: 37.935088°N Long: 122.511426°W Datum: WGS 84
 Soil Map Unit Name Xerorthents, fill (203) NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetatio Soil Hydrolog Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetatio Soil Hydrolog (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks: Sample point taken on upland berm adjacent to Spergularia salina transition zone following by tidal marsh.

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u>Phalaris aquatica</u>	<u>5 ft</u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Baccharis pilularis</u>		<u>10</u>	<u>No</u>	<u>UPL</u>	
3. <u>Cyperus eragrostis</u>		<u>2</u>	<u>No</u>	<u>FACW</u>	
4. <u>Lotus corniculatus</u>		<u>t</u>	<u>No</u>	<u>FAC</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>52</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>48</u>		% cover of biotic crust _____			

Remarks: Upland berm is dominated by FACU and Not Listed species.

SOIL

Sampling Point SP09

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-3	10 YR 4/1	80	2.5 YR 3/6	20	C	M	clay loam	Abundant roots
3-16	10 YR 4/1	80	2.5 YR 3/6	20	C	M	clay loam	No roots

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Black Histic <input type="checkbox"/> Hydrogen Sulfide <input type="checkbox"/> Stratified Layers (A5)(LRR) <input type="checkbox"/> 1cm Muck (A9)(LRR) <input type="checkbox"/> Depleted Below Dark Surface <input type="checkbox"/> Thick Dark Surface <input type="checkbox"/> Sandy Mucky Mineral <input type="checkbox"/> Sandy Gleyed Matrix	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1cm Muck (A9) (LRR) <input type="checkbox"/> 2cm Muck (A10)(LRR) <input type="checkbox"/> Reduced Vertic <input type="checkbox"/> Red Parent Material <input type="checkbox"/> Other (explain in
<input type="checkbox"/> Sandy Redox <input type="checkbox"/> Stripped Matrix <input type="checkbox"/> Loamy Mucky Mineral <input type="checkbox"/> Loamy Gleyed Matrix <input checked="" type="checkbox"/> Depleted Matrix <input type="checkbox"/> Redox Dark Surface <input type="checkbox"/> Depleted Dark Surface <input type="checkbox"/> Redox Depressions <input type="checkbox"/> Vernal Pools	<p>³Indicators of hydric vegetation and wetland hydrology must be present.</p>

<p>Restrictive Layer (if present): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present ? <input checked="" type="checkbox"/> Ye <input type="checkbox"/> No</p>
---	--

Remarks: Soil moist but not saturated.

HYDROLOGY

<p>Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water <input type="checkbox"/> High Water Table <input type="checkbox"/> Saturation <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Surface Soil Cracks <input type="checkbox"/> Inundation Visible on Aerial Imagery <input type="checkbox"/> Water-Stained Leaves	<input type="checkbox"/> Salt Crust <input type="checkbox"/> Biotic Crust <input type="checkbox"/> Aquatic Invertebrates <input type="checkbox"/> Hydrogen Sulfide Odor <input type="checkbox"/> Oxidized Rhizospheres along Living Roots <input type="checkbox"/> Presence of Reduced Iron <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils <input type="checkbox"/> Other (Explain in	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Drainage Patterns <input type="checkbox"/> Dry-Season Water Table <input type="checkbox"/> Thin Muck Surface <input type="checkbox"/> Crayfish Burrows <input type="checkbox"/> Saturation Visible on Aerial Imagery <input type="checkbox"/> Shallow Aquitard <input type="checkbox"/> FAC-Neutral Test
--	--	--

<p>Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present ? <input type="checkbox"/> Ye <input checked="" type="checkbox"/> No</p>
--	--

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrology indicators observed.

APPENDIX G. NOTIFICATION TO THE INVASIVE SPARTINA PROJECT





Laura Powers <laura.powers@wra-ca.com>

Spartina at Corte Madera Marsh Restoration Site

9 messages

Laura Powers <laura.powers@wra-ca.com>

Tue, Sep 30, 2025 at 12:22 PM

To: toby@olofsonenvironmental.com, marilyn.latta@scc.ca.gov, peggy@olofsonenvironmental.com

Cc: Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Hello,

I am reaching out to ISP in regards to the continued presence and spread of *Spartina* at the Corte Madera 4-acre tidal marsh restoration site in Corte Madera, Marin County, approximately 0.5 miles south of the Larkspur Ferry Terminal. We are in the last year of monitoring at this restoration site and one of the requirements for the site is to report to ISP if any *Spartina* is observed in the restoration area.

