Print Form

Notice of Determination 21-2024-166

Appendix D

FILED
SEP 20 2024
SHELLY SCOTT
MARIN COUNTY CLERK
BY: L Vaeter, Deputy

To:
☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Marin
Address: 3501 Civic Center Dr. #234
San Rafael, CA 94903

From:
Public Agency: Town of Tiburon
Address: 1505 Tiburon Blvd.
Tiburon, CA 94920
Contact:
Phone:

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2024061144

Project Title: Greenwood beach Restoration Project

Project Applicant: Town of Tiburon

Project Location (include county): Blackie's pasture Park, Tiburon Blvd at Trestle Glen Blvd, Tiburon, Marin County

Project Description:
The SMUHSD previously approved an athletics field renovation project that included the baseball field on this site. he project calls for the restoration and enhancement of Greenwood and Brunini beaches at Blackie's Pasture Park on Tiburon Blvd. using "nature-based" or "living shoreline" solutions to reduce rates of shoreline erosion, improve shoreline habitat and recreational values, and improve shoreline sea-level rise resilience. Local sediment sources would be used. 75 cy of grading would occur.

This is to advise that the Town of Tiburon (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on _____ (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
The Negative Declaration is available for review at the Town of Tiburon offices, 1505 Tiburon Blvd. Tiburon

Signature (Public Agency): _____ Title: Director

Date: 11/20/2024 Date Received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

POSTED 9/20/24 TO 10/20/24

FINAL INITIAL STUDY/

MITIGATED NEGATIVE DECLARATION FOR THE

GREENWOOD BEACH RESTORATION PROJECT

Prepared for:

Town of Tiburon
1505 Tiburon Blvd
Tiburon, CA 94920

Prepared by:

Grassetti Environmental Consulting
7008 Bristol Drive
Berkeley, CA 94705

August 2024

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ADWF	average dry weather flow
APE	Area of Potential Effect
BAAQMD	Bay Area Air Quality Management District
BMPs	Best Management Practices
CAA	Clean Air Act
CAP/RCPS	Clean Air Plan/Regional Climate Protection Strategy
CARB	California Air Resources Board
CDFW	California department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO2E	carbon dioxide equivalent
CY	cubic yards
DBA	decibel, “A” weighted
DPM	diesel particulate matter
DMMO	Dredged Material Management Office
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
gpd	gallons of wastewater per day
GWP	Global Warming Potential
HTL	high tide line
LOS	level of service
MCSTOPPP	Marin Countywide Stormwater Pollution Prevention Program
mgd	million gallons per day
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NAVD88	North American Vertical Datum (1988) (approx. mean sea level)
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OHP	State Office of Historic Preservation
O3	ozone
PCBs	polychlorinated biphenyls
PM10	particulate matter less than 10 microns
PM2.5	particulate matter less than 2.5 microns
RBSD	Richardson Bay Sanitary District
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SOx	sulfur dioxide

SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	Total Maximum Daily Load
USFWS	US Fish and Wildlife Service
VOC	volatile organic compound
WPCP	Water pollution control plan

ENVIRONMENTAL DETERMINATION

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		Greenhouse Gas Emissions		Public Services
	Agricultural and Forestry Resources		Hazards and Hazardous Materials		Recreation
	Air Quality	X	Hydrology/Water Quality		Transportation/ Traffic
X	Biological Resources		Land Use/Planning		Tribal Cultural Resources
X	Cultural Resources		Mineral Resources		Utilities/Service Systems
	Energy		Noise		Wildfire Hazards
	Geology/Soils		Population/Housing	X	Mandatory Findings of Significance

DETERMINATION: On the basis of this initial evaluation:

I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	**X**
I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	
I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.	

Dina Tasini, Planning Director, Town of Tiburon **Date**

I. INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the Town of Tiburon (Town), 1505 Tiburon Blvd., Tiburon CA, pursuant to the California Environmental Quality Act (CEQA) statutes[1] and Guidelines[2]. It provides documentation to support the conclusion that the proposed Greenwood Beach Restoration Project ("the project"), with mitigation identified herein, would not cause a potentially significant impact to the physical environment.

This IS/MND describes the location of the project site, the project sponsor's objectives, and the details of the proposed project. The Environmental Checklist Form included as Appendix G of the CEQA Guidelines serves as the basis for the environmental evaluation contained in the IS/MND. The Checklist Form examines the specific potential project-level physical environmental impacts that may result from the construction and operation of the proposed project. Mitigation measures have been identified to reduce any potentially significant impacts that would otherwise occur to a less-than-significant level.

The Town will serve as the "lead agency" (the public agency that has the principal responsibility for carrying out and/or approving a project) for the proposed project. The City Council of the Town is responsible for ensuring that the environmental review and documentation meet the requirements of CEQA. The Draft IS/MND was circulated for public and agency review from July 5, 2024 through August 12, 2024. Comments received on the Draft IS/MND, and responses to those comments are included in Appendix D, Comments and Responses Addendum, herein.

Should the Town approve the project, it would be required to file a "Notice of Determination" for posting by the County Clerk and the State Clearinghouse. The filing of the notice and its posting starts a 30-day statute of limitations on court challenges to the CEQA review of the project.

Document Organization

This document is organized into the following sections:

SECTION I – INTRODUCTION: Provides background information about the project.

SECTION II – PROJECT DESCRIPTION: Includes project background and detailed description of the project.

SECTION III – INITIAL STUDY CHECKLIST AND DISCUSSION: Reviews the proposed project and states whether the project would have potentially significant environmental effects.

SECTION IV – MANDATORY FINDINGS OF SIGNIFICANCE: States whether environmental effects associated with development of the proposed project are significant, and what, if any, added environmental documentation may be required.

SECTION V – REFERENCES: Identifies source materials that have been consulted in the preparation of the IS.

[1] Public Resources Code Sections 21000 et seq.
[2] Title 14, Section 15000 et seq. of the California Code of Regulations

SECTION IV – REPORT PREPARERS: Identifies the firms and individuals who prepared the IS.

APPENDICES - Includes technical reports, comments and responses on the Draft IS/MND, and Mitigation Monitoring and Reporting Program.

II. PROJECT DESCRIPTION

Project Name:	Greenwood Beach Restoration Project
Project Location:	Blackie's Pasture Park. The project area is situated on lands owned by the Town of Tiburon (APNs: 055-041-18, 055-041-17, 055-014-12) and intertidal lands under a Public Trust easement held by the State of California
Project Applicant and Lead Agency	Town of Tiburon 1505 Tiburon Blvd. Tiburon CA 94920 (applicant and Lead Agency)
General Plan Designation:	P&R (Parks and Recreation)
Zoning:	P&R (Parks and Recreation)
Project Approvals:	Town of Tiburon approval of project; California Water Resources Control Board, Water Quality Certification; Bay Conservation and Development Commission permit; consistency determination from State Lands Commission.
Date Initial Study Completed:	August 30, 2024

PROJECT DESCRIPTION

Project Location

The Greenwood Beach Restoration Project (the project) is a nature-based beach restoration and shoreline erosion protection project proposed on approximately 1.4 acres of the Richardson Bay shoreline at Blackie's Pasture Park in Tiburon, California. The project area is situated on lands owned by the Town of Tiburon (APNs: 055-041-18, 055-041-17, 055-014-12) and intertidal lands under a Public Trust easement held by the State of California. The site is accessed from the terminus of both Greenwood Beach Rd. and Blackie's Pasture Rd., from Tiburon Blvd. (Figure 1).

This document uses local beach and marsh place-names adapted from the closest adjacent trails and roadways identified in the Town of Tiburon Bay Trail Gap Study (Town of Tiburon, 2012). The predominantly sandy beach at the southwest end of the park, nearest the end of Greenwood Beach Road is referred to as "Greenwood Beach". The small eastern pocket sand beach adjacent to the northeast end of Brunini Way is referred to as "Brunini Beach", and the small salt marsh at the end of Brunini Way is called "Brunini Marsh". The proposed project would take place on both Greenwood and Brunini beaches (Figure 2).

Surrounding Land Uses

Greenwood and Brunini beaches are situated on the shoreline of a reclaimed, filled historical salt marsh that was historically used as a private horse pasture, and is currently a public park (Blackies Pasture Park) (Figure 2). The beaches are bordered to the south by wide Richardson Bay tidal flats. To the north of the beaches are the nearly level lowlands of Blackie's Pasture Park. A flood control channel draining a portion of the Ring Mountain watershed runs through the park and enters Richardson Bay between Greenwood and Brunini beaches, bisecting the project area. A paved bicycle/pedestrian trail (part of the San Francisco Bay Trail) runs from the Blackie's Pasture parking lot and along the east side of the project area, adjacent to Brunini Beach, to the Tiburon Town center. The Richardson Bay Sanitary District (RBSD) water treatment plant is located on the east side of this trail. Beyond the immediately surrounding parklands and RBSD infrastructure are medium-density residential developments.

Existing Site Conditions

Greenwood and Brunini beaches exist at the head of a shallow embayment of Richardson Bay. They are separated by a flood control channel delivering sediment from Ring Mountain to an intertidal delta and salt marsh bordering tidal flats up to 470 feet wide (Figure 2). Greenwood Beach is on the west side of the flood control channel and extends from that channel to a small seasonal freshwater drainage channel approximately 250 ft to the west.

Greenwood Beach was historically a mixed sand and gravel beach. For decades, the beach was wide and sandy and was held in place by high salt marsh that formed on the west side of the flood control channel (Figure 3; Photo 1). The salt marsh helped retain the beach sediments by restricting wave-driven drift eastward into the flood control channel.



Map File: vicinity-map_Greenwood_2023-0517

Data sources: Air photo (ESRI basemap, 2023);

Greenwood Beach Restoration Project

1:36,000 (1" = 3,000' at letter size)

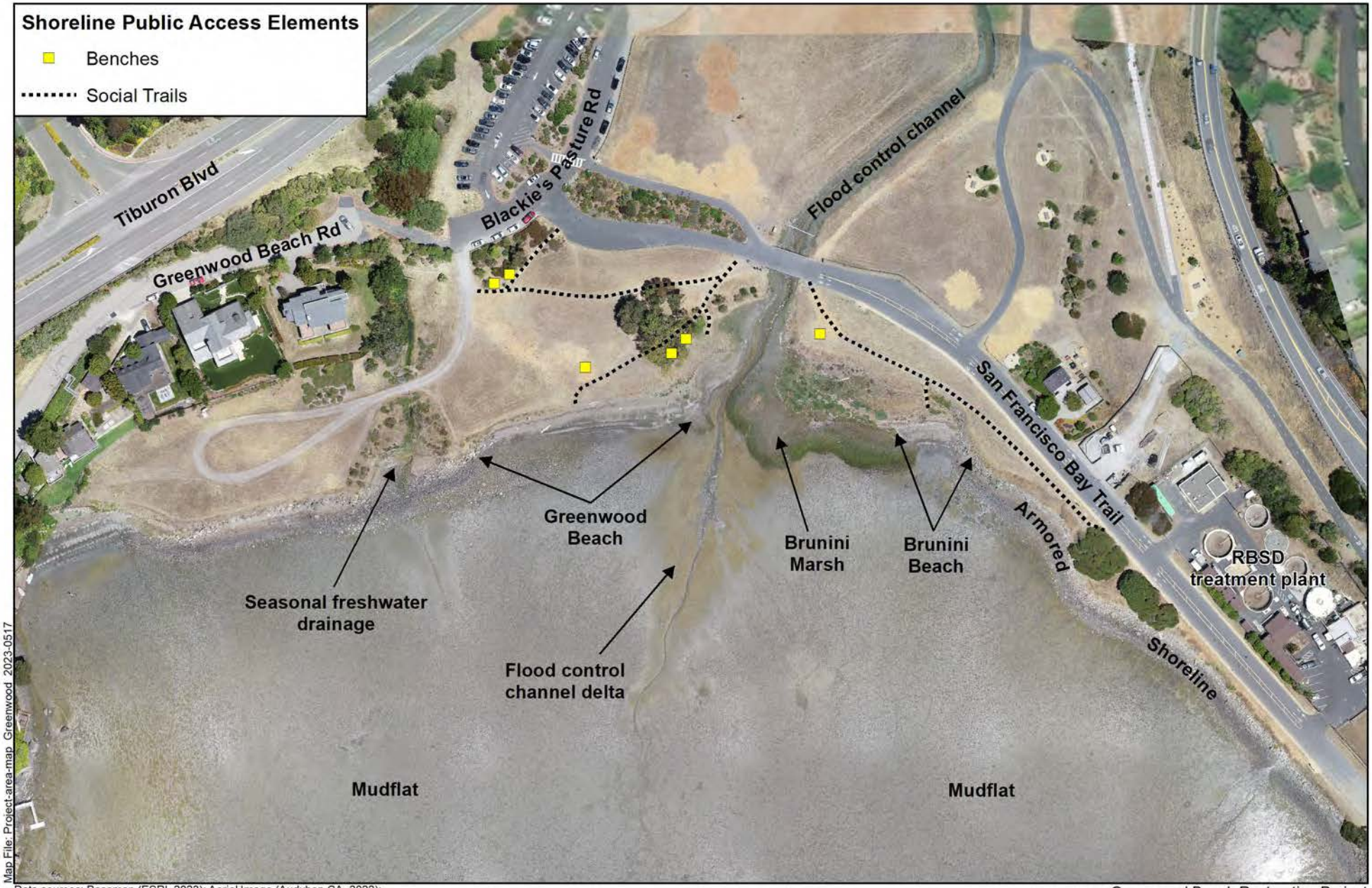
0 1,500 3,000 ft

0 500 1,000 m

Gillenwater GillenH2O Consulting

Figure 1

Project Location and Vicinity



Map File: Project-area-map_Greenwood_2023-0517

Data sources: Basemap (ESRI, 2023); Aerial Image (Audubon CA, 2022); Public Access (GillenH2O, 2022)

1:1,800 (1" = 150' at letter size)

0 75 150 ft

0 25 50 m

Greenwood Beach Restoration Project

Figure 2

Project Area and Existing Features

Gillenwater GillenH2O Consulting

When the remnants of salt marsh finally eroded away after 2018, the beach sand progressively eroded by drifting into the channel, where it was swept out into the nearshore tidal flats during storm outflows. This loss of sand caused the beach to narrow and become more gravelly. In the summer of 2022, Greenwood Beach was approximately 0.15 acres in area, 230 feet long, and varied from 15-40 feet wide (Figure 3). However, following the intense atmospheric river storm events between December 2022 and January 2023, Greenwood Beach became nearly completely eroded of sand, exposing a hardened, residual surface of angular concrete and asphalt rubble and rock eroded from old bay fill (Photo 2). A veneer of gravel and small pockets of sand are all that remain of the historic beach. With progressive loss of the beach, the shoreline is subject to unimpeded waves that increase the rate of shoreline erosion. A wave-cut scarp (a steep drop from the uplands to the shoreline) is present on the western half of the beach with a current maximum height of approximately three feet. The vegetation growing at the back of the beach is a sparse, prostrate mat of trampled saltgrass.

The Greenwood Beach area is used by the public for walking, dog exercise, and as a water play area. Bird watching is also a common use. There is no formal trail to the beach, but a social trail (trampled path) extends from the paved Bay Trail to the gently sloping east end of the beach. Several benches exist on the terrestrial uplands behind the beach, but there are no benches or other public use infrastructure present on the beach itself.

Brunini Beach is a small pocket beach located on the east side of the flood control channel in a gap between salt marsh and the steep armored shoreline bluff to the east (Photo 3, Photo 4). The beach area varies annually; in summer 2023 the beach was approximately 0.06 acre in size, and 70 feet long. The backshore beach is variously vegetated with high salt marsh and beach vegetation (saltgrass, sea-rocket) and partially buried with lines of vegetation debris (wrack). The beach face is relatively steep and narrow (approximately 45 feet wide in summer 2023). The boundary between salt marsh and beach is uneven and unstable. The long-term trend of the beach and marsh is uncertain, but marsh recovery after removal of non-native cordgrass may result in conversion of beach to marsh. Brunini Beach has similar public uses to Greenwood Beach but is less intensively used. A small social trail from the adjacent Bay Trail provides public access to the beach.

Between Brunini Beach and the tidal flood control channel is a sandy salt marsh formed on the delta of the channel mouth. The salt marsh grows from deposits of sand and gravel from the channel, and from wave action depositing organic debris and sand, grading into the beach. The salt marsh also undergoes some storm erosion and can become partly smothered by large wracks of debris. The naturally formed salt marsh vegetation includes pickleweed, alkali-heath, saltgrass, and some non-native weeds including spearscale and saltwort (a tumbleweed). The landward transition zone of the salt marsh includes native creeping wildrye, a perennial grass, as well as some iceplant. One native special-status plant, California sea-blite (*Suaeda californica*, an endangered species) was re-introduced experimentally to the marsh by researchers from San Francisco State University in 2016. The plantings survived storm erosion in 2017 and are now a thriving self-maintaining population of robust plants, becoming dominant locally in the high tide line.



Map File: Beach-compare_2009-2022-conditions_2023-0619

Data sources: Air photos (Audubon, 2022; Google Earth, 2009);

Greenwood Beach Restoration Project

1:600 (1" = 50' at letter size)

0 25 50 ft

0 7.5 15 m

Gillenwater GillenH2O Consulting

Figure 3

Greenwood Beach 2009 vs. 2022 Conditions



Photo 1. Greenwood Beach in June 2012 showing former sandy conditions - looking west (photo by P. Baye)



Photo 2. Greenwood Beach in January 2023 showing depleted, coarse beach profile (photo by P. Baye)



Photo 3. Brunini Beach in June 2022 - looking west (photo by P. Baye)



Photo 4. Rocky shore below the steep bluff to the east of Brunini Beach in September 2022 (photo by P. Baye)

Project Objectives

The goal of the proposed project is to restore and enhance Greenwood and Brunini beaches using a "living shoreline" approach to reduce rates of shoreline erosion, improve shoreline habitat and recreational values, and improve shoreline sea level rise resilience. A "living shoreline" approach addresses these issues using techniques and materials that take advantage of natural processes and provide living space for estuarine organisms while maintaining and enhancing existing public uses of the shoreline. The specific project objectives related to this goal include:

- Restore the mixed sand-gravel beach and salt marsh vegetation that had retained it at Greenwood Beach, with enhanced resistance to erosion.
- Replenish the existing Brunini Beach with mixed sand and gravel and expand it to the southeast.
- Use locally sourced sediments and/or beneficially reuse off-site navigational dredging sediments for beach restoration and enhancement to the extent feasible.
- Restore native backshore and salt marsh vegetation communities.
- Pre-empt the need for typical "emergency" shoreline erosion response of rip-rap placement, which would make beach loss more permanent, and degrade the shoreline scenic, recreational, and habitat values.
- Demonstrate the applicability of restoring bay beaches as a viable alternative to traditional rip-rap shoreline stabilization to inhibit shoreline erosion while providing habitat values for a number of species.