Spartina was previously observed in the far northern edge of the restoration area and stayed in relatively the same area for the first 3 years of monitoring. In 2023 and 2024, *Spartina* was observed spreading throughout the channel in small clusters. In this year's monitoring, *Spartina* was observed to have spread to almost the entirety of the marsh channels. I attached a KMZ of the area - *Spartina* is present in all channels in patches except one stretch of the northeast secondary channel.

In previous years of communication, it was determined that it was all *Spartina follosa*. Last year, Tobias also let us know that there would be a thorough survey of the area in the 2025 growing season. I am reaching out to see if this area has been surveyed this year, and if so, whether or not the *Spartina* continues to be *S. follosa* or if there is the invasive hybrid present. If not, I would appreciate any additional insight you may have on the *Spartina* in this area.

Thank you for your help,
Cheers!
Laura

**Laura Powers**

Biologist

(she/her)

laura.powers@wra-ca.com

Direct 415.524.7530

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2 attachments

 **CMER Spartina.kmz**
3K

 **Appendix F. ISP Notification.pdf**
331K

Tobias Rohmer <toby@olofsonenvironmental.com>

Tue, Sep 30, 2025 at 1:15 PM

To: Laura Powers <laura.powers@wra-ca.com>, "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>, Peggy Olofson <peggy@olofsonenvironmental.com>

Cc: Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Hi Laura.

Thanks for reaching out and for your continuing attention to invasive hybrid *Spartina* at the Muzzi Marsh restoration site. We have biologists scheduled to survey this area on October 6th and I will report back with our findings. It is exciting to hear that this site is passively vegetating, and we will assess the *Spartina* to verify if it remains all native *S. foliosa* or if hybrid has encroached.

Thanks again, and I will be in contact soon.

-Tobias

From: Laura Powers <laura.powers@wra-ca.com>

Sent: Tuesday, September 30, 2025 12:23 PM

To: Tobias Rohmer <toby@olofsonenvironmental.com>; Latta, Marilyn@SCC <Marilyn.Latta@scc.ca.gov>; Peggy Olofson <peggy@olofsonenvironmental.com>

Cc: Matt Osowski <Osowski@wra-ca.com>; Justin Semion <semion@wra-ca.com>

Subject: Spartina at Corte Madera Marsh Restoration Site

You don't often get email from laura.powers@wra-ca.com. [Learn why this is important](#)

Hello,

I am reaching out to ISP in regards to the continued presence and spread of *Spartina* at the Corte Madera 4-acre tidal marsh restoration site in Corte Madera, Marin County, approximately 0.5 miles south of the Larkspur Ferry Terminal. We are in the last year of monitoring at this

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Thank you for your help,

Cheers!

Laura

Laura Powers

Biologist
(she/her)

laura.powers@wra-ca.com
Direct 415.524.7530

Make a positive lasting impression™

Laura Powers <laura.powers@wra-ca.com>

To: Tobias Rohmer <toby@olofsonenvironmental.com>

Cc: "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>, Peggy Olofson <peggy@olofsonenvironmental.com>, Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Tue, Sep 30, 2025 at 1:30 PM

That's great to hear! Thank you for your quick reply.

Looking forward to hearing from you soon,
Laura

Laura Powers

Biologist

laura.powers@wra-ca.com

Direct 415.524.7530

[Quoted text hidden]

Tobias Rohmer <toby@olofsonenvironmental.com>

Mon, Oct 6, 2025 at 1:37 PM

To: Laura Powers <laura.powers@wra-ca.com>, "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>, Peggy Olofson <peggy@olofsonenvironmental.com>

Cc: Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Hello again Laura et al.

I surveyed this marsh this morning. So far, all of the *Spartina* that is increasingly establishing looks to be native *S. foliosa*. That said, I did collect a genetic sample of one patch in the upper extent of the main channel because it is a bit more robust than everything else in the site (a little taller, a little longer inflorescences). Because it is morphologically different, I collected the genetic sample to verify ancestry, and if it comes back genetically as the invasive hybrid *S. alterniflora x foliosa*, we will go out and treat it.

That said, it will take us a few weeks to get results back from that sample and I will follow-up with those results once we have them.

Again, thanks for keeping up the communication with us and I will continue to do the same.

Cheers!

-Tobias



Tobias Rohmer, M.S.

Senior Ecologist, Program Manager

Olofson Environmental, Inc.

p: 415-722-3074

a: 1001 42nd Street, Suite 230, Oakland, CA 94608

w: www.olofsonenvironmental.com e: tobias@olofsonenvironmental.com

From: Tobias Rohmer <toby@olofsonenvironmental.com>
Sent: Tuesday, September 30, 2025 13:15
To: Laura Powers <laura.powers@wra-ca.com>; Latta, Marilyn@SCC <Marilyn.Latta@scc.ca.gov>; Peggy Olofson <peggy@olofsonenvironmental.com>
Cc: Matt Osowski <Osowski@wra-ca.com>; Justin Semion <semion@wra-ca.com>
Subject: RE: Spartina at Corte Madera Marsh Restoration Site
[Quoted text hidden]

Laura Powers <laura.powers@wra-ca.com> Wed, Oct 8, 2025 at 10:47 AM
To: Tobias Rohmer <toby@olofsonenvironmental.com>
Cc: "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>, Peggy Olofson <peggy@olofsonenvironmental.com>, Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Thank you for the update Tobias. That is good news!

Looking forward to hearing the genetic test results,

Thanks!
Laura

Laura Powers
Biologist

laura.powers@wra-ca.com
Direct 415.524.7530

[Quoted text hidden]

Laura Powers <laura.powers@wra-ca.com> Thu, Nov 13, 2025 at 2:53 PM
To: Tobias Rohmer <toby@olofsonenvironmental.com>
Cc: "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>, Peggy Olofson <peggy@olofsonenvironmental.com>, Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Hi Tobias,

I hope all is well! I'm just checking in to see if you've received the genetic test results or if you have a timeline for when you may receive them?

Let me know and thank you again for your help,
Laura

Laura Powers

Biologist

laura.powers@wra-ca.com

Direct 415.524.7530

[Quoted text hidden]

Tobias Rohmer <toby@olofsonenvironmental.com>

Fri, Nov 14, 2025 at 9:46 AM

To: Laura Powers <laura.powers@wra-ca.com>

Cc: "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>, Peggy Olofson <peggy@olofsonenvironmental.com>, Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Good morning, Laura.

You have impeccable timing as we just received results from that plate of samples this week.

The patch I sampled came back as native *Spartina foliosa*. Yay!

This corroborates that no invasive *Spartina* of any kind has yet been detected in this restoration marsh. Again, thanks for your continued communication and focus on invasive *Spartina*.

Cheers and happy Friday!

[Quoted text hidden]

Latta, Marilyn@SCC <Marilyn.Latta@scc.ca.gov>

Fri, Nov 14, 2025 at 9:54 AM

To: Laura Powers <laura.powers@wra-ca.com>, Toby Rohmer <toby@olofsonenvironmental.com>

Cc: Peggy Olofson <peggy@olofsonenvironmental.com>, Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

Wonderful news!

Thank you Tobias and Laura for your great ongoing coordination.

Happy Friday!

Marilyn

Marilyn Latta

Project Manager

State Coastal Conservancy

510-286-4157

marilyn.latta@scc.ca.gov

www.scc.ca.gov

1515 Clay St 10th Floor
Oakland, CA 94612

From: Tobias Rohmer <toby@olofsonenvironmental.com>

Sent: Friday, November 14, 2025 9:46 AM

To: Laura Powers <laura.powers@wra-ca.com>

Cc: Latta, Marilyn@SCC <Marilyn.Latta@scc.ca.gov>; Peggy Olofson <peggy@olofsonenvironmental.com>; Matt Osowski <Osowski@wra-ca.com>; Justin Semion <semion@wra-ca.com>

Subject: RE: Spartina at Corte Madera Marsh Restoration Site

[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

[Quoted text hidden]

Laura Powers <laura.powers@wra-ca.com>

Fri, Nov 14, 2025 at 10:30 AM

To: "Latta, Marilyn@SCC" <Marilyn.Latta@scc.ca.gov>

Cc: Toby Rohmer <toby@olofsonenvironmental.com>, Peggy Olofson <peggy@olofsonenvironmental.com>, Matt Osowski <Osowski@wra-ca.com>, Justin Semion <semion@wra-ca.com>

That's great news! Hooray!

Thank you for your collaboration and continued diligence in tracking *Spartina*.

Cheers!

Laura

Laura Powers

Biologist

laura.powers@wra-ca.com

Direct 415.524.7530

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