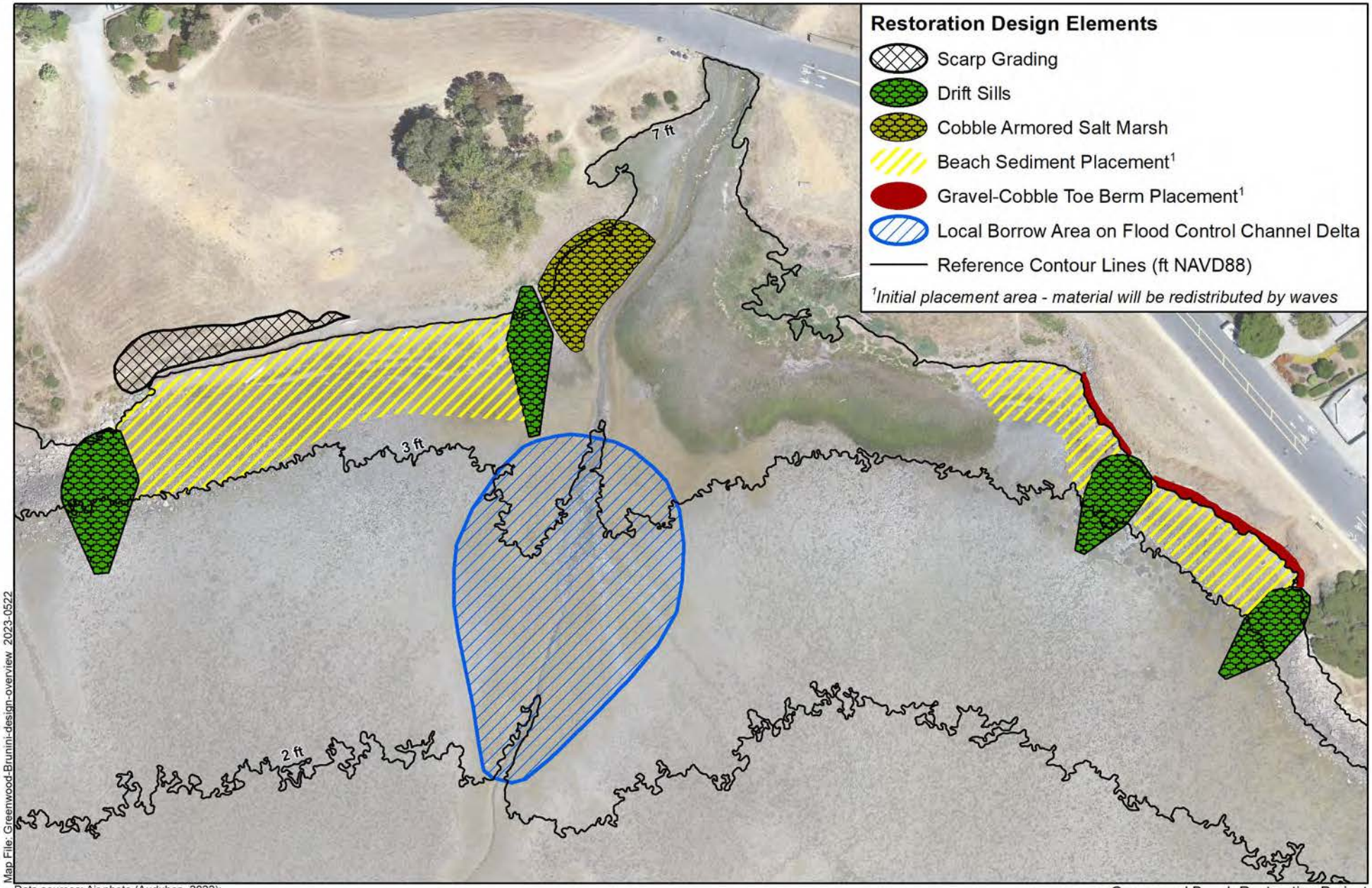
Proposed Beach Restoration

Project Design

The proposed project includes several design elements aimed at achieving the project goals and objectives. These design elements are described in detail below in the general sequence in which they would be implemented. The overall project design layout is provided in Figure 4, while the preliminary, site-specific restoration designs for Greenwood and Brunini beaches are provided in Appendix A. Preliminary construction quantities and materials sources for the restoration design are shown in Table 1.

Table 1. Preliminary Earthwork Quantities (cubic yards)

Material	Source	Brunini Beach	Greenwood Beach
Sand/Gravel	Local borrow	575	350
Sand	Petaluma River dredge stockpile	330	1025
Cobble (imported)	Commercial quarry	70	155
Gravel/Cobble Mix (imported)	Commercial quarry	45	0
Boulder	Local salvage/ commercial quarry	20	50
Total		**1,040**	**1,580**



Map File: Greenwood-Brunini-design-overview_2023-0522

Data sources: Air photo (Audubon, 2022);
Design (GillenH2O, 2023)

Greenwood Beach Restoration Project

1:900 (1" = 75' at letter size)

0 37.5 75 Feet

0 10 20 Meters

Gillenwater GillenH2O Consulting

Figure 4

Greenwood and Brunini Beach Restoration Design Elements

1. **Grade the Greenwood Beach scarp and remove nuisance fill**. The vertical, wave-cut scarp along the western half of Greenwood Beach is unstable and prone to further erosion and retreat with continued wave attack and is an impediment to upslope migration of beach habitats in response to sea level rise. This scarp would be graded using a bulldozer or excavator to a gentler slope to provide a platform for wave run-up and beach migration over time due to storms and sea level rise. The eroded scarp has also exposed remnants of fill material, including asphalt and concrete rubble. Larger asphalt pieces, reinforced concrete, and other deleterious waste material would be removed from the shoreline to the extent feasible and hauled to an appropriate landfill for disposal. Larger non-reinforced concrete pieces would be broken up as feasible and reused along the shoreline. Properly sized non-reinforced concrete pieces may be used in the construction of the drift sills and/or cobble armor salt marsh design elements (which are to be built from imported and locally salvaged rock), but such material would not be placed along the restored beach areas where they may cause unintended erosion. The remainder of the clean fill material would be spread across the adjacent upland areas to the east. The re-graded slope would be covered with 6”-12” of sand to accommodate planted beach vegetation.

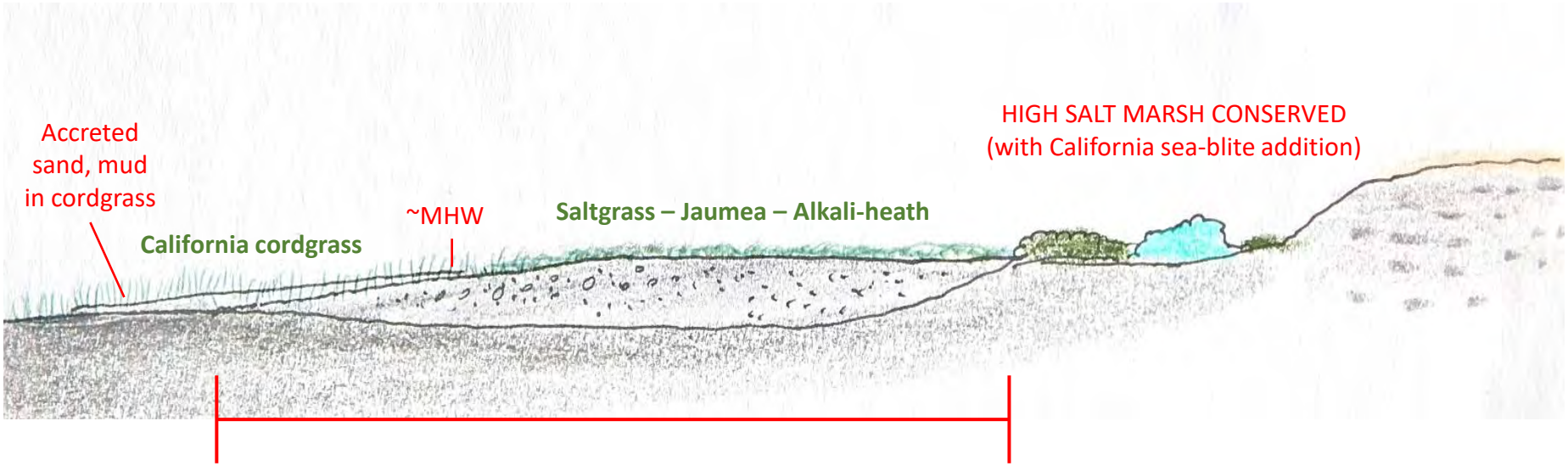
   Asphalt, reinforced concrete, and other deleterious waste material removed from the slope would be loaded into a dump truck and transported to Redwood Landfill in Novato for disposal. It is assumed that approximately 25% of the material unearthed by scarp grading (~20 CY) will need to be disposed of in this manner, requiring two truck trips to the landfill by a standard 10 CY dump truck. Under a worst-case scenario, all material removed by scarp grading (75 CY) would need to be disposed of, requiring up to 8 truck trips to the landfill.

   The graded slope would be a preferred location for temporary sand or gravel stockpiling during construction.

2. **Construct cobble-armored salt marsh “drift sills” as barriers to longshore transport of beach materials.** The restored and created beaches would be secured in place with “drift sills” – elevated mounds of locally sourced sand and gravel armored with a layer of imported rounded cobbles embedded in the surface and planted with native marsh vegetation. These erosion-resistant features would trap sand and build up low-relief vegetated sand mounds over time. The drift sill surfaces would be similar to existing salt marsh established on adjacent gravel and cobble shores on bay mud. Certain drift sills would include boulders buried below the surface to provide a firm core for greater erosion resistance and/or to provide a stable platform for equipment access for future adaptive management beach nourishment (see item 7 below). Properly sized non-reinforced concrete pieces may be used in the construction of the drift sills and/or cobble armor salt marsh design elements (which are to be built from imported and locally salvaged rock). A conceptual drawing of these drift sills is provided in Figure 5.

COBBLE SALT MARSH DRIFT-SILL

- Muddy sand/gravel matrix core, intermixed with boulders (as needed)
- Cobble and gravel embedded lag surface or mixed in mud
- Vegetative stabilization by salt marsh turf in mud
- Constructed top elevation near beach crest elevation (~8 ft NAVD88)
- Slopes bayward at ~10:1 (H:V); side slopes ~4:1
- Sequential sand accretion in vegetation canopy raises elevation over time



Drift-sill length approximates or exceeds maximum width of downdrift beachface (~60-80 ft)

Greenwood Beach Restoration Project

Figure 5

Peter Baye, PhD

Drift Sill Conceptual Design Rendering

The cores of the drift sills would be constructed from a mix of sand and gravel sourced from a local offshore borrow area (see discussion in item 4 below). This sand and gravel material would be placed on the shoreline and worked by an excavator and/or track bulldozer to form the drift sill cores to the desired specifications. Local and/or imported boulders would be mixed into the sill cores, as required. Once the sill cores are constructed, they would be top dressed with a single layer of imported cobbles embedded in to the surface and the void spaces plugged with rooted salt marsh vegetation (see item 5 below). Up to 24 truckloads of cobble and boulders for the drift sills would be delivered to the site, assuming a standard 10 CY dump truck is used for delivery. The material would be obtained from sources potentially as far away as Sacramento.

3. **Protect and restore extant tidal salt marsh.** Greenwood and Brunini beaches are separated by a salt marsh formed on the delta of the flood control channel. The larger salt-marsh habitat patch on the east side, formed on coarse sand, gravel, and bay mud, would be left intact. The salt marsh on the west (Greenwood Beach) side is mostly eroded. A portion of the marsh would be reconstructed with more erosion-resistant, coarse sediment (cobble armor) added to the surface of the marsh, to prevent storm waves and streamflow from scouring or undermining it (and potentially undermining the adjacent drift sill), while allowing vegetation to grow. The eroded remnants of the salt marsh on the western bank of the flood control channel, near the channel mouth, would be armored with a layer of imported, rounded cobble embedded into the existing surface and the void spaces plugged with rooted salt marsh vegetation (see item 5 below), similar to the drift sills. Approximately 6 truckloads of cobble for this design element would be delivered to the site, assuming a standard 10 CY dump truck is used for delivery.

4. **Place sand and gravel on the shoreline.** Once the drift sills are in place, the Greenwood and Brunini shorelines would be nourished with sand and gravel obtained from both local and imported sources to restore and expand the existing beaches. The local source would be the same as the source for the original beaches: the stream delta of the flood-control channel that runs through the park. The delta is composed of sand previously washed out from the beach and local watershed-derived coarse sediment (sand, gravel) eroded from the Ring Mountain watershed. The secondary source of sediment would be San Francisco Bay sand that has been dredged from the Petaluma River by the US Army Corps of Engineers for navigation. The imported sand is needed to ensure that the proportion of sand in the nourished beaches is high enough for waves to concentrate the sand in the surface layers of the beach, like the original beaches here. Material from both sources would be placed on the shoreline between the approximate elevations of mean sea level (MSL; ~3 ft NAVD88[3]) and the local high tide line[4] (HTL; ~7 ft NAVD88) and roughly graded into low-relief mounds, 2-3 ft thick, that would be naturally reworked into beach forms by waves over time. Beach material would be placed on the active beachface and on the low tide terrace within the footprint of eroded cobble fill material and eroded marsh soils. Along the Brunini beach shoreline, within the footprint of the expanded beach, a narrow lens of an imported mixture of gravel and cobble would be placed over the existing boulders at the toe of the cliff (at the top of the beach profile) to form a relatively erosion-resistant, mobile berm that would buffer the cliff against erosion and retreat. The proposed beach material sources and their end uses are described in further detail below.

[3] Relative to the North American Vertical Datum of 1988 (NAVD88)
[4] The maximum elevation on the shoreline reached by rising tides

- **Imported gravel and cobble for toe berm**. Quarried, rounded gravel and cobble material from commercial sources potentially as far away as Sacramento would be imported to the site for the toe berm feature at Brunini Beach. The material would be placed at the toe of the shoreline bluff either by direct dumping out of the delivery truck, or by an excavator or loader working from a local stockpile. Up to 5 truckloads of this material would be delivered to the site, assuming a standard 10 CY dump truck is used for delivery.

- **Locally-borrowed sand and gravel.** The flood-control channel delta is composed of a suitable mixture of sand and gravel for beach nourishment, closely matching the grain size distribution of the existing beaches. The project would involve excavating approximately 925 cubic yards (CY) of mixed sand and gravel from a 0.41-acre borrow area on the central delta. This borrow area would have a maximum depth of 2 ft and have a minimum bottom elevation of 1.3 ft NAVD88. The existing low-tide channel through the delta would be enlarged at the outlet of the depression to improve tidal drainage after construction. The depression would be refilled by natural sedimentation from storm outflows of the flood control channel and by deposition of bay mud. A study conducted in the winter of 2024 indicated that ~1ft deep depressions on the delta are completely filled in during storm events (within 1-2 days) with sediment similar in grain size distribution to the native delta, by a combination of locally-mobilized sediment and deliveries from the flood control channel. The borrow area is therefore expected to fill in to its original elevation over the course of one to two winters with typical rainfall/runoff events.

  Prior to initiating excavation, appropriate sediment control measures would be implemented to prevent migration of sediment into open water areas outside of the work area (see discussion in Section X, Hydrology and Water Quality). Sand and gravel material would be excavated from the borrow area by a low ground pressure excavator and directly placed on the shoreline, or loaded into low-ground-pressure (track) dump trucks for transport and placement at the desired end use area for subsequent reworking. Direct transport of material to the Brunini shoreline may not be possible due to the soft mudflats that exist between the delta and the eastern shoreline. If direct transport to Brunini Beach is not possible, material would be dumped on the Greenwood Beach shoreline, and reloaded into a wheeled dump truck for transport to Brunini Beach via the paved Bay Trail. The material would be then either dumped directly over the bluff onto the shoreline, or deposited in an upland temporary stockpile where a wheel loader or excavator would relocate it to the desired end use location for subsequent reworking.

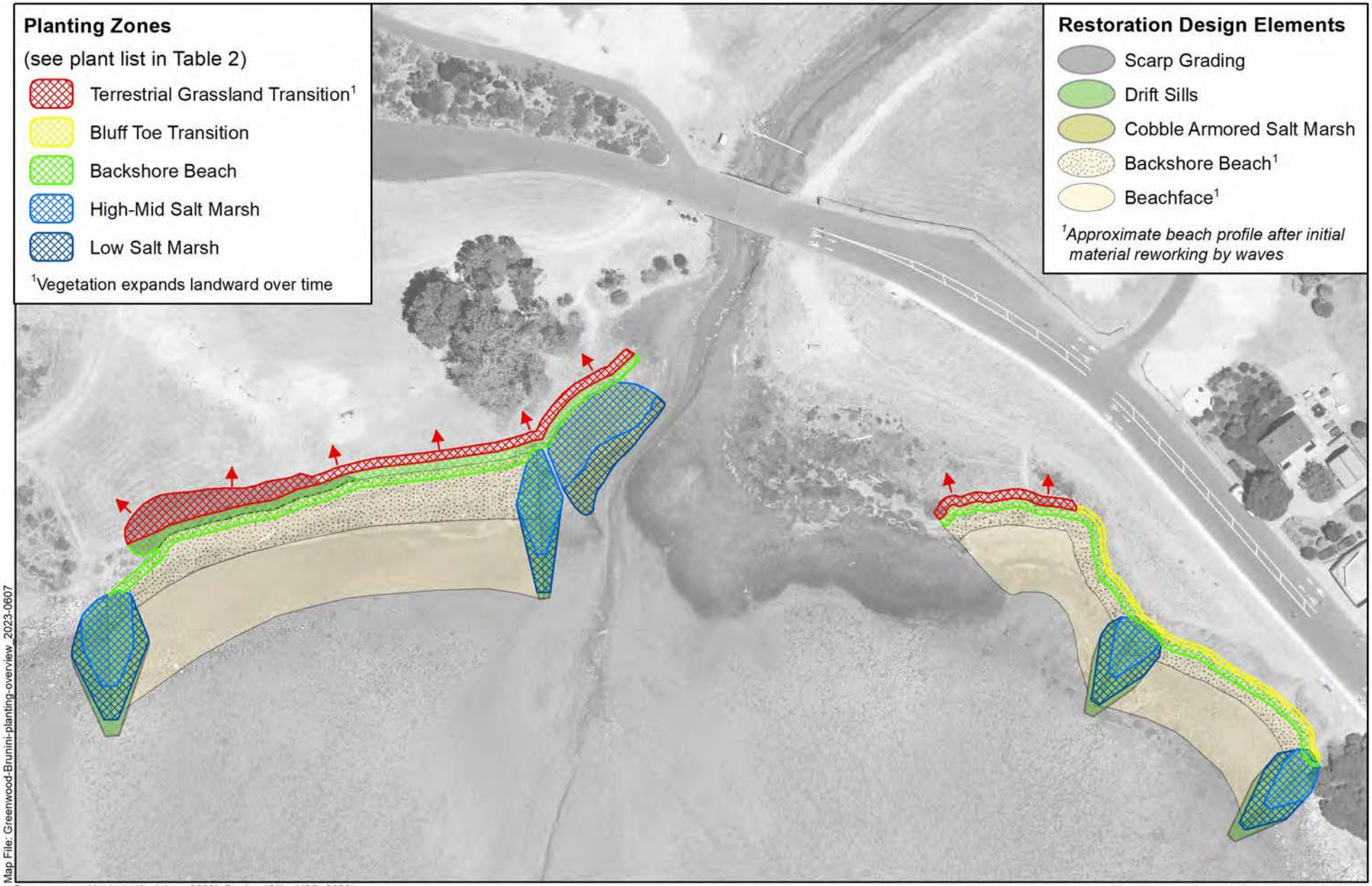
- **Imported dredged bay sand from Petaluma River.** The project would import recycled, dredged San Francisco Bay sand matching the local beach sand grain size and color. The sand is located at a dredge sediment disposal site at Shollenberger Park in Petaluma, approximately 30 miles north of the project site. The sand proposed for use in the project would be tested for contaminants prior to use for beach nourishment with input and approval from the RWQCB and/or DMMO. Approximately 1,355 cubic yards (135 truck loads) of this sand would be excavated and trucked to Greenwood Beach to supply the uppermost layer of beach sand, which would be washed and re-deposited by waves. Sand would be either directly deposited by the delivery trucks onto the beaches, or placed with an excavator or loader working from a temporary stockpile. The sand would be spread by a loader or

excavator as a cap layer above the local gravel-sand foundation with a maximum elevation of 7.0 ft NAVD88.

5. **Plant native beach and salt marsh vegetation.** Native vegetation plantings are an essential functional component of the beach design. The preliminary revegetation plan and plant list are shown in Figure 6 and Table 2, respectively. The highest, most landward parts of the beach would be vegetated by perennial, sand-loving shoreline plants native to San Francisco Bay. This vegetation (a mix of high-salt-marsh plants and beach plants) would help trap sand and wrack (debris, driftwood), and reduce storm waves, thereby reducing erosion and increasing deposition during sea-level rise. Plantings would be particularly important in the drift-sills and cobble-armored marsh features, helping to stabilize them with roots, and trap and accumulate drifted local sand. The landward edge of the plantings would include creeping native grasses that form a durable turf that is tolerant of trampling, and suitable for park uses. The preliminary plant list may be modified based on availability of source material at the time of construction.

Table 2. Preliminary Plant List

Planting Zone (see Fig 6)	**Proposed Plant List**
Terrestrial Grassland Transition	Gould's wildrye (*Leymus xgouldi*) Saltgrass (*Distichlis spicata*) Mixed native annual spring and summer wildflowers
Bluff Toe	Gould's wildrye Saltgrass
Backshore Beach	Western ragweed California sea-blite (*Suaeda californica*) Beach-bur (*Ambrosia chamissonis*) Beach saltbush (*Extriplex californica*)
High-Mid Salt Marsh	Saltgrass Pickleweed (*Sarcocornia pacifica*) Alkali-heath (*Frankenia salina*) Fleshy jaumea (*Jarmea carnosa*)
Low Salt Marsh	California cordgrass (*Spartina foliosa*)



Map File: Greenwood-Brunini-planting-overview_2023-0607

Data sources: Air photo (Audubon, 2022); Design (GillenH2O, 2023); Planting plan (Baye, 2023)

Greenwood Beach Restoration Project

1:900 (1" = 75' at letter size)

0 37.5 75 Feet

0 10 20 Meters

Figure 6

Gillenwater GillenH2O Consulting

Greenwood and Brunini Beach Preliminary Revegetation Plan

After completion of earthmoving, and after fall rains have thoroughly wetted the sand profile, the drift-sills, cobble marsh, and backshore/transitional grassland zones of the constructed beach profile would be planted with plugs and other vegetative propagules of the proposed plant species. Temporary cable and post fencing would be installed around planted areas for two years after planting to prevent trampling while vegetation establishes. Designed gaps in the fencing would provide dedicated pedestrian shoreline access points during the vegetation establishment period. Educational, nature interpretation signs would promote public cooperation in limiting trampling and disturbance to the new shoreline vegetation.

6. **Place logs resembling natural driftwood on the shoreline.** Logs up to two feet in diameter would be placed on the restored Greenwood Beach, above normal high tides, and irregular, smaller limbs would be placed within the new planted native vegetation at the west end of Greenwood Beach. These logs would help reduce storm wave runup and erosion and support native backshore vegetation colonization and spread. Larger logs may also provide ancillary public access benefits by providing seating close to the water's edge, like natural benches. These logs are proposed as mobile elements that storm wave action would drive landward over time. As storms drive logs onshore to higher landward positions, they may be replaced opportunistically. No log placement is proposed at Brunini Beach.

   The most likely source of logs would be salvage from local tree removals, often Monterey cypress or blue gum eucalyptus. Stockpiled driftwood would be placed on the Greenwood Beach shoreline following the first one or two winter storms that rework the placed beach sediments into a preliminary beach profile. Most driftwood pieces could be placed by hand crews, though a small track loader may be required to place the larger logs.

7. **Maintain existing public access and uses.** While the beaches and access areas would be closed to the public during construction, they would be open to the public for recreational use after construction is completed. Public access to the shore that currently exists would remain unchanged after completion of the restoration project. The restored beaches would improve the public access values of the shoreline by restoring beach access lost during the last decade of erosion. The proposed project would not change or expand any uses of the Park or beaches compared to existing use types and levels.

   The vegetation proposed for restored backshore areas (i.e., short, turfy, and trample resistant plants) would be compatible with the existing diffuse pattern of public access to the shoreline. Temporary cable and post fences (with dedicated public access gaps) would be placed around new plantings for two years to prevent trampling while they establish, but no physical barriers or restrictions to beach access would be added.

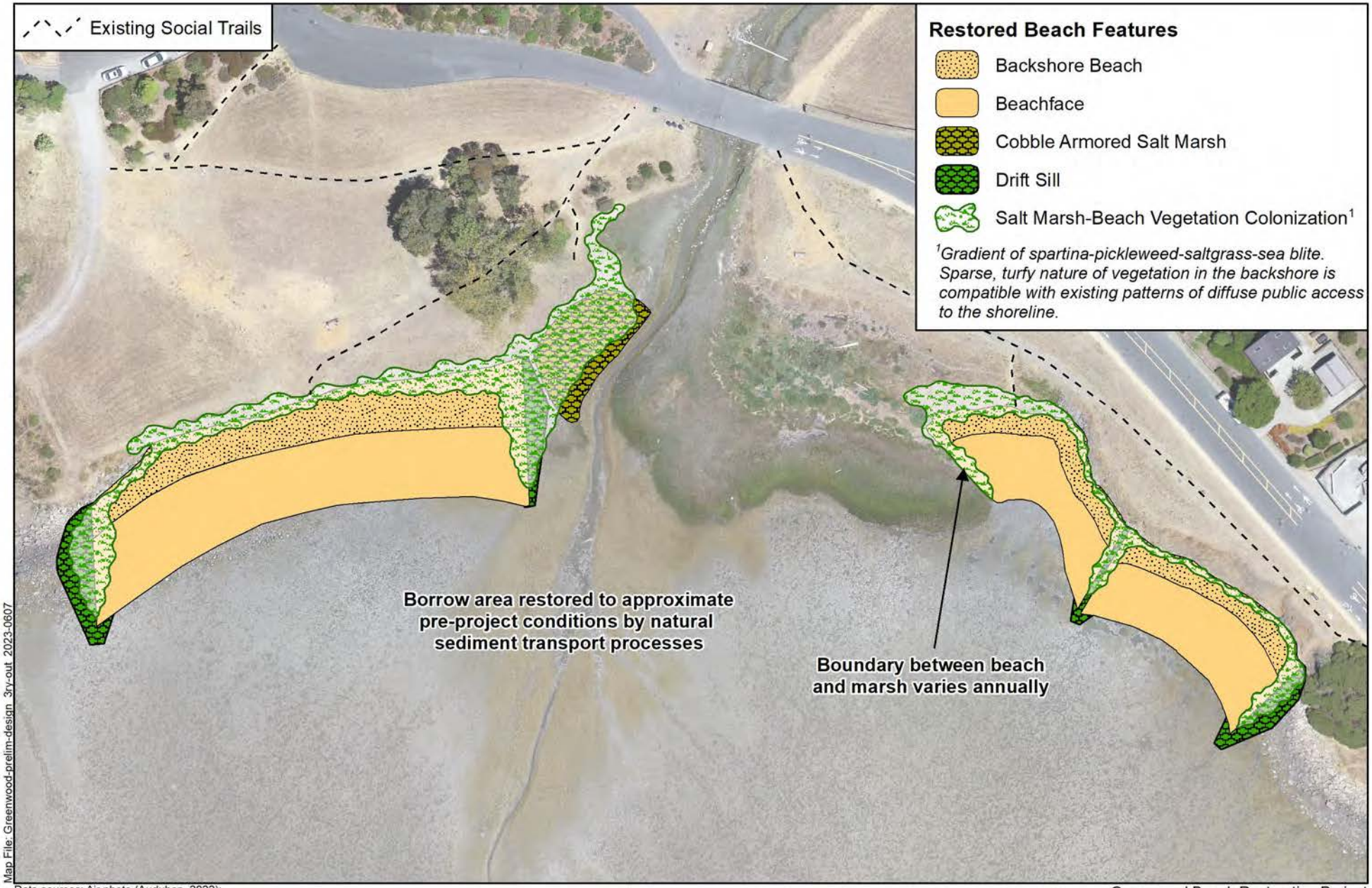
8. **Long term site maintenance and adaptive management.** Following project implementation, the site would continue to be managed by the Town of Tiburon as part of Blackie's Pasture Park, as it is currently. The drift-sills are expected to resist significant erosion and are likely to accrete (grow) with trapped sand in the upper shoreline vegetation. The beaches confined by the drift-sills are designed to be more stable than the former beaches, but within a decade they may benefit from replenishment of sand to compensate for gradual erosion and sea-level rise. Gravel is much less likely to be eroded away from the beach than sand, but also could be replenished opportunistically with imported material, as needed.

   Beach nourishment needs are anticipated to be on the order of 100-300 CY over a 10-year time period, occurring in 10-50 CY nourishment events. Suitable material would be sourced from dredging operations occurring in the region. Beach logs (driftwood) also would be replaced as needed. Beach nourishment of Greenwood Beach would likely occur by mechanical placement of sand on the sloping intertidal beach at the far west (updrift) end in late fall, before high tides and high wave action occurs. Nourishment of Brunini beach would likely occur by direct placement (dumping) of sand over the bluff edge to the shore, to be eroded and re-deposited by waves.

Post-Construction Site Evolution

The initially placed beach sediments would only be temporary features. Following their placement, waves would erode and re-deposit the sediments, re-shaping them into natural beach forms that would continue to change seasonally, and over decades. The beaches would flatten and become coarser (i.e., more gravelly) under the influence of winter storms, and become sandier, slightly steeper, and higher during calm periods of constructive wave action (usually spring, summer, and fall). A rendering of potential beach planform morphology and vegetation colonization after approximately three years is provided in Figure 7.

Over decades, the high tide line is expected to retreat landward, driven by major storm wave action and extreme high tides that reach higher as sea-level rises. The beach is expected to retreat landward as well (where not confined by the shoreline bluff). Logs placed on the beach also would be driven landward by waves over time and rolled into native vegetation at the back of the shore. Adaptive management, as described above, would increase stability of the beaches and help to reduce sea-level-rise impacts to the beaches.



Map File: Greenwood-prelim-design_3ry-out_2023-0607

Data sources: Air photo (Audubon, 2022); Design (GillenH2O, 2023)

1:900 (1" = 75' at letter size)

0 37.5 75 ft

0 10 20 m

Greenwood Beach Restoration Project

Figure 7

Proposed Site Conditions - 3 Years Post-Construction

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Construction

Construction Equipment and Crews

The project would be constructed using typical land-based equipment. Construction activities taking place from the soft sediments of the shoreline and offshore areas would require low ground pressure equipment, potentially supported by crane mats in some circumstances. The construction equipment proposed for this project includes:

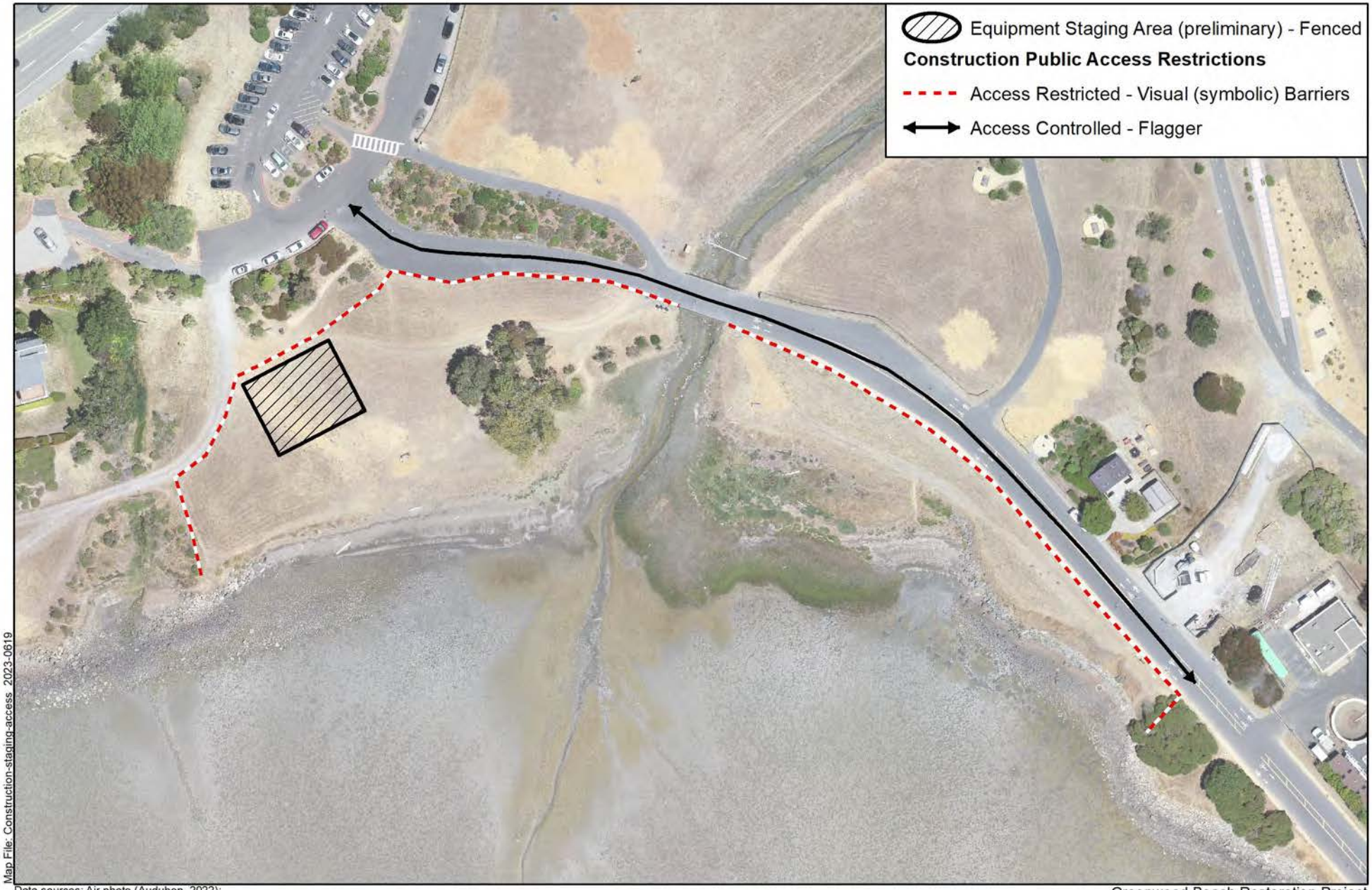
- Low ground pressure excavator (2-4)
- Low ground pressure (track) dump truck (2-4)
- Wheel loader (1-2)
- Compact track loader (1)
- Wheeled dump truck (1-2)
- Track bulldozer (1)
- Concrete breaker
- Various hand tools and small equipment

Equipment would be delivered to and retrieved from the project site by flatbed truck. Equipment would be staged and maintained in a dedicated upland staging area behind Greenwood Beach, adjacent to the work area (Figure). This area would be fenced off to prevent public access.

The construction crew would likely consist of 5-10 people, depending on construction sequencing and the number of concurrent activities taking place at the site at a given time. Crew members would park at the Blackie's Pasture public parking lot during construction.

Public Access During Construction

Public access within the active work area along the shoreline and backshore would be restricted during earthwork activities (Figure). Temporary construction fencing and/or symbolic visual barriers (cordon, barricade tape, cone lines, etc.) would be installed around these work areas and warning signs would be posted to prevent the public from accessing the work areas. In addition, access along the Bay Trail immediately adjacent to the construction area would be controlled by flagger (traffic control person) to prevent bicycle/pedestrian conflicts with construction vehicles utilizing the Bay Trail. Signs announcing the project construction timeline and public access restrictions would be posted at the Blackie's Pasture public parking lot at least one month in advance of construction. Notice also would be posted on the Town of Tiburon and Bay Trail websites. It is anticipated that the public access restrictions would be in place for approximately 8 weeks during construction in the late summer-fall (see the construction schedule discussion below).



Map File: Construction-staging-access_2023-0619

Data sources: Air photo (Audubon, 2022);
Design (GillenH2O, 2023)

Greenwood Beach Restoration Project

1:1,200 (1" = 100' at letter size)

0 50 100 ft

0 15 30 m

Figure 8

Construction Staging and Public Access Restrictions

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Construction Schedule and Approach

The project would be constructed as early as 2024, depending on the timing of implementation funding. Construction would take place late in the dry season, likely in the September – October timeframe, though construction could potentially extend through November as necessary. Earthwork is anticipated to take approximately two months to complete, with revegetation and driftwood placement activities extending further into the winter depending on precipitation timing and intensity. All work on the shoreline, below the high tide line, would cease by November 30 to protect migrating salmonids. Construction activities on the shoreline would occur during low tides on emergent tidal flats and beach surfaces (i.e., in the dry), which would restrict potential work hours.

Construction would take place on weekdays during daylight hours, between 7AM and 5PM, consistent with the Town of Tiburon municipal code. No night work or work under lights is proposed. Work on weekends is not proposed but may be necessary since the work is dependent on tide levels. Weekend work would occur only if necessary to ensure earthwork is completed by the end of November, and would be consistent with Town of Tiburon code requirements. There would be no work on observed holidays.

Site Preparation, Resource Protection, and Site Restoration

Prior to earthwork commencement, all preconstruction biological surveys, habitat protection measures, and worker training required in the project permits and all stormwater and sediment management measures required in the project Water Pollution Control Plan (WPCP) would be implemented. Equipment staging and temporary material stockpile areas would be identified and established, and temporary construction fencing, visual barriers, and signage would be installed around the work area.

Following earthwork completion, equipment would be demobilized from the site, temporary equipment staging and material stockpile locations and construction fencing would be decommissioned, and unintentional damage to public access infrastructure (trails, paths, benches, etc.) and landscaped areas would be restored to pre-project conditions. Erosion control elements (straw wattles, seed-free rice straw, etc.) would be installed around disturbed areas as necessary.

State and Local Agency Approvals Utilizing this Document

- Town of Tiburon (CEQA Lead Agency) approval of the proposed project construction at its Blackie's Pasture Park
- San Francisco Bay Conservation and Development Commission (CEQA Responsible Agency). San Francisco Bay Permit
- California State Lands Commission (CEQA Responsible Agency). Public trust easement consistency.
- State Water Quality Control Board, San Francisco Bay Region. (CEQA Responsible Agency) Clean Water Act Section 401 Water Quality Certification
- California Department of Fish and Wildlife. (CEQA Trustee and Responsible Agency). Trustee agency for state-listed species; Responsible Agency if Lake and Streambed Alteration Agreement is required.

Federal Agency Approvals

- U.S. Army Corps of Engineers, San Francisco District. Clean Water Act Section 404 Nationwide Permit No. 27
- U.S. Fish and Wildlife Service. Federal Endangered Species Act Section 7 Consultation – NLAA likely (triggered by the Clean Water Act Section 404 permit).
- National Marine Fisheries Service. Federal Endangered Species Act Section 7 Consultation – NLAA likely (triggered by the Clean Water Act Section 404 permit).

III. INITIAL STUDY CHECKLIST

The initial study checklist recommended by the CEQA Guidelines is used to describe the potential impacts of the proposed Project on the physical environment.

I. Aesthetics

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			**X**	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			**X**	
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			**X**	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				**X**

Discussion

a, c) The proposed project would temporarily alter views of Greenwood and Bernini beaches during the approximately 2-month construction period. Construction equipment would be visible on the shore and in the marsh/beach area intermittently during this time. Post construction, views of the beaches would be improved compared to existing conditions, with sandy beaches and enhanced marsh vegetation replacing concrete and asphalt debris, mud flats, and artificial rocky shore areas. Overall, this impact would be ***less than significant***.

b) US Highway 101 (also incorporates US 1 in the project area) is a designated State Scenic Highway. However, the proposed project would be about 2 miles from the highway and would not be visible from it. Therefore, the project's impact would be **less than significant**.

d) The project would not involve nighttime construction and no lighting would be used on-site, either during construction or afterwards. ***No impact*** would occur from lighting.

II. Agricultural and Forestry Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				**X**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				**X**

Discussion

a-e) The project site is covered by existing park facilities, including the existing beach and uplands. There are no agricultural or forested lands on or in the vicinity of the park. Therefore, the project would not result in the conversion of farmland or forestland to non-agricultural uses would have **no impact** on agricultural or forest resources.

III. Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			**X**	
b) Result in a cumulatively considerable net increase of any criteria for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?			**X**	
c) Expose sensitive receptors to substantial pollutant concentrations?			**X**	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			**X**	

Background

This section describes air quality impacts associated with the proposed project and is consistent with the methods described in the Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (May 2017).

The air quality analysis includes a review of criteria pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (coarse or PM_{10}), and particulate matter less than 2.5 micrometers (fine or $PM_{2.5}$).

The United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA) for the criteria pollutants and California Air Resources Board (CARB) has established California Ambient Air Quality Standards (CAAQS). Air basins where NAAQS and/or CAAQS are exceeded is designated as a “nonattainment” area. If standards are met, the area is designated as an “attainment” area.

The project site is located within the San Francisco Bay Area Air Basin (Air Basin) under the jurisdiction of the BAAQMD. The BAAQMD is the local agency responsible for the administration and enforcement of air quality regulations for the area. The Air Basin is currently designated “nonattainment” for state and national (1-hour and 8-hour) ozone standards, for the state PM_{10} standards, and for state and national (annual average and 24-hour) $PM_{2.5}$ standards. The Air Basin is designated “attainment” or “unclassifiable” with respect to the other ambient air quality standards.

Discussion

a) The BAAQMD *2017 Clean Air Plan/Regional Climate Protection Strategy (CAP/RCPS)*, which provides a roadmap for BAAQMD’s efforts over the next few years to reduce air pollution and protect public health and the global climate. The 2017 *CAP/RCPS* identifies potential rules, control

measures, and strategies that BAAQMD can pursue to reduce air quality and greenhouse gas emissions in the Bay Area. Determination of whether a project supports the goals in the 2017 *CAP/RPCS* is achieved by a comparison of project-estimated emissions with BAAQMD thresholds of significance. If project emissions would not exceed the thresholds of significance after the application of all feasible mitigation measures, the project is consistent with the goals of the 2017 *CAP/RPCS*. As presented in the subsequent impact discussions, the proposed project would not exceed the BAAQMD significance thresholds; therefore, the proposed project would support the primary goals of the *2017 CAP/RCPS* and would not hinder implementation of any of the control measures. Therefore, this impact would be **less than significant**.

b) ***Construction Impacts***

Project construction would generate short-term emissions of air pollutants, including fugitive dust and equipment exhaust emissions. The BAAQMD *CEQA Air Quality Guidelines* recommend quantification of construction-related exhaust emissions and comparison of those emissions to significance thresholds. The Sacramento Metropolitan Air Quality Management District (SMAQMD) Road Construction Emissions Model (Version 9.0.1) was used to quantify construction-related pollutant emissions (SMAQMD 2022).

Table AQ-1 provides the estimated short-term construction emissions for the proposed project. The average daily construction period emissions (i.e., total construction period emissions divided by the number of construction days) were compared to the BAAQMD significance thresholds. Construction-related emissions would be below the BAAQMD significance thresholds.

Table AQ-1: Estimated Daily Construction Emissions (pounds)

Condition	ROG	NOx	PM_{10}[1]	$PM_{2.5}$[1]	CO
Construction	2.06	20.50	0.96	0.83	24.45
Significance Threshold	54	54	82	54	---
Significant (Yes or No)?	No	No	No	No	No

NOTE: PM_{10} and $PM_{2.5}$ significance thresholds apply to exhaust emissions only.
SOURCE: SMAQMD, 2022.

BAAQMD's *CEQA Air Quality Guidelines* require that projects implement best management practices (BMPs) to control fugitive dust and exhaust emissions regardless of the estimated construction emissions including:

Fugitive Dust BMPs

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

1

- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action with 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Basic Exhaust Emissions Reduction BMPs

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

As indicated, the estimated construction emissions would be below the BAAQMD's significance thresholds and the proposed project construction impacts would be **less than significant.**

Operational Impacts

Following project implementation, the site would continue to be managed by the Town of Tiburon as part of Blackie's Pasture Park, as it is currently. Beach nourishment needs are anticipated to be on the order of 100-300 CY over a 10-year time period, occurring in 10-50 CY nourishment events. This would result in 10 to 30 dump truck round trips over a 10-year period, which would generate negligible air quality emissions and would not exceed BAAQMD's operational thresholds of significance. Therefore, operational air quality impacts associated with the proposed project would be **less than significant**.

Cumulative Impacts

The BAAQMD *CEQA Air Quality Guidelines* recommend that cumulative air quality effects from criteria air pollutants also be addressed by comparison to the mass daily and annual thresholds. These thresholds were developed to identify a cumulatively considerable contribution to a significant regional air quality impact. As shown previously, the project-related construction and operational emissions would be below the significance thresholds. Therefore, the proposed project would not be cumulatively considerable and cumulative impacts would be **less than significant**.

Conclusion

As shown, the proposed project construction and operational emissions would be **less than the BAAQMD significance thresholds** per BAAQMD's *CEQA Air Quality Guidelines*.

c) The proposed project would constitute a new emission source of diesel particulate matter (DPM) from construction activities (on-road haul truck and off-road equipment exhaust emissions). Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. The proposed project is a short-term construction activity (approximately two months) and exhaust PM_{10} and $PM_{2.5}$ emissions (see Table AQ-1) would be 1.2 and 1.5 percent of BAAQMD's significance thresholds, respectively. Off-road construction equipment would be regulated per the State's In-Use Off-Road Diesel Vehicle Regulation and on-road haul trucks would be regulated per the State's Truck and Bus Regulation.

Therefore, emission of substantial concentrations of pollutants and associated health impacts would be **less than significant**.

d) The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact. With respect to the proposed project, diesel-fueled construction equipment exhaust would generate some odors. However, these emissions typically dissipate quickly and would be unlikely to affect a substantial number of people. The proposed project would not involve operational activities that generate odors. Therefore, odor impacts would be **less than significant**.

IV. Biological Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			**X**	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				**X**
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				**X**

Background

The biological resource impact assessment is based on multiple sources of information. The project team has directly observed and recorded the physical and biological evolution of the project site regularly each year, over multiple seasons, since 2012. Recreational use patterns of the site that may affect vegetation and wildlife were also observed during this period. Detailed site surveys of shorebirds and tidal flat invertebrates were conducted in 2022 (Ayala 2022, Audubon California 2022). The long-term and short-term ecological outcomes of similar projects in the region were also reviewed by the project team. “Desktop”

review of biological resources included examination of published literature, related environmental assessments and regional biological conservation plans, aerial photo analysis, and biological databases.

In addition to the project site, biological conditions and potential impacts are discussed briefly for the Petaluma River dredged sand stockpile at Shollenberger Park, which is a proposed material source for this project.

Biological Resources Setting

The shoreline habitat complex of Blackie's Pasture occurs within northern Richardson Bay, at the northwest end of the Tiburon Peninsula's Tiburon Linear Park. Tiburon Linear Park lies above rocky shore intertidal habitats (steep rocky slopes and cliffs, wave-cut intertidal benches) with natural bedrock outcrops, artificial boulder revetments (rock slope protection), and pockets of natural remnant natural mixed sandy and rocky shores. The tidal flats are narrow along the relatively steep shorelines of Tiburon Linear Park. Tidal flats and backshore slopes widen at the valley location of Blackie's Pasture shore. The shoreline of Blackie's pasture is mostly a rocky artificial fill embankment, including boulders from local quarries. A description of the various habitat types found within and adjacent to the project area is provided below. The project area and primary features of interest are presented in Figure 2.

Lowland terrestrial habitats and drainages. The lowland valley and bayland fill found in the backshore areas of the project site (immediately behind the shoreline) are flat to gently sloping, and support mostly rough (ruderal) non-native grassland. The park also includes minimally irrigated ornamental landscaping (shrubs, perennials) and some scattered non-native and native trees and shrubs. Recreational use of the rough grassland is high. The predominantly non-native weedy vegetation of the rough grassland is highly trampled, and disturbed by gophers. Low-density residential development with mixed ornamental and native tree cover is prevalent along the shore to the west, on artificial fill platforms adjacent to the park, and on cliff tops to the west. A small freshwater drainage ditch with sparse, shaded freshwater marsh and riparian thickets occur at the extreme west end of the park, bordering residential development outside the project area.

No coastal scrub vegetation stands occur along the shoreline within the project area. Most small scrub stands near or on the shore are non-native ornamental species. A few isolated coyote brush shrubs, one California sage shrub, and one black elderberry shrub occur on the eroded artificial bluff fill above Brunini Beach and Marsh. Relatively intact stands of remnant coastal scrub vegetation occur on natural cliff and bluff substrates along Tiburon Linear Park, south of the project site.

Tidal flood control channel and delta habitat complex. The center of Blackie's Pasture grassland flats is bisected by a trapezoidal earthen flood control channel that drains a sub-watershed of Ring Mountain. The flood control channel is artificially channelized to drain the filled historic bayland marshes and ponds at the mouth of the valley it occupies. The tidal flood control channel conveys freshwater winter storm flows that transport sediment to the shore. The flood control channel is tidal up to Tiburon Boulevard. Backwater tidal sediment deposited in the low-flow dry season form small muddy beds, bars, and narrow fringing salt marsh in the channel (see salt marsh habitat description, below), below steep grassy banks that are maintained by mowing. Mowing of the channel banks excludes riparian scrub or other tall vegetation cover.

The flood control channel mouth opens to an ebb tidal delta of mixed gravel and sand flats, which are usually capped by a thin layer of bay mud. The artificial channel branches and spreads over the delta, diminishing to sheetflow over the lower muddy tidal flats. The tidal flats become increasingly muddy (more fine-grained, silt and clay) along a gradient increasing with distance from the coarser delta. The mud surface is often dotted and tracked from foraging by shorebirds, invertebrate burrows, and pock-marked with depressions from foraging bat rays. The wide tidal flats are continuous with intertidal and subtidal soft sediment habitats of Richardson Bay. The sand and gravel beaches and salt marsh flank the shoreward end of the delta at the mouth of the channel, below the pedestrian bridge.

Tidal salt marsh habitats. High intertidal salt marsh is perched on a high intertidal gravel and sand portion of the delta at the channel mouth. It persists only on the east side of the channel mouth today, as "Brunini Marsh". The former salt marsh patch on the west side of the channel mouth progressively eroded after 2012-2013, and disappeared to become incorporated in the sandy-gravel Greenwood Beach by 2017. Brunini Marsh is a small salt marsh patch only few decades old. It is highly isolated and remote from any other substantial salt marsh habitats or marsh wildlife corridors in Richardson Bay that could connect it to other any other sheltered pocket salt marshes.
Brunini Marsh is dominated by pickleweed, grading down to wave-sheared, dwarfed native Pacific cordgrass at the outer bay edge. It also supports associated widespread native salt marsh plants including California sea-lavender, fleshy Jaumea, and alkali-heath. Brunini Marsh also supports a local patch of California sea-blite, an endangered salt marsh shrub that was successfully re-introduced for a research project in 2017. It later naturalized and spread to become locally dominant at the east end of Brunini Marsh. Brunini Marsh also supports a stand of a native perennial grass, Gould's wildrye, in the salt marsh transition zone. Non-native grasses, invasive non-native perennial pepperweed, and patch of iceplant occur in the sandy (former beach) transition zone of Brunini Marsh.

The salt marsh sediments of Brunini Marsh are atypical for Richardson Bay: they are composed of layered gravel, sand, and drifted organic detritus. The salt marsh naturally lacks any tidal creeks or drainages because the coarse-grained substrate is deposited by energetic, turbulent waves and delta flooding, not bay mud in sheltered, back-water settings. Brunini Marsh is a naturally disturbed deposition center for floating debris at the head of Richardson Bay, where thick wracks of often accumulate after storms. The thick variable storm-deposited wracks of algae (seaweeds), eelgrass, marsh litter, and woody debris can smother marsh vegetation patches, and nourish productive populations of amphipods (beach or sand hoppers and their relatives). The large wracks also support intermittent large stands of opportunistic shoreline weeds, including spearscale (fat-het) and saltwort.

Salt marsh wildlife at Brunini Marsh includes songbirds that move between the rough non-native grassland and scrub of the park, to the thicker cover of high salt marsh and grassland in the marsh. Western meadowlarks forage in sea-blite, pickleweed, and wildrye, and song sparrows (including San Pablo song sparrows) move between upland weed and scrub (fennel, bristly ox-tongue, coyote-brush) and gumplant and pickleweed in the salt marsh. Snowy egrets forage in the tidally flooded margins of the fringing salt marsh of the flood control channel, but wading birds and shorebirds seldom occur in the higher zone of Brunini Marsh.

The narrow fringing salt marshes of the flood control channel are mostly dominated by pickleweed, mixed with alkali-heath that tolerates mowing along the banks. The outer edges of the fringing channel salt marsh include patches of native Pacific cordgrass, and some patches of alkali-bulrush in the upstream reach of

the channel, above the sharp bend. The flood control channel tidal marsh also has established a persistent reproductive population of an invasive, rapidly spreading non-native Mediterranean sea-lavender, which extends to the mouth of the channel.

Beach habitats. Existing beaches along the Blackie's Pasture shoreline originally formed decades ago around the margins of the salt marsh patches that flanked the mouth of the flood control channel. The beaches are composed mostly of mixed gravel and sand eroded from the watershed, sorted and deposited by wave action. The beach habitat is recent in origin, associated with the bay fill and flood control channel sedimentation, but it occurs close to the footprint of a larger natural, historic beach. There is only sparse and unstable vegetation on the beach: either annual or transient shoreline weeds in drift-lines of debris (saltwort, spearscale), or extensions of high salt marsh edges or remnants (saltgrass, alkali-heath). Some native perennial beach plant species, such as beach-bur, do occasionally establish, but they are heavily trampled and seldom persist. The lower, saturated beachface, closer to mean sea level, is pebbly to muddy, and supports low density populations of burrowing worms and other invertebrates like ghost shrimp and amphipods (beach hoppers and relatives). Beach habitats in Richardson Bay today are scarce, but were historically frequent in small pockets and coves, where they formed the bay edge of some salt marshes. The nearest beach habitats are natural ones at Richardson Bay Audubon Sanctuary (sand and gravel beaches at the bluff toe, west Greenwood Beach Road), and recently constructed cobble, gravel and sand beaches at Aramburu Island.

Rocky shore habitats. The extreme west and east ends of the Blackie's Pasture shoreline are covered with a mix of older concrete and asphalt rubble eroded out of post-WWII unregulated earthen bay fill, and later non-engineered placement of quarry rock and boulders for protection against wave erosion. These hard substrates are ecologically similar to the natural rocky shore habitats of local bedrock headlands and cliffs, some of which persist in relatively natural conditions where boulder armoring does not occur. The remnant natural rocky shore habitats appear to provide local source populations for rocky shore invertebrates to colonize the artificial rocky fill. The rocky shore habitats here support relatively small populations of attached macroalgae (seaweeds), but the sheltered undersides of rocks and rubble support many species of crabs (mud crabs, porcelain crabs, shore crabs), amphipods, acorn barnacles, and small tidepool fish (gunnel, prickleback). Native Olympia oyster shells attached to rock undersides are present, but live oysters are infrequent. Shorebirds foraging in the rocky intertidal areas at low tide include black oystercatchers (infrequent among rocks), least sandpipers and western sandpipers (frequent in rubble and cobble).

Estuarine tidal flat and submerged aquatic habitats. Tidal flat habitats are locally extensive surrounding the flood control channel delta at Blackie's Pasture. The local tidal flats intergrade from fine-grained mudflats, to coarse gravel and sandy delta flats near the mouth of the flood control channel. Invertebrate samples from six sediment cores were analyzed from the intertidal flats bayward of Blackie's Pasture in June 2022 (Ayala 2022), during a very low tide. Non-microscopic tidal flat invertebrates were identified to the higher taxonomic level of order, but not species, and the relative abundance of each order was measured by weight.

Most of the tidal flat invertebrate biomass surveyed in early summer was composed of tiny Venus clams (order Venerida). These were likely the long-established non-native amethyst gem clam, *Gemma gemma*, which is very abundant and widespread in San Francisco Bay. The second most abundant type of tidal flat invertebrate (by weight) were oligochaete and polychaete worms, followed by gammarid amphipods (relatives of beachhoppers). Trace amounts of other species from six higher taxonomic orders were found.

Incidental detections of the long-lived burrowing ghost shrimp (a decapod, *Neotrypaea californiensis*, formerly *Callianassa californiensis*) in finer muds of sheltered nearshore mudflats were recorded during other project field investigations. Small clams and worms are consumed by shorebirds and some fish species, including juvenile bat rays (*Myliobatis californica*).

No local fish surveys were conducted in the submerged tidal flats near Greenwood and Brunini beaches. Estuarine fish in San Francisco Bay generally forage over submerged tidal flats at high tide. Regionally widespread native estuarine fish species of the North Bay and northern Central Bay that are expected to occur in Richardson Bay include bat rays (*Myliobatis californica*), northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), Pacific staghorn sculpin (*Leptocottus armatus*), three-spined stickleback (*Gasterosteus aculeatus*), topsmelt (*Atherinops affinis*), and coastrange sculpin (*Cottus aleuticus*). Juvenile and adult migrating salmonids (salmon and close relatives; see also special-status fish species, below) that move through the Central Bay seasonally include multiple runs of Chinook salmon (*Oncorhynchus tshawytscha;* Central Valley, Central Coast), steelhead (*O. mykiss irideus*). Non-native estuarine fish expected to occur in submerged Richardson Bay tidal flats include species: chameleon goby (*Tridentiger trigonocephatus*), yellowfin goby (*Acanthogobius flavimanus*), rainwater killifish (*Lucania parva*), and Shokihaze goby (*Tridentiger barbatus*). Smaller estuarine fish, such as goby, topsmelt, stickleback, and sculpin, as well as migrating juvenile salmonids, may be expected to occur at times also in the tidal flood control channel, which has banks of narrow fringing tidal salt marsh up to the head of tide at Tiburon Boulevard.

Marine mammals that commonly occur in the shallow subtidal areas of Richardson Bay include harbor seals (*Phoca vitulina*), which are often present near Aramburu Island (opposite shore) when prey fish such as herring are abundant.

Submerged aquatic vegetation in Richardson Bay subtidal zones is composed of eelgrass, *Zostera marina*. Eelgrass an important habitat-forming clonal perennial plant that supports rich fish and invertebrate communities, including herring spawning habitat. No eelgrass beds occur in the extensive tidal flats bayward of Blackie's Pasture shoreline, although eelgrass litter is a common component of the shore drift-lines after winter storms.

Shollenberger Park Sand Stockpile

The off-site source of imported sand (Shollenberger Park dredge disposal site) is an unmanaged, sparsely vegetated, weed-dominated hydraulically deposited fan of sandy sediment that is well-drained (non-wetland) habitat. It is located within a diked bayland used intermittently as a confined dredge disposal site, most of which is seasonally flooded and filled with bay mud. The proposed excavation area is dominated by common non-native annual and perennial broadleaf weeds, and some young native shrubs and subshrubs common on the levees around the site, including gumplant (*Grindelia stricta* var. *angustifolia*) and coyote-brush (*Baccharis pilularis*). No special-status plants, or even any species in the same genus as special-status plants (with the exception of non-native doorweed, *Polygonum arenastrum*), have been observed in the weed-dominated sand mounds since they were first colonized by local levee weeds after deposition in 2020. No seed sources of sensitive native plant species that are adapted to dry sand mounds occur in the area.

The fringing brackish (low salinity) tidal marshes bordering Shollenberger Park along the Petaluma River are dominated by intertidal tule and bulrush marsh vegetation, sloping up to narrow zones of high brackish marsh dominated by saltgrass (*Distichlis spicata*), Baltic rush (*Juncus balticus*), alkali-heath (*Frankenia salina*), pickleweed (*Sarcocornia pacifica*), and gumplant. The naturally restored, young tidal marsh and mudflats south of the park, Grey's Marsh, are dominated by alkali-bulrush (*Bolboschoenus maritimus*), fringed with pickleweed. The Grey's Marsh tidal flats support high use by shorebirds, wading birds, and waterfowl, but recent protocol surveys for endangered California Ridgway's rails (performed periodically for the California Coastal Conservancy's Invasive Spartina Project) in the brackish tidal marsh habitats that are marginally suitable for this species have resulted in non-detections for California Ridgeway's rails (Olofson Environmental 2021). Historically, California Ridgway's rails have been detected at a very low frequency in the uppermost reaches of the most freshwater-influenced brackish tidal marshes of the Petaluma River. Virginia rails, a common rail species well-adapted to brackish tidal marshes, are audible at times in the fringing marshes along the Petaluma River. Typical San Pablo Bay brackish marsh wildlife, including song sparrows, gopher snakes, river otters, voles, and coyotes, range from common to occasional in various parts of the marshes beyond the perimeter levee of the park.

The tidal marsh and the weedy sand mound are separated by a high-use public trail on the top of the perimeter levee. The trail is used for wildlife and public shore viewing, on-leash dog recreation, and infrequent maintenance road use. The opposite bank of the Petaluma River near the park supports industrial land uses including an asphalt plant and gravel barge offloading facilities and trucks with regular activity. The Petaluma River channel supports frequent boat traffic, including motorboats with engine noise and wakes that can disturb wildlife.

The interior of Shollenberger Park is a confined dredge sediment disposal site that is seasonally flooded and mostly unvegetated. It supports high use by diverse shorebirds, wading birds, and dabbling ducks. The non-tidal mudflats are dry in most summers, and are generally barren of vegetation. They are often crusted with white gypsum minerals resembling salt flats after many years of summer evaporation following dredge sediment disposal. These interior seasonally flooded mudflats are distinct from the emergent sand mounds and fans.

Special Status Species

Special-status species" in context of this biological assessment is a broad category that encompasses all plant, fish, or wildlife species that are either:

- listed as rare, threatened, or endangered by state or federal resource agencies; or
- assessed to be species of special conservation concern by academic or other qualified scientific species experts, or
- ranked as rare or at risk of significant decline (or in need of protection or management, based on sound evidence) by qualified non-profit conservation science organizations.

The assessment of special-status species here is focused on a subset of those that are *reasonably likely or known to occur at the project site and its vicinity*, which may be affected by project construction activities or their outcomes. Other listed special-status species that are ecologically or biogeographically excluded and have no biologically meaningful relevance to impact assessment for the project are screened out with reasons given for confirmed or presumed absence in the project area, in Appendix B.

Special-Status Plants

The following special-status plant species were selected for more detailed assessment because they are either known to occur at the project site (one species), or have some reasonable potential to occur at the site because suitable habitat is present, and either historic or modern populations occur within a seed dispersal distance that could result in a previously undetected occurrence at or near the project site, even if the chances are low (4 species). As mentioned above, no special-status plants have potential to occur at the Shollenberger Park sand stockpile site.

Salt marsh bird's-beak [northern subspecies], Point Reyes bird's-beak *(Chloropyron maritimum subsp. palustre).* The northern subspecies of salt marsh bird's beak is a regionally rare annual salt marsh wildflower in San Francisco Bay. It is ranked by the California Native Plant Society as rank 1B.2, "rare, threatened or endangered in California and elsewhere"; no state or federal listing). The last substantial populations in San Francisco Bay occur from southern Richardson Bay to Gallinas Creek in Marin County. The nearest recent stable populations include a long-established one near Greenbrae Boardwalk in Corte Madera, and a series of colonies in south Richardson Bay from Bothin Marsh to Seminary Drive, so it is within dispersal distance of the project site. Sporadic colonies have appeared briefly at Aramburu Island (currently extirpated), but no colonies have ever been reported from the relatively young and small salt marshes around the tidal channel at Blackie's Pasture. No plants have been detected at or near the project site since 2012, despite repeated searches during its flowering season. This species is determined with high confidence to be absent at the project site, so is not further evaluated.

Johnny-nip, salt marsh owl's-clover *(Castilleja ambigua subsp. ambigua).* Johnny-nip is another annual wildflower that historically grew in the upper edges and transition zones of San Francisco Bay salt marshes, but has become extirpated over most of its range within the Bay's tidal marshes. No populations have been reported from Richardson Bay to the Petaluma River in either seasonal non-tidal wetlands or salt marsh edges in many decades. No plants have been detected at or near the project site since 2012, despite repeated searches during its flowering season. This species is determined with high confidence to be absent at the project site, so is not further evaluated.

Marin knotweed *(Polygonum marinense***)**. Marin knotweed is a slender, inconspicuous, narrow-leaved annual plant that was long presumed to be a native and endemic rare plant of tidal brackish and salt marshes of West Marin. It subsequently spread to shorelines and tidal marshes of San Francisco Bay, San Pablo Bay, and Suisun Marsh/west Delta. Its rapid range expansion from isolated occurrence of small populations, to widespread populations in a few decades is consistent with its suspected origin as a cryptic non-native species, and a questionable native rare species. California Native Plant Society has placed it on its "review list", rather than assign it a rarity rank. No Marin knotweed has been observed at or near the project site despite repeated searches since 2012; only the common non-native doorweed (*P. arenastrum*) is present in the uplands near the shore. Marin knotweed is determined with high confidence to be absent at the project site, so is not further evaluated.

White hayfield tarplant *(Hemizonia congesta subsp. congesta).* The white-flowered hayfield tarplant occurs in lowland grasslands and marsh edges, including disturbed areas. It is a conspicuous wildflower that blooms in summer to fall. No tarplant species been observed at or near the project site despite repeated searches since 2012, including the yellow tarplant (*H. congesta* subsp. *lutescens*) that is more widespread

near Marin County bayshores. White hayfield tarweed is determined with high confidence to be absent at the project site, so is not further evaluated.

California sea-blite *(Suaeda californica).* California sea-blite is a gray-green salt marsh shrub that typically grows in or near the high tide line. It was extirpated in San Francisco Bay by 1960, but a population was experimentally re-introduced for research at the shore of Blackie's Pasture (Brunini Beach and Marsh) in 2017. It has persisted and spread locally in a robust colony in Brunini Marsh that re-established after severe storm erosion in 2017. This species is also included in the project planting design as a sand-stabilizing, erosion-buffering component of the upper shoreline and transition zone vegetation at Greenwood Beach and Brunini Beach (see Section II, Project Description). The existing colony at Brunini Marsh, however, is entirely excluded from the project design impact footprint.

Special-Status Fish Species

The following special-status fish species are known to migrate through or inhabit Richardson Bay at various times of the year, and they have significant potential to occur in the project area. As mentioned above, the Shollenberger Park sand stockpile is located in an upland area that is isolated from the Petaluma River by a levee system. There are no aquatic habitats that could harbor special status fish species at that site.

Chinook salmon *(Oncorhynchus tshawytscha).* Multiple populations, or runs, of Chinook salmon are listed under federal and state Endangered *Species* Acts: Sacramento River winter-run, Central Valley spring-run, and Central Valley fall/late fall-run Evolutionary Significant Units (ESUs). Chinook salmon migrate through San Francisco Bay at different stages of their life-cycle. Juvenile outmigrating Chinook salmon migrate from upstream spawning and rearing habitats in the Sacramento River and its tributaries, downstream through the Estuary to the Golden Gate and Pacific Ocean. They also forage and grow in productive estuarine habitats, including tidal marsh channels and submerged tidal flats. Adults at sea migrate back to their spawning areas through the Estuary. The timing of adult migrations varies among distinct populations, or runs. Adult and juvenile Chinook salmon occur in San Francisco Bay during migrations.

Steelhead *(Onchorhynchus mykiss).* Two population segments of steelhead (anadromous rainbow trout) that migrate through and feed in the San Francisco Estuary are federally listed as threatened: California Central Valley and Central California Coast "distinct population segments". They are not currently state-listed, but are species of special concern. Steelhead adults spawn in freshwater gravel stream habitats of tributaries of San Francisco Bay and San Pablo Bay. Adults can spawn repeatedly over multiple years and migrations. Steelhead have complex, adaptable life-histories that include movements of juveniles and subadults between estuarine habitats, marine, habitats, and upstream freshwater habitats. Juvenile steelhead migrating through estuaries actively feed as they move downstream.

Green sturgeon *(Acipenser medirostris).* The southern "distinct population segment" of green sturgeon that occurs in the San Francisco Estuary is federally listed as threatened and is a state species of special concern. Adult and sub-adult green sturgeons often enter estuarine habitats from marine waters in summer to feed. Adults migrate from marine waters to spawn in freshwater reaches of the upper Sacramento River. Adults can spawn repeatedly. Sub-adult green sturgeon tend to remain in shallower depths of the San Francisco Estuary. Juveniles can physiologically adjust to estuarine salinity gradients when they are about 30 cm long. Recent studies of green sturgeon movement in the Estuary indicated that juveniles tend to

either remain in the Delta or move into the Carquinez Straits or San Pablo Bay, or move through the lower Estuary to the Pacific Ocean.

White sturgeon *(Acipenser transmontanus).* White sturgeon recently received state-threatened status in July 2024. White sturgeon reside primarily in large rivers and their estuaries along the west coast of North America. The San Francisco Estuary is home to the southernmost population of this species. Juveniles primarily inhabit the freshwater regions, while adults can be found through the entire estuary and occasionally make forays into coastal waters. Adults migrate from the estuary into the rivers starting in December, spawn from February to June, and return to the estuary after spawning.

Longfin smelt *(Spirinchus thaleichthys).* Longfin smelt is a state-listed threatened species, and a candidate for federal listing. It is a small schooling fish that inhabits the freshwater to brackish reaches of the San Francisco Estuary, from the lower Delta to south San Francisco. Most of the San Francisco Bay population of Longfin smelt occurs upstream of the Carquinez Strait, but adults from San Francisco Bay migrate to fresher water in the Delta in the fall to spawn. Longfin smelt larvae inhabit open water, and occur in the upper water column.

Special-status Wildlife Species

The following special-status wildlife species are known to occur in tidal marsh habitats in Marin County that are comparable to those of the project site. Some are known to occur there; others are likely or somewhat likely to occur there at times, and some are highly unlikely or are effectively precluded from inhabiting the site. As described previously, no special-status wildlife species are anticipated to occur at the Shollenberger Park sand stockpile location.

San Pablo song sparrow *(Melospiza melodia samuelis).* The San Pablo song sparrow is one of the three geographically distinct song sparrow subspecies that occur in estuarine wetland and peripheral habitats of the San Francisco Estuary. It is considered a species of special concern in state and federal wildlife conservation plans. San Pablo song sparrows frequently forage pickleweed marsh and shrubby or other tall vegetation borders of tidal marshes, including weedy disturbed habitats with seed and insect food sources. They nest in tidal marshes near channel banks with tall, dense salt marsh vegetation, often including gumplant. Song sparrows, including San Pablo song sparrows have been observed at the project site and elsewhere in Marin baylands and tidal marshes. They are expected to feed along the shoreline habitats at Blackie's Pasture, but they are not expected to nest there because habitat structure and patch size are poor for nesting, and levels of disturbance (recreational use, density) are high.

California black rail *(Laterallus jamaicensis coturniculus).* California black rail is a state threatened, fully protected species. They are small, dark, elusive rails. In the San Francisco Estuary, they are primarily associated with high brackish tidal marshes including thick pickleweed or other dense high tidal marsh vegetation, and tall bulrush vegetation. North Bay and Suisun Marsh brackish marsh are typical habitats, but black rails have been detected in tidal salt marshes in San Rafael, and probable detections as far south as Corte Madera. No California black rails have been observed or reported from Blackie's Pasture, and none would be expected from the small salt marsh habitat patch there, where high levels of recreational disturbance are prevalent nearby.

California Ridgway's rail *(Rallus obsoletus obsoletus).* Ridgway's rail are federal and state listed as endangered, and a state fully protected species. No California Ridgeway's rails have been observed at the small salt marsh habitat patches at the project site since at least 2005. The Invasive Spartina Project of the California Coastal Conservancy performed initial rail surveys in 2006-2007 at the site, prior to removal of non-native hybrid cordgrass. The surveys were negative. Subsequent Estuary-wide California Ridgway's rail survey data compiled or conducted by the ISP and its partners reported Blackie's Pasture as "insufficient habitat" for California Ridgeway's rail, and did not perform further surveys (Olofson Environmental 2021). California Ridgway's rail is almost entirely restricted to tidal salt marsh habitats with tidal creeks and banks with well-distributed high tide vegetation cover present.

The isolated salt marsh habitat at Blackie's Pasture consists of Brunini Marsh, and the narrow fringing salt marsh along the banks of the flood control channel. Brunini Marsh lacks any internal tidal creek channels, and the flood control channel tidal marsh strips lack significant tall vegetation cover at both low and high tide. The habitat patch size of Brunini Marsh is insufficient to support a viable territory of this species. The salt marsh location at the edge of a popular park, with dogs and frequent recreational disturbances, reinforces the unsuitability of the marsh as habitat for California Ridgway's'rail. The U.S. Fish and Wildlife Recovery plan that covers this species does not identify any recovery actions or priorities for the project site or its vicinity.

Northern harrier *(Circus cyaneus***)**. Northern harriers are raptors that are a California species of special concern. They nest and forage along wet meadows, grasslands, and marshes, hunting small mammals like voles and mice. They require large territories of suitable foraging habitat. Northern harriers may potentially hunt gophers, ground squirrels or voles in the rough grassland above the shoreline at the project site. No harrier foraging has been observed in the small salt marsh habitat patch at Brunini Marsh.

Salt marsh common yellowthroat *(Geothlypis trichas sinuosa)*. Salt marsh common yellowthroats are conspicuous warblers with bright plumage that are a state species of special concern. They are associated with habitat connections between tidal salt marshes and freshwater riparian thickets in San Francisco Bay and the Central Coast. No salt marsh yellowthroats have been observed at the project site shoreline during repeated site visits since 2012. A freshwater drainage ditch at the west end of Blackie's Pasture park supports shaded, sparse freshwater marsh and willow thickets, and terminates in a very small rocky to gravelly salt marsh patch. This may be marginal habitat quality and quantity to provide resources to support salt marsh yellowthroats.

Salt marsh harvest mouse *(Reithrodontomys raviventris raviventris)*. This species is federal and state listed as endangered, and a state fully protected species. The salt marsh harvest mouse is restricted to salt or brackish marsh and transitional, intergrading vegetation types bordering them in the San Francisco Estuary. The salt marsh habitat at the project site is a completely isolated, young salt marsh patch formed on a delta and beach, with no habitat dispersal corridors to any source populations of the salt marsh harvest mouse. The nearest population of the salt marsh harvest mouse known is at the Corte Madera Ecological Reserve, which is a large block of modern tidal marsh connected to a prehistoric remnant tidal marsh that likely served as a refuge for the species, enabling it to disperse and recolonize connected younger marsh. Because there are no connections or dispersal corridors between the isolated and young salt marsh patches at Blackie's Pasture shore, and any potential salt marsh harvest mouse source populations, the species is presumed absent at the project site and vicinity. Western harvest mice presumably occupy in grassland and connected salt marsh habitats at the project site and vicinity.

Salt marsh wandering shrew *(Sorex vagrans halicoetes).* The salt marsh wandering shrew is a state species of special concern that inhabits few high salt marshes in the central and south San Francisco Bay. Little information is available on its recent geographic distribution. Habitat requirements of the species include requires continuous movement through territories in moist high tidal salt or brackish marsh with abundant invertebrate prey (insects, amphipods, isopods, worms). The small salt marsh patches at the project site are remote from any other potential Central Bay salt marsh source populations of the salt marsh wandering shrew, and the patches originated in recent decades, when no antecedent salt marshes existed in this sub-embayment of Richardson Bay. Salt marsh wandering shrews are presumed absent the project site and the vicinity of Richardson Bay, where required habitat is absent.

Discussion

a) Project construction would have the potential to affect special-status species in a number of ways; these are discussed below with associated mitigation measures. Over the long term, the project would generally provide a net habitat benefit to native plants, fish, and wildlife (including special-status species), and human use patterns and intensity would not change appreciably after project implementation. Therefore, long-term operational impacts to these species would be less-than significant and are not discussed further.

Potential impacts to special-status plants. No direct construction impacts would occur to the patches of endangered California sea-blite established in 2017 for research by the Estuary, Ocean and Science Center of San Francisco State University, because equipment operation, staging, travel, or sediment stockpiling would be excluded from wetland areas, including Brunini Marsh. Similarly, the patch of native lowland grassland composed of native creeping wildrye (*Leymus* X*gouldii*, syn. *Elymus* X*gouldii*) that occurs in the Brunini Marsh transition zone would be excluded from any construction-related activities and their impacts.

The supplemental sand source for beach nourishment located at the Shollenberger Park dredge disposal site supports young (recently colonized, less than 5 years old) disturbed weed-dominated vegetation. The sand imported from this source is likely to contain non-native invasive plant (weed) seeds that may establish and spread at the project site in the rainy season after sand placement, potentially impacting existing California sea-blite stands and other native plants. No weed species at Shollenberger Park sand fans are absent in the project vicinity in Tiburon, but the number of weed seeds concentrated at the shoreline (weed “seed rain”, or propagule pressure), would likely increase and result in a flush of weed growth at the back of the constructed beach. Similar surges in weed growth have also occurred at recent sand and gravel placement locations along restored wetland shorelines of the North Bay, such as Sears Point Wetland Restoration Project.

Nuisance weeds that are present at or near Blackie’s Pasture, and could increase temporarily at the project site shoreline as a result of Shollenberger Park sand import, include stinkwort (*Dittrichia graveolens*), start-thistles (*Centaurea solstitialis, C. melitensis*), and doorweeds (*Polygonum arenastrum*), and annual mustards and radish (*Brassica* spp., *Raphanus sativa*). The winter storm overwash flooding of the sand-gravel beach (pulses of high salinity over seedlings during the wet season) would restrict the range of invasive non-native species, and their invasiveness, at the project site, relative to their performance at the drained, non-saline Shollenberger Park sand borrow

site. The maximum amount and duration of weed invasion increase at the project site shoreline caused by sand import may be **potentially significant**. Mitigation BIO-1, below, would reduce this impact to a **less-than-significant** level.

> ***Mitigation Measure BIO-1.*** Most weed seeds are deposited in the upper few inches of sand or soil. Best Management Practices applied during sand harvest shall include scraping the surface of the sand prior to sand quarrying at Shollenberger Park to clear weeds and accumulated seeds in the top few inches of sand in excavation areas. This would minimize the contamination of weed seeds in imported sand. The scraped surface material containing weeds/weed seeds would be locally stockpiled within the dredge disposal site (outside of sensitive wetland areas) and redistributed across the sand borrow area upon completion.
>
> During the first two winter rainy seasons following sand placement, when weed seedling establishment is at the 2nd-3rd leaf stage, the shoreline weed seedling zone shall be monitored to detect elevated frequencies of weeds. If elevated levels of weed seedlings are detected, they shall be manually removed (rake, hoe or spade) at the seedling-juvenile stage, before flowering or seed set. The shoreline weed seedling zone shall be limited to the zone below the highest tide line or the landward limit of imported sand placement, whichever is higher.

There is no habitat for special-status plants at the weedy sand mound that would be excavated at Shollenberger Park, so there would be **no impact** from project activities. Following excavation, the area would re-establish the same weedy, disturbed vegetation that currently exists at the site, but probably at higher density because of higher moisture in the excavated depression left. The site would continue to provide the same marginal, ruderal habitat following construction.

Potential impacts to special-status wildlife. Terrestrial wildlife, including the special status salt marsh common yellowthroat and San Pablo song sparrows, would be minimally disturbed by equipment operation during construction. As mentioned above, the wetland habitats that are preferred by these species will be avoided during construction. Minor, short-term (late summer-fall) temporary construction impacts to special-status wildlife in Brunini Marsh may occur from noise and activity of equipment operation in adjacent areas. However, construction activities are planned to occur outside the nesting and breeding season (i.e., after September 1) for birds that have been observed (feeding) in Brunini Marsh and its terrestrial edges, such as song sparrows and western meadowlarks. Alternative foraging habitat for both species occurs in Blackie's Pasture, its flood control channel, and weedy shorelines along Tiburon Linear Park and the undeveloped shoreline west of Greenwood Beach. If it is necessary to begin construction activities prior to September 1, clearance surveys for nesting birds, including marsh rails, would be conducted and appropriate buffers established around any active nests. Based on the analysis, this impact would be **less than significant**.

While no special-status shorebirds[5] are anticipated at the project site, this guild of birds that regularly forages on the mudflat and delta areas could be temporarily impacted by construction activities.

[5] All shorebirds are protected under the Migratory Bird Treaty Act of 1918 and are subject to several conservation initiatives in North America.

Shorebird monitoring of the tidal flats adjacent to the site in 2022 (Audubon 2022) indicated that most shorebirds concentrate foraging and resting along the movement of the wetted tidal shoreline, either in wet flats above the water line, or in very shallow water below it. Shorebirds foraging at the project site are accustomed to existing human recreational uses and park maintenance activities occurring on the shoreline. Construction activities occurring on the shoreline will cause a temporary increase in human disturbance in the area. The most potentially impactful project activities would be the excavation of sand and gravel from the designated borrow area on the flood control channel delta, which would occur within shorebird foraging habitat. This impact will be relatively short in duration (less than two weeks) and limited in impact extent, as daily work activities will be concentrated only in the active excavation area and material transport routes. The maximum potential extent of cumulative delta and mudflat area that could be temporarily impacted by borrow material excavation and transport is 1.5 ac, which represents approximately 12% of the total foraging habitat available in the local sub-embayment of Richardson Bay at low tide (mean lower-low water [MLLW]). As ample foraging habitat is available locally and in other nearby areas of Richardson Bay, construction impacts to shorebirds would be **less than significant**.

No special-status wildlife species are anticipated to occur at the Shollenberger Park sand stockpile location. Regardless, sand excavation would occur after the end of the nesting season for special status bird species (after September 1), including rails that could, but are highly unlikely to (Olofson Environmental 2021), occupy adjacent tidal marsh areas within 700 ft of the work area. Following excavation, the area would re-establish the same weedy, disturbed vegetation that currently exists at the site, but probably at higher density because of higher moisture in the excavated depression left. The site would continue to provide the same marginal, ruderal habitat following construction. The outer levee slope supports continuous stands of vegetation providing wildlife cover above highest tides, at elevation ranges higher than or equal to the interior sand fan. No impacts to high tide refuge habitat for tidal marsh wildlife would therefore occur because of excavation in the diked interior weedy sand fan. Therefore, off-site sand excavation would have a **less-than-significant** impact to special-status wildlife species.

***Potential impacts to special-status fish*.** Impacts to special-status fish at the project site may occur from:

- Potential short-term direct construction impacts from on-site borrow area excavation.
- Potential short-term degradation of shallow aquatic habitat due to sediment disturbance, elevated turbidity and suspended sediment, caused by excavation of the tidal delta borrow area.
- Persistence of shallow tidal pool or pond habitat within the on-site sediment borrow area depression, resulting in increased bird predation.
- Potential temporary aquatic habitat degradation and fish stranding due to seasonal tidal choking or damming at the mouth of the tidal flood control channel.

Several measures are incorporated into the project design to prevent direct and indirect construction-related impacts to fish. These measures include:

- All work on the shoreline and low tide terrace, including excavation of the borrow depression, would occur at low tide when the work area is emergent (i.e., in the dry) and fish are absent from the work area.
- Following completion of excavation activities, the borrow area outlet channel would be enlarged to ensure adequate tidal drainage and fish egress (discussed in further detail below).
- A low-flow bypass channel would be constructed around the borrow area to re-route flood channels outflows and avoid intercepting estuarine fish movement between the shallow submerged tidal flats and the tidal flood control channel. The existing ebb tidal channel naturally branches into multiple, switching distributary channels that splay across the delta. The trunk channel near the channel mouth at Brunini Marsh would be reshaped by a small excavator to divert flows to the largest branch channel on the east side of the delta. The bypass channel would be maintained during excavation and left in place until the next spring high tides or winter storm high flows breach it and establish a new distributary channel pattern.

Only minor indirect increases in suspended sediment concentrations in adjacent bay waters would be expected during the rising tide after excavation. A plume of suspended sediment somewhat higher than background concentration may occur during rising tides during construction, and drift down-wind or down-current. The suspended fine sediment would not contain strongly reduced (oxygen-deficient), sulfidic black mud in the highly porous, permeable gravel layers excavated. Therefore, only minimal short-term impacts to aquatic habitat quality are likely to occur during construction. The short-term impacts to aquatic estuarine habitat would be self-negating within a time scale of a few tidal cycles or high wind-wave events. Therefore, construction impacts to fish would be **less than significant**.

Following construction, the excavated borrow depression would create conditions where fish could potentially become temporarily isolated and subject to increased predation pressure from birds at lower tide levels. Even though the borrow area pool would not be closed and isolated (no actual fish entrapment conditions), fish that remain longer in the pool during the ebb tide cycle, would probably be more exposed to predation by fish-eating birds. Fish that exit the pool through a temporarily undersized shallow ebb outlet channel could also be exposed to a higher risk of mortality from bird predation. The risk of the short-term increases in fish predation within the unstable borrow pool would be restricted by its probable limited duration from the late fall after construction until the first significant storm streamflows that rebuild the gravel-sand delta with renewed rapid sediment deposition. Impacts to fish due to the presence of the pool would be reduced and eventually eliminated as the pool infills with sand and gravel outwashed from the flood control channel during winter storms, and bay mud transported from the adjacent tidal flats. The depressional borrow area would likely fill in over the course of a single winter with typical rainfall/runoff events, but could take two to three years under drought conditions with reduced stormwater and sediment outflows from the flood control channel.

To reduce the potential for temporary increases in fish predation within the borrow area pool before it fills in, the borrow area outlet channel would be enlarged following completion of material excavation to ensure adequate tidal drainage and fish egress. The downslope (bayward) end of the

borrow area would be excavated to form a funnel-shaped outlet (neck, or nick-point) to remove coarser gravels, and concentrate ebb drainage into a short pilot ebb channel approximately 10 feet long, one foot deep (below grade) and three feet wide at the base. This short pilot channel would concentrate ebb outflows and initiate rapid ebb tidal channel erosion during spring tide series, regardless of freshwater runoff. The increased tidal prism of the borrow area would provide tidal energy to erode a shallow outlet channel that enables fish in the channel or borrow area pool to follow ebb currents out to the bay. Further, implementation of Mitigation BIO-2 would ensure that any **potentially significant** impacts to fish due to the temporary presence of the borrow area pool are reduced to a **less-than-significant level**.

> ***Mitigation Measure BIO-2*:** The evolution of the borrow area depression/pond and outlet channel shall be monitored monthly at low tide for the first 2 years post-construction. If erosion of a continuous ebb tidal outlet channel is slow enough to restrict fish movement on ebb tides by the first winter after construction, the project manager shall consult with NMFS and CDFW. The consultation shall focus on practical adaptive management measures to reduce restrictions to movement of estuarine fish out of the pool to insignificant levels. The project manager shall implement such measures if the tidal channel constriction does not self-correct by mid-winter after construction. Adaptive management measures may include partial manual removal of sills that persist and restrict ebb drainage, sufficient to correct potential impairment of fish movement to the bay during lower ebb tide stages. If the ebb outlet channel erosion is impeded by exposure of a relatively erosion-resistant sill, such as a heavier gravel lens or firm clayey mud, such sills may be manually excavated to a depth of half a foot, in a zone 1-foot wide.

The addition of sand and gravel to the shore could increase the frequency of tidal choking by drifted sand and gravel at the mouth of the flood control channel that runs through Blackie's Pasture park. Before sand-trapping salt marsh vegetation is fully established over the drift-sill, some drifting sand may bypass the drift-sill and temporarily choke the flood control channel mouth. Temporary choking of the channel mouth during the dry season could partially impound the channel like a closed lagoon at low tide. This temporary condition has been part of the pre-project environmental baseline for at least a decade, but the lagoon-like tidally choked habitat was transient and reversed by the next spring high tide cycle within two weeks. The project could potentially increase the pattern or intensity of this impact by adding a large volume of sand to the shore. Special-status fish species trapped within the flood control channel behind any such impoundment could be exposed to increased water temperatures, reduced dissolved oxygen levels, and increased predation pressure from birds. The risk that the potential duration or intensity of drift-induced tidal choking impacts would increase substantially after project construction is low. The temporary impact, however, is possible under some circumstances, such as higher than typical rates of sand drift before sufficient salt marsh vegetation establishes on the drift-sills. This **potentially significant** impact would be reduced to a **less-than-significant** level by implementation of Mitigation BIO-3, below.

> ***Mitigation Measure BIO-3***. The tidal flood control channel mouth shall be monitored bimonthly during the spring, summer and fall months of the first year after construction. If drifted sand or gravel chokes the mouth of the tidal flood control channel by approximately 75% or more (cross-section area) based on visual observations during neap tide series (the weakest tides of the month), it shall be manually excavated to provide at least 50%

unimpeded cross-section area to facilitate tidal drainage and circulation. If the drift-sill is not adequately vegetated to significantly inhibit sand drift into the channel mouth by the second year after construction, the project manager shall supplement it with additional transplants of species adapted to the tide zones where sand or gravel drift is occurring. Transplants of sand-trapping native vegetation shall be secured in position by placement of protective cobbles embedded in sandy mud.

There is no aquatic habitat at the Shollenberger Park sand stockpile, so sand excavation activities would have **no impact** on special-status fish species.

Potential short-term impacts to fish and shorebird invertebrate prey availability. The gravel-dominated intertidal delta flats within the designated borrow area, including the thin upper layers of finer sand and mud, would be excavated, along with all invertebrates that inhabit the upper foot of fine sand and mud. The benthic invertebrates provide food chain (trophic) support for shorebirds when they are emergent at low tide, and for estuarine fish when they are submerged at high tide. The invertebrate prey impacted would likely be mostly small non-native gem clams and native nereid worms that inhabit the mixed fine sand-mud surface sediments (Ayala 2022). The excavated oval depression of the borrow (quarry) area (approximately 0.41 ac) would become exposed gravelly intertidal sediment that is temporarily depleted of benthic invertebrates, and submerged at low tide when it would be partially pooled with bay water. The normal seasonal sequence of winter storm deposition of stream gravels, and fair-weather deposition of bay mud, will likely cause rapid recovery of pre-project benthic invertebrate habitats, as in natural conditions.

Because excavation impacts are confined to a relatively small area (0.41 ac of the ~13 ac of mudflat and delta habitat available at low tide; ~3% of the total area) and are self-correcting through typical seasonal sedimentation and invertebrate recolonization processes, impacts would be short-term and minimal. Under atypical, winter drought conditions, sediment infilling the excavated depression may be delayed. This infrequent, less likely condition may result in a temporary shift in the species composition of the benthic invertebrate community to species inhabiting lower intertidal and shallow subtidal zones. This temporary impact would be minor. Therefore, the impact to shorebirds and special-status fish would be **less-than-significant**.

b) As described in the Setting discussion, regular mowing of the banks of the tidal flood control channel within the project area prevents the development of vegetated riparian habitat. The channel does, however, support some narrow fringing salt marsh on the banks and in-channel bars. While the project would not directly impact these wetland areas, the addition of sand and gravel to the shore could increase the frequency of tidal choking by drifted sand and gravel at the mouth of the flood control channel that runs through Blackie's Pasture park, potentially impacting the wetland and aquatic habitats within the channel. The risk that the potential duration or intensity of drift-induced tidal choking impacts would increase substantially after project construction is low. The temporary impact, however, is possible under some circumstances, such as higher than typical rates of sand drift before sufficient salt marsh vegetation establishes on the drift-sills. This **potentially significant** impact would be reduced to a **less-than-significant** level by implementation of Mitigation BIO-3, above. Impacts to wetlands outside of the flood control channel, as well as impacts to tidal flat and rocky shore habitats, are discussed in Item c) below.

There are no riparian or other sensitive habitat types at the Shollenberger Park sand stockpile site. Excavation activities at this location would have **no impact** to such habitats.

c) The project would bury small areas of salt marsh, tidal flat or rocky shore habitats with beach sand and gravel, both by direct placement during construction and later by natural drift of the material. The existing salt marsh at Brunini Marsh would be excluded from all direct sand and gravel placement. However, there are small, ephemeral patches of tidal salt marsh vegetation that exist within the project footprint that would be impacted by construction of the drift sills and placement of beach materials. These patches are too small and unstable to quantify (less than 0.01 ac) and their loss would be more than offset by colonization and expansion of wetland vegetation on the drift sills, cobble marsh armor, and beach habitats (>0.25 ac). Therefore, direct construction-related impacts to wetlands would be **less-than-significant**.

The project would result in conversion of approximately 0.26 ac (300 linear ft) of artificial rocky shore habitat (coarse beach platform, rubble lag, and rip rap) into cobble marsh and beach habitats, restoring the types of habitats that existed at the site prior to the onset of marsh and beach loss after 2013. The vegetated cobble drift-sills would provide different habitat than the existing rocky shore, because they would be embedded in fine sediment bound by plant roots. The gravel and sand placed over concrete and asphalt rubble surfaces and artificial rocky shore would convert the habitat from rocky shore to beach habitat. Intertidal beachface invertebrates (amphipods, worms, ghost shrimp) would displace small crabs, barnacles, and infrequent Olympia oysters found in the rocky shore habitats The conversion of rocky shore to beach and cobble marsh habitat would be a minor individual and cumulative impact to the rocky shore habitats of Tiburon Linear Park to Belvedere, which extends over a mile along eastern Richardson Bay. Therefore, this impact would be **less than significant**.

The existing soft-sediment (sandy mud, muddy sand) intertidal flats near Mean Tide Line elevation range would be minimally impacted by direct placement of sand and gravel: 0.07 acre of direct gravel and sand placement over tidal flat would occur. This would be a **less-than-significant** impact that would diminish to **no impact** as sea level rises.

Some sand and gravel drift may occur in the first year after drift-sill construction, before sufficient sand and gravel-trapping salt marsh vegetation cover establishes (see discussion in item a), above). Drift across vegetation is most likely to occur during southwesterly storm wind-wave conditions when vegetation is prostrate and sparse. The rate of longshore drift of sand and gravel would also diminish as the sand-trapping, stabilizing vegetation of the drift-sills increases in cover and density. Cross-shore drift of sand towards the bay tidal flats would potentially occur to a small extent during storm wave conditions. Bayward drift of sand would have little or no impact on tidal flat invertebrates, fish, or shorebird habitats. Sand would either mix with mud and become incorporated in the existing sandy tidal flat habitat, or constructive calm-weather wind-waves would transport sand back towards the beachface during spring, summer, and fall. Similar mixed sandy mud and muddy sand tidal flat habitat is prevalent all around the delta and tidal flats of the site.

Drift of sand or gravel from the nourished Brunini Beach towards Brunini Marsh would be minor and exceptional, because it is counter to the dominant direction of longshore drift established by westerly wind-waves and the open-water wind direction to the west (wave fetch). Low rates of sand burial

(e.g., less than 0.5 ft in any year) would be beneficial, not adverse, for the competitive dominance of the endangered California sea-blite (*Suaeda californica*) in the high salt marsh and transition zone. The trapping of sand by pickleweed and sea-blite would form a natural low berm that would impede further drift of sand, as it formerly did at Greenwood Beach.

Drift of sand and gravel into rocky shore habitats at the margins of the project area would likely occur at rates similar to pre-existing seasonal accretion and erosion of sand and gravel in rocky shore habitats. Sessile (attached) rocky intertidal organisms can tolerate transient to prolonged short-term cyclic episodes of burial by coarse sediment, including native Olympia oysters. Motile rocky intertidal organisms move away from rocky microhabitats that are gradually buried by sand or gravel. The maximum amount (area) of rocky shore habitat that would be likely to be affected by increased erosion-accretion burial cycles from the constructed Brunini Beach would be less than a few hundred square feet. The impacts of sand-drift in terms of habitat conversion would be **less than significant**.

No wetlands occur within the sloping, drained sand fan area to be excavated at the Shollenberger Park site. After excavation, marginal wetlands may form in new depressions at the lower end of the excavated area. This would not adversely impact wildlife habitat or vegetation. Adjacent tidal wetlands on the outboard side of the perimeter levee would be avoided entirely; all vehicles and equipment accessing the sand borrow site would be restricted to the upland perimeter levee. There would be **no impact** to wetland habitats due to sand excavation.

d) Please see response to Item b), above with respect to project impacts to wetland habitats. These impacts would be **less-than-significant**.

e) Please see discussions of fish movement in the on-site flood control channel and on-site borrow area in Item a), above. These impacts would be potentially significant, but mitigated to **a less-than-significant** level with implementation of Mitigation Measures BIO 2 and 3.

The proposed sand excavation at Sholleberger Park would have **no impacts** on wildlife movement from the adjacent exterior tidal marsh to emergent above-tide vegetation during extreme high tide flood events. The sand fan is separated from tidal brackish marsh along the Petaluma River and Gray's Marsh by a levee with a well-used, maintained public trail around the park.

f) The proposed project, including sand excavation at Shollenberger Park, would not involve tree removal and would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. It would enhance the shoreline habitats, in furtherance of local and regional policies. There would be **no impact**.

g) The project site and Shollenberger Park site are not covered by any federal, state, or local conservation plan. Therefore, the project would have **no impact** with respect to habitat conservation plan compliance.

V. Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		X		

Background

Far Western Anthropological Research Group prepared a Cultural Resources Inventory (Far Western 2023). The Far Western study included a literature review, database search, and historic map review, as well as a pedestrian survey of the project site. The upland areas of the project site have been filled and graded, initially for creation of the pasture and subsequently for park development. Artificial rip-rap (concrete and asphalt chunks) has been placed on the shoreline areas. The mud flats and beaches are comprised of recent sediments deposited from the Ring Mountain watershed via the flood control channel. No structures exist on the site. The records search identified two previously recorded cultural resources (MRN-31 and MRN-32) within the one-quarter-mile records search buffer, neither of which intersect the Area of Direct Impact (ADI). No archaeological resources were identified within the ADI during the pedestrian survey.

The ADI is situated entirely within a former estuary that was infilled historically. The sensitivity analysis indicates that the southern portion of the ADI within modern tidal zone has a low sensitivity for submerged sites, while the northern portion has a high sensitivity for submerged sites. However, to encounter a potential submerged site project impacts would need to extend below both the artificial fill that comprises the modern ground surface and the underlying estuarine sediments, which is almost certainly deeper that planned excavation depths. However, given the close proximity of site MRN-31 that may be closer to the ADI than the plotted location, it is possible that the material used to infill this tidal marsh contains cultural materials from this site.

While the ADI was noted for possible structural remains or associated refuse within and intersecting the ADI, there is no record of a formal or informal refuse dump located along the shoreline/mudflats and furthermore due to the highly erosive and tidal setting of the ADI such deposits may be deeply buried by sediment and/or washed out into the mudflats and open bay waters.

Consultation between the Town of Tiburon and the Graton Rancheria is currently underway, and this report will be updated to provide all correspondence including the results of consultation should project specific requests, culturally sensitive areas, or tribal cultural resource locations be identified.

Discussion

a) As discussed above, the project site contains no historical resources as defined in CEQA Guidelines Section 15064.5. The project would not have the potential to affect any off-site historic resources due to its location internal to the park and adjacent off-shore areas. Therefore, the project would have **no impact** on historical resources.

b) As discussed above, the site is comprised of artificial fill and recent sediment deposits. Construction would remove some of the artificial fill (rip rap) along the shoreline and smooth out that shoreline. The project also would excavate a 2-foot deep depression off-shore in the mud near the flood control channel outlet. Because the project work would be limited to areas of artificial fill and recent sediments, the likelihood of grading and to encounter and disturb archaeological resources is low. While it is unlikely that intact deposits will be present, due to the extensive infilling of the shoreline, there is a possibility that redeposited midden soil, artifacts, and/or human remains could be present within the fill material. If such material were to be damaged or destroyed during construction of the project, a **potentially significant impact** may occur. This impact would be reduced to a less-than-significant level by implementation of Mitigation Measures CULT-1 and CULT-2, below.

c) Although no prehistoric or historic-era human remains are known to exist on the project site, and none are expected to be encountered in the artificial fill and recent sediments, it is possible that presently undocumented human interments may be uncovered during grading. Implementation of Mitigation Measures CULT-3 would reduce this **potentially significant impact** to a **less-than-significant** level.

Mitigation Measures

Mitigation Measure CULT-1: Archaeological Deposits. A focused archaeological testing program shall be conducted in areas proposed for ground disturbance prior to construction to address the potential for pre-contact Native American deposits within the ADI and to complete the identification of historical resources as per CEQA. In addition, construction monitoring by qualified personnel shall be conducted during project excavation activities. If archaeological remains are encountered during the focused testing or project activities, project ground disturbances at the find and immediate vicinity shall be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]). The archaeologist shall examine the finds and recommend mitigation measures which may include documentation in place, avoidance, testing, and/or data recovery.

Mitigation Measure CULT-2: Training Session. To ensure that the procedures outlined in Mitigation Measures CULT-1 and CULT-3 are followed during construction, the Town shall hold a training session for all Contractor field personnel led by a qualified archaeologist to explain the types of cultural items could be found during construction. The training shall include discussion on the possibility of unearthing human remains, and protocol for ensuring that artifacts, cultural deposits,

and/or inhumations are not impacted during construction. The District shall invite the Tribe to attend the training session.

Mitigation Measure CULT-3: Human Remains. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the Town shall be notified. The Town shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the Town for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The Town or their appointed representative and the professional archaeologist would consult with a Most Likely Descendent determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

VI. Energy

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			**X**	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				**X**

Discussion

a) The proposed project would require short-term energy consumption of petroleum fuels (primarily gasoline and diesel fuel) by construction workers traveling to and from the project site, transportation of construction materials, and equipment for on-site construction activities. Gasoline and diesel fuel would be the primary sources of energy for these activities.

The proposed project construction activities would require the use of some diesel fuel and gasoline for construction equipment. This increase in gasoline and diesel fuel consumption would be temporary, of short duration, and would cease once proposed project construction is completed. The proposed project would not result in a wasteful, inefficient, or unnecessary consumption of energy. Therefore, this impact would be **less than significant**.

b) There are no state or local plans for renewable energy or energy efficiency that are applicable to the proposed project. Therefore, **no impact** would occur.

VII. Geology and Soils

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				**X**
ii) Strong seismic ground shaking?			**X**	
iii) Seismic-related ground failure, including liquefaction?			**X**	
iv) Landslides?			**X**	
b) Result in substantial soil erosion or the loss of topsoil?			**X**	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			**X**	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				**X**
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?				**X**
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?				**X**

Background

Soil and Geologic Conditions

Greenwood and Brunini beaches are situated on the shoreline of a filled historical marsh. The most recent shoreline fill placement activities took place in the mid-1960s. The geology and soil maps of Marin County

reflect this history of fill, with the shoreline geology being mapped as artificial fill over bay mud and the soils mapped as xerorthents (fill) (USDA 1985, USGS 1997-2007). Greenwood and Brunini beaches formed at the interface between the artificially filled shoreline and the native San Francisco Bay sediments on the adjacent mudflats (i.e., bay muds).

The beaches and adjacent tidal salt marsh (Brunini Marsh) formed and are maintained primarily by sediments (medium to coarse sand and gravel) eroded from the Ring Mountain watershed and delivered to the shoreline by the adjacent flood control channel (See Figure 2 in the Project Description). These sediments deposit at the mouth of the flood control channel and create a broad delta across the adjacent mudflat. Waves then slowly transport this deposited material shoreward, where it forms the beaches. The geology of Ring Mountain is mapped as Franciscan complex, mélange with inclusions of Coast Range ophiolite/serpentinite.

Seismic Conditions

The project site is located within a seismically active region that includes the Central and Northern Coast Mountain Ranges. Several active faults are present in the area including the San Andreas, San Gregorio, and Hayward/Rodgers Creek faults, among others. An “active” fault is defined as one that shows displacement within the last 11,000 years and, therefore, is considered more likely to generate a future earthquake than a fault that shows no evidence of recent rupture. The California Department of Conservation, California Geologic Survey, formerly the Division of Mines and Geology, has mapped various active and inactive faults throughout California. The project site is located approximately equidistant from the Hayward (9.5 mi to the northeast) and San Andreas (10 mi to the northwest) fault zones (CGS 2022).

Numerous earthquakes have occurred in the region within historic times. The three most significant earthquakes to have occurred in recent history that have impacted the greater Marin County area, including Tiburon, are outlined below:

- *1906 San Francisco Earth*quake – The April 18, 1906, magnitude 8.3 earthquake occurred on the northern segment of the San Andreas Fault. The earthquake resulted in catastrophic damage throughout the greater Bay Area. Significant damage, including complete structural collapses, and 498 deaths were reported in San Francisco.

- *1969 Rodgers Creek/Healdsburg Fault Earthquake* – Two earthquakes of magnitudes 5.6 and 5.7 originated on the Rodgers Creek and Healdsburg Faults. The resulting damage was concentrated in Santa Rosa with partial and near structural collapses. No loss of life was reported.

- *1989 Loma Prieta Earthquake* – The magnitude 6.9 earthquake was a result of a rupture along the San Andreas Fault in the Santa Cruz Mountains. Significant damage was reported throughout the Bay Area, with a majority occurring in San Francisco, Oakland, and Santa Cruz in the form of structural collapses and loss of life.

Conclusions from the third Uniform California Earthquake Rupture Forecast (UCERF3) indicate that the San Francisco Bay Area has an estimated 72% chance of experiencing an earthquake of M>6.7 by the year 2045 (WGCEP 2015). The Hayward/Rodgers Creek Fault, located approximately 9.5 mi northeast of the

site, has a 13.7% probability of generating an M>6.7 earthquake by 2045, while the San Andreas Fault, located approximately 10 mi northwest of the project site, has a 5.5% probability.

Discussion

a) i. Under the Alquist-Priolo Earthquake Fault Zoning Act, the California Geological Survey produced 1:24,000 scale maps showing all known active faults and defining zones within which special fault studies are required. Based on the most current published geologic information (CGS 2022), the project site is not located within an Alquist-Priolo Earthquake Fault Zone. The closest fault zones are the Hayward/Rogers Creek and San Andreas fault zones, which are 9.5-10 mi away. Therefore, there would be **no impact** related to the rupture of a known earthquake fault.

ii. As discussed above, the Bay Area will likely experience a large earthquake in the next 25-30 years. There would be potential for strong seismic ground shaking at the project site associated with such an event. However, no structures would be built as part of the project and the project is not anticipated to substantially increase visitation to the site over current conditions. There would be no increased risk to people or structures as a result of the project. Therefore, project impacts related to ground shaking would be **less than significant**.

iii. Seismic ground shaking can induce ground failure and liquefaction of loosely consolidated soils. The existing and proposed beach sediments and existing upland fill soils could be prone to ground failure during a major earthquake. However, the project would not cause an increased potential for ground failure over current conditions, would not include any structures that could be potentially damaged as a result of ground failure, and would not substantially increase visitation to the site. Any damage to project elements from such an event (drift sills, trails, etc.) could be easily repaired. Therefore, project impacts related to ground failure or liquefaction would be **less than significant.**

iv. Slope instability (i.e. landslides and similar slope failures) generally occurs on relatively steep slopes and/or slopes underlain by weak materials. There are only two areas with steep slopes within the project area: the vertical shoreline scarp at the west end of Greenwood Beach and the armored shoreline bluff along the Tiburon Linear Shoreline Park at the east end of Brunini Beach. The project would involve grading back the Greenwood Beach shoreline scarp to a gentler slope, thereby reducing the potential for a landslide occurring at this location. The project would not modify the existing slope of the shoreline bluff at Brunini Beach, but the enhanced and created beaches would help to buffer the toe of the bluff from wave erosion at this location, thus enhancing its stability and potentially reducing the likelihood of slope failure. Even if a landslide were to occur along the shoreline bluff, the project would not include any structures that could be damaged by such an event, nor would it substantially increase visitation in this area. Therefore, project impacts related to landslides would be **less than significant**.

b) Construction of the proposed project could potentially result in soil erosion due to earthwork activities (excavation and grading) and transit of construction equipment within earthen/vegetated areas. Because the overall footprint of proposed construction activities within upland areas is less than one acre, the project is unlikely to require coverage under the General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ),

known as the “Construction General Permit”. However, as noted in the Project Description, a Water Pollution Control Plan (WPCP), which is similar in content and purpose to a Stormwater Pollution Prevention Plan (SWPPP) required by the Construction General Permit, would be prepared and implemented to satisfy requirements in the project’s Water Quality Certification issued by the San Francisco Bay RWQCB The WPCP would require application of Best Management Practices (BMPs) to control soil erosion and runoff from construction work sites. The BMPs would include, but would not be limited to, physical barriers to prevent erosion and sedimentation, limitations on work periods during storm events, protection of stockpiled materials, establishment of dedicated equipment staging and maintenance areas, and post-construction soil stabilization and erosion control measures. Compliance with these measures would result in a **less-than-significant impact** on soil erosion during construction.

One of the primary goals of the project is to reduce rates of shoreline erosion. Installation of the constructed beach elements and grading back the vertical, unstable shoreline scarp along the western half of Greenwood Beach would significantly buffer the shoreline against wind waves and reduce current rates of shoreline erosion and topsoil loss. Therefore, long term operation of the proposed project would have a **less-than- significant impact** on shoreline erosion and would in fact result in a beneficial impact.

Excavation of sand at the Shollenberger Park dredge disposal site for beneficial reuse at the project site would not have any soil erosion concerns as the excavation site is an existing dredged sand pile with no topsoil that is isolated within a containment levee. The impact at this location would be **less-than-significant**.

c) As described in items a-iii and a-iv, project impacts related to ground failure, liquefaction, and landslides **would be less than significant**. Implementation of the project would not make the underlying soils more prone to such structural failures and should in fact reduce the likelihood of landslides by eliminating the unstable, vertical shoreline scarp at Greenwood Beach and buffering the near-vertical shoreline bluff at Brunini Beach.

d) The project would occur at the junction of the artificial fill soils (xerorthents) placed along the shoreline and the adjacent San Francisco Bay mudflats. Xerorthents are loamy, are well drained, and have a low potential to expand. The bay mud underlying the placed fill material and on the adjacent mudflats has expansive properties. Expansive soils would not adversely affect the proposed project as no structures are proposed that could be negatively impacted by soil expansion. There would be **no impact**.

e) The proposed project does not include the construction or operation of septic tanks or other wastewater disposal systems. There would be **no impact**.

f) The project would occur at the junction of artificially filled baylands and the natural mudflats of San Francisco Bay. Both are of recent deposition and there are no known paleontological resources or unique geologic features within or adjacent to the project site. There would be **no impact**.

Excavation of sand at the Shollenberger Park dredge disposal site for beneficial reuse at the project site would not the potential to disturb paleontological resources or unique geologic features as the

sand mound is a recently deposited feature within an engineered containment cell. There would be **no impact**.

VIII. Greenhouse Gas Emissions

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Background

This section is based on the *Air Quality Technical Report* prepared for the proposed project by RCH Group. This section describes construction and operational greenhouse gas (GHG) emissions impacts associated with the proposed project and is consistent with the methods described in the BAAQMD *CEQA Air Quality Guidelines* (May 2017).

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Gases that trap heat in the atmosphere are referred to as GHG because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHG are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices, coal mines, and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHG than CO_2, with GWP of 28 and 265 times that of CO_2, respectively. (IPCC 2014)

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWP than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e.

Discussion

a) The Road Construction Emissions Model (SMAQMD 2022) was used to quantify GHG emissions associated with construction activities. Construction of the proposed project would generate approximately 110 metric tons of CO_2e. There is no BAAQMD CEQA significance threshold for construction related GHG emissions. BAAQMD states that GHG emissions from construction represent a very small portion of a project's lifetime GHG emissions. GHG emissions from construction are a one-time release and would not pose a significant impact to the environment (BAAQMD 2022). Therefore, this impact would be **less than significant**.

b) The Town of Tiburon adopted their Climate Action Plan (CAP) 2030 on September 21, 2022 (Town of Tiburon 2022). The proposed project has been reviewed relative to the GHG emission reduction strategies in the CAP and it has been determined that the proposed project would not conflict with the CAP. Therefore, **no impact** would occur.

IX. Hazards and Hazardous Materials

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			**X**	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?				**X**
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				**X**

Discussion

a, b) Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, the construction contractor would be required to implement a Water Pollution Control Plan (WPCP) during construction activities to prevent contaminated runoff from leaving the

project site. Any sediments to be transported to the site would be verified as "clean" before acceptance for trucking to the site. Therefore, no significant impacts would occur during construction activities.

Project operations would not involve the routine transport, use, or disposal of hazardous materials. Therefore, it would not create a significant hazard to the public or the environment from such activities and impacts would be **less than significant**.

c) As described under response to question IX a, above, the project operations would not involve the long-term use of hazardous materials, and construction use of such materials would be carefully implemented in compliance with all applicable regulations. The construction sites would be fenced and no public access would be permitted. Therefore, the project would have a **less-than-significant** impact.

d) A review of the Envirostor database (Cortese List) indicated that there are no known hazardous waste sites within 1000 feet of the site[6].

e) The project site is not within two miles of an airport or within an airport land use plan area. Therefore, it would not present a hazard to air safety, and **no impact** would occur.

f) Construction and operation of the project are not expected to interfere with Town of Tiburon's emergency response because it is the restoration of an existing beach. Construction, including staging, would be limited to the existing beach and adjacent uplands area in the park, and traffic would not be substantially affected by the project's sand and rock deliveries, which would be limited to a few trucks per day. **No impact** would occur.

g) The project is in a developed urban area, surrounded by other urban uses, and is mapped as being in a Non-Wildlands/Non-Urban wildfire hazard area[7]. The site itself is generally developed with park uses with the exception of the off-shore tidal area, which is mostly covered with water. The project would not introduce any new fire hazards. Therefore, the project would have a **less-than-significant** impact with respect to wildfire hazards.

[6] https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=Blackies+pasture+tiburon e
[7] https://gisopendata.marincounty.org/datasets/MarinCounty::fire-hazard-severity-zone-1/explore?location=37.894186%2C-122.493274%2C16.00 0

X. Hydrology and Water Quality

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			**X**	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				**X**
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?		**X**		
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			**X**	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			**X**	

Background

Project Area Hydrology and Water Quality

The project is located on the shoreline of Richardson Bay, a shallow arm of San Francisco Bay approximately 2 miles north of the Golden Gate. Richardson Bay tides are the dominant driver of hydrology

at the project site. Table HYD-1 presents the tidal datums at Sausalito[8], which are applicable to the project site.

Table HYD-1. Tidal Datums at NOAA Sausalito COE Dock Station

Datum	Elevation (ft NAVD88)
Mean Higher High Water (MHHW)	5.91
Mean High Water (MHW)	5.30
Mean Tide Level (MTL)	3.30
Mean Low Water (MLW)	1.30
Mean Lower Low Water (MLLW)	0.17

A flood-control channel that drains a portion of the Ring Mountain watershed enters Richardson Bay in the center of the project site. This channel is a primary source of the sediments (medium to coarse sand and gravel) that form the beaches and the foundation of the salt marsh that exists at the mouth of the channel (see Figure 2). The channel is not gauged or otherwise monitored, and no hydrologic data are available for it. Some basic watershed characteristics and peak flow statistics were estimated using the USGS StreamStats service[9].

The flood control channel drains an approximately 0.4 square mile watershed that is 12% forested and 73% developed. Approximately 25% of the watershed area is covered by impervious surfaces. The watershed receives an annual average of 30.6 inches of precipitation, which falls primarily between October and April in accordance with the Bay Area's Mediterranean climate. The estimated streamflow statistics for the flood control channel are provided in Table HYD-2 below.

Table HYD-2. Flood Control Channel Estimated Peak Flow

Recurrence Interval Event	Peak Discharge (ft^3/s)
2-Year Flood	23
5-Year Flood	51
10-Year Flood	72
100-Year Flood	147

The project site is situated along the Richardson Bay shoreline and immediate backshore areas within a few feet of the local high tide line (~7 ft NAVD88) (see Figure 4). Accordingly, the entire project extent is within the 100-year floodplain as delineated on the latest FEMA flood hazard maps[10].Global sea-level rise has the potential to increase the frequency and duration of inundation within the project area during extreme high tides and storm events. The most recent projections for San Francisco Bay indicate that 6-16" of sea level rise is expected by 2050, and 12-78" of sea level rise is expected by 2100, depending on the emission reduction scenario (COPC 2024). The low elevations and relatively flat topography of Blackie's Pasture Park make it particularly vulnerable to sea-level rise. The proposed project is designed to provide some shoreline habitat resilience to moderate amounts of sea-level rise over the next ~30 years.

[8] NOAA station 9414819, Sausalito COE Dock
[9] https://streamstats.usgs.gov/ss/
[10] FEMA's National Flood Hazard Layer (NFHL) Viewer (arcgis.com)

The project site sits at the outlet of the local watershed, and therefore the bottom of the local groundwater gradient. Both the Bay tides and flood control channel outflows influence local groundwater dynamics. The presence of several large trees immediately behind the beach indicates the presence of shallow, fresh groundwater adjacent to the shoreline.

Regulatory Overview

There are several federal, state, and local laws and programs regulating water quality that would be applicable to the proposed project. Adherence to these laws would be mandated through the various federal, state, and local permits required for the project, including:

- Clean Water Act Section 404 Nationwide 27 permit (U.S. Army Corps of Engineers [USACE])
- Clean Water Act Section 401 Water Quality Certification (RWQCB)
- Town of Tiburon Grading Permit (Town)

The Federal Clean Water Act and the California Porter-Cologne Water Quality Control Act require that large urban areas discharging stormwater into the San Francisco Bay or the Pacific Ocean have an NPDES permit to prevent harmful pollutants from being dumped or washed by stormwater runoff, into the stormwater system, then discharged into local waterbodies. In 2003, smaller (less than 100,000 population) municipalities and unincorporated counties were required to obtain coverage under a statewide NPDES Municipal General Stormwater Permit (Phase II Permit) issued by the State Water Resources Control Board. In Marin, the County and all Marin's municipalities are subject to the conditions of the regulations described in the current 2013 Phase II Permit. The permit encompasses:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Controls
- Post Construction Stormwater Management for Development Projects
- Pollution Prevention and Good Housekeeping for Municipal Operations
- Water Quality Monitoring
- Program Effectiveness Assessment and Improvement

At the local level, the Town of Tiburon's stormwater runoff is controlled by the Marin Countywide Stormwater Pollution Prevention Program (MCSTOPPP)[11], which was established in 1993 to reduce the pollution carried by stormwater into local creeks, San Francisco Bay, and the Pacific Ocean. Each MCSTOPPP member agency implements a local stormwater pollution prevention program and funds the countywide MCSTOPPP, which provides for the coordination and consistency of approaches between the local stormwater programs.

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has identified the following Beneficial Uses for Richardson Bay in the current Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) (RWQCB 2023). The Basin Plan sets narrative and numeric water quality objectives for a wide range of physical, chemical, and biological properties to protect the following beneficial uses in Richardson Bay and the vicinity:

[11] https://mcstoppp.org/

- Industrial water supply
- Ocean, commercial, and sport fishing
- Estuarine habitat
- Fish migration
- Navigation
- Preservation of rare and endangered species
- Water contact recreation
- Non-contact water recreation
- Shellfish harvesting
- Wildlife habitat
- Fish spawning

Richardson Bay is currently listed on the 303(d) list of impaired waterbodies for the following pollutants (SWRCB 2020):

- Furan compounds
- Polychlorinated biphenyls (PCBs)
- Invasive species
- Dieldrin
- Dioxin compounds
- Indicator bacteria
- DDT
- Mercury
- Chlordane

Total Maximum Daily Loads (TMDL) have been established for PCBs, indicator bacteria, and mercury. TMDLs are pending for the other pollutants.

Little is known about the water quality of flows in the flood control channel. However, given the developed nature of the watershed, it can be assumed that the water carries pollutants typically found in urban runoff (sediment, nutrients, hydrocarbons, trash, etc.). The pollutant load from the channel is likely highest during the first few storms of the water year when contaminants that have built up during the dry season are flushed out of the watershed (i.e., the “first flush”).

Discussion

a) Construction activities both on the shoreline and in backshore upland areas could cause short-term, temporary impacts to water quality that would violate requirements in federal, state, and/or local stormwater control programs. Earth-moving and material placement within the shoreline enhancement areas could cause increases in suspended sediment concentration and introduce petroleum contaminants (oil, grease, fuel, etc.) into the waters of the Bay, if performed at times when there is water on the work area. Construction activities in backshore upland areas, including earth-moving and material stockpiling/transportation, also could introduce sediment and petroleum contaminants into the bay via rainfall runoff or storm wave over-wash. During the period between the completion of earthmoving and

vegetation reestablishment, bare graded areas could be subject to erosion from these forces as well. The project includes several design elements and preventative measures, summarized below, that would ensure these potential impacts are reduced to a **less-than-significant** level. Over the long term, the project would have a **net benefit** on the water quality of Richardson Bay by reducing rates of shoreline erosion and resulting sediment pulses to the Bay.

a. As described in the project description (Section 2), all work on the shoreline and low tide terrace (i.e., mudflats), including excavation, grading, and material placement, would occur during lower tides when these areas are exposed (i.e., in the dry).

b. Measures specific to the process of excavating borrow material from the flood control channel delta for beach nourishment would be implemented to prevent migration of sediment into open water areas outside of the active work area. These measures would include excavating a low-flow bypass channel around the borrow area. Other measures to control sediment migration from the borrow area may be recommended by the RWQCB in the project's Water Quality Certification or by the National Marine Fisheries Service (NMFS) in the Biological Opinion appended to the project's Nationwide 27 permit.

c. The dredged sand from the stockpile at Shollenberger Park proposed for use in the project would be tested for contaminants prior to use for beach nourishment with input and approval from the RWQCB and/or DMMO. Prior Corps sampling and analysis may be used for this screening analysis.

d. A Water Pollution Control Plan (WPCP) would be prepared to satisfy requirements in the project's Water Quality Certification for protecting surface water quality from construction related impacts. The WPCP would require applications of Best Management Practices (BMPs) to control soil erosion and runoff from construction work areas. The BMPs would include, but would not be limited to, physical barriers to prevent erosion and sedimentation, limitations on work periods during storm events, protection of stockpiled materials, establishment of dedicated equipment staging and maintenance areas, and hazardous material storage and spill response protocols. The BMPs included in the WPCP would be included in the Erosion and Sediment Control Plan (ESCP) that is required by the Town Grading Permit to satisfy MCSTOPP requirements.

e. Following earthwork completion, erosion control elements (straw wattles, seed-free rice straw, etc.) would be installed around disturbed areas as necessary to prevent soil erosion and runoff before vegetative stabilization occurs.

Excavation of sand from the Shollenberger Park dredge disposal site would have no impact on water quality as the site is an upland sand mound positioned within an isolated containment cell that will be dry during the excavation period.

b) The proposed project does not include groundwater extraction, placement of impermeable surfaces over a groundwater recharge area, or trenching/drainage that could potentially impede sustainable groundwater management. There would be **no impact** to groundwater resources due to the project.

c) i, ii) The project would not substantially alter drainage patterns at the site or increase the amount of surface runoff. Implementation of the measures identified above in item a would reduce erosion and

siltation impacts during construction to a **less-than-significant** level. In the long term, the project would reduce rates of shoreline erosion and resulting sediment pulses to the bay.

iii) The project site does not connect to an existing or proposed stormwater drainage system (other than the mouth of the flood-control channel) and the project does not include any elements that would increase the amount of surface runoff. Implementation of the items identified above in item a would prevent runoff of sediment and or other contaminants from active work areas during construction, thus reducing potential water quality impacts to a **less- than-significant** level.

iv) The project involves work near the connection of the flood control channel with the bay. However, none of the proposed project design elements would alter the alignment or geometry of the flood control channel in a manner that would reduce the conveyance capacity or redirect/impede flood flows. In fact, construction of the project should reduce the long-term rate of sand deposition at the flood control channel mouth due to longshore drift, thereby improving flood conveyance capacity. In the first one- or two-years following construction, before sand trapping vegetation becomes widely established on the drift sills, it is possible that some of the placed beach sand may migrate into the flood control channel and form minor bars that could impede low flow (non-flood) drainage of the channel at low tide, which could be a **potentially significant** impact. Implementation of Mitigation Measure BIO-3 (in the Biological Resources Section) would reduce these non-flood impacts to a **less than significant** level.

d) The project would be located on the Richardson Bay shoreline and in the Bay itself, as well as immediate low-lying backshore areas within the 100-year floodplain, as delineated on the FEMA flood hazard maps. As such, the site would be prone to inundation during extreme storm/flood events or tsunamis. The project does not include any elements that, in the long term, could potentially release pollutants during such inundation events. The project would be constructed during the dry season, which would reduce the likelihood of flood inundation and resulting sediment/pollutant migration from work areas to a **less-than-significant** level.

Tsunamis and seiches are extremely rare events, and may occur at any time. If the site were inundated by tsunami during construction, the migration of sediment or other pollutants from the work areas would be a miniscule and **less-than-significant** fraction of the cumulative water quality impacts associated with such an event.

e) As discussed in item a, project construction would require compliance with applicable water quality control plans and laws. Implementation of the measures identified in item a would achieve compliance with these laws, resulting in a **less-than-significant impact** due to project construction. The project will provide a net benefit to water quality in the long-term by reducing rates of shoreline erosion and resulting sediment pulses to the bay. As discussed in item b, the project will have no impact upon groundwater resources and would not conflict with any applicable sustainable groundwater management plan.

XI. Land Use and Planning

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				**X**
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**

Discussion

a) The beach restoration is proposed for an existing beach on an existing park area, which is designated for park and recreation use in the Town's zoning map (Tiburon Zoning Map, March 31, 2006) and Tiburon 2020 General Plan (Land Use Element, Diagram 2-1). The site is also designated as a Waterfront Park and Beach area in the Bay Plan (BCDC 2020, Plan Map 4).

Because the project would not change the existing land use but would instead restore the existing beach to previously existing conditions, the project would not create conflicts between uses or divide an established community, there would be **no impact**.

b) The Tiburon General Plan 2040, Conservation and Open Space Element (p. 214) includes the following specific polices with applicable to this project:

> POLICY OS-37 BLACKIE'S PASTURE. Retain the area known as Blackie's Pasture for passive, informal recreational use, including uses such as picnicking, hiking, wildlife watching, and open play areas which require minimal improvements such as pathways, benches, picnic tables, or restrooms. The quality and preservation of the environment should be the focus of the recreational experience.
>
> POLICY OS-39 PUBLIC SHORELINE ACCESS. Encourage additional public shoreline access from publicly accessible land consistent with the Bay Conservation and Development Commission's (BCDC) San Francisco Bay Plan, especially in areas where none currently exists.

The proposed project would comply with these policies and would not change the existing land use on site. Therefore, it would have **no impact** on plan conformance.

c) The project site is not located within the boundaries of a habitat conservation plan or a natural community conservation plan; therefore, the project would not conflict with any habitat plans and there would be **no impact**.

XII. Mineral Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**X**
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				**X**

Discussion

a, b) The project site is located within an established recreational park (Blackie's Pasture) and is not identified in the Town of Tiburon's 2020 General Plan[12] as a site containing mineral resources that would be of local, regional, or statewide importance. Therefore, the project would not have any impacts on mineral resources. The project site is a park and adjacent shoreline wetlands and mudflats, which do not contain any known mineral deposits or active mineral extraction operations. Therefore, the project would have **no impact** on mineral resources.

[12] http://www.townoftiburon.org/206/General-Plan

XIII. Noise

Would the Project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			**X**	
b) Generation of excessive groundborne vibration or groundborne noise levels?			**X**	
c) For a Project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?				**X**

Background

RCH Group, Inc. (RCH) performed noise monitoring at the project site on February 7, 2023. The following analysis details the results of the noise monitoring and potential noise impacts from the project.

Noise Descriptors

Noise can be defined as unwanted sound. It is commonly measured with a sound level meter, which captures the sound with a microphone and converts it into a numerical sound level, which is expressed in units of *decibels*.

To correlate the microphone signal to a level that corresponds to the way humans perceive noise, the A-weighting filter is used. A-weighting de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The use of A-weighting is required by most local General Plans as well as federal and state noise regulations (e.g. Caltrans, EPA, OSHA and HUD). The abbreviation dBA is sometimes used when the A-weighted decibel level is reported.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A–weighted sound level over a given time period (Leq)[13]; average day–night 24-hour average sound level (Ldn)[14] with a nighttime increase of 10 dB to

[13]The Equivalent Sound Level (Leq) is a single value of a constant sound level for the same measurement period duration, which has sound energy equal to the time–varying sound energy in the measurement period.

[14]Ldn is the day–night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to night between 10:00 p.m. and 7:00 a.m.

account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL)[15], also a 24-hour average that includes both an evening and a nighttime sensitivity weighting. Table NOISE-1 identifies decibel levels for common sounds heard in the environment. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 1998a):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dB;
- Outside of such controlled conditions, the trained ear can detect changes of 2 dB in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise levels changes of 3 dB;
- A change in level of 5 dB is a readily perceptible increase in noise level; and
- A 10-dB change is recognized as twice as loud as the original source.

Table NOISE-1. Typical Noise Levels

Noise Level (dB)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock Band
80-90	Diesel truck at 50 feet	Loud television at 3 feet
70-80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60-70	Commercial area	
40-60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20-40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10-20		Broadcast / recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

SOURCE: Modified from Caltrans Technical Noise Supplement, 1998a

[15]CNEL is the average A-weighted noise level during a 24-hour day, obtained by addition of 5 decibels in the evening from 7:00 to 10:00 p.m., and an addition of a 10–decibel penalty in the night between 10:00 p.m. and 7:00 a.m.

Noise Attenuation

Stationary point sources of noise, including construction equipment, attenuate (lessen) at a rate of 6 to 7.5 dB per doubling of distance from the source, depending on ground absorption. Soft sites attenuate at 7.5 dB per doubling because they have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. Hard sites have reflective surfaces (e.g., parking lots or smooth bodies of water) and therefore have less attenuation (6.0 dB per doubling). A street or roadway with moving vehicles (known as a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dB each time the distance doubles from the source, that also depends on ground absorption (Caltrans, 1998b). Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, would increase the attenuation that occurs by distance alone. Noise from large construction sites (or a landfill with heavy equipment moving dirt and solid waste daily and trucks entering and exiting the main gate daily – activities similar to construction sites) would have characteristics of both "point" and "line" sources, so attenuation would probably range between 4.5 and 7.5 dB per doubling of distance.

Vibration

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity, or acceleration. The peak particle velocity (PPV) is the descriptor used in monitoring of construction vibration.

Tiburon General Plan

The following policies are relevant to the project:

N-3: Environmental reviews (environmental impact reports, initial studies/negative declarations) of projects within the Tiburon Planning Area will be required to, where appropriate, include an acoustical analysis of the project's potential to cause a noise impact.

N-10: Standard quiet construction methods shall be used where feasible and when construction activities take place within 500 feet of noise sensitive areas.

Tiburon Municipal Code

The following Tiburon Municipal Code regulations would be applicable to the project:

> *Chapter 13-6, Hours of Construction: (A) Generally, all work covered by a permit issued under this chapter shall be performed only between the hours of seven a.m. to five p.m., Monday through Friday, and nine thirty a.m. to four p.m. on Saturday. Only quiet work is allowed to be performed on Saturdays, such that noise from any source associated with the permitted work, including but not limited to construction activity, amplified sound, and worker's voices, shall not be plainly audible beyond the property line. (B) Work covered by a permit shall not be performed on Sunday or on holidays observed by the Town of Tiburon. These holidays are New Year's Day, Martin Luther King Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. (C) For work covered by a permit, the arrival or departure of heavy equipment (including but not limited to concrete trucks, graders and backhoes) and/or the delivery of heavy items or materials (including but not limited to lumber, concrete, debris boxes, and portable restrooms) to a work site shall occur only on Monday through Friday between the hours of seven a.m. to five p.m. Hours of operation, maintenance, and servicing of heavy equipment shall be limited to eight a.m. to five p.m., Monday through Friday. Heavy equipment may begin engine warm up, but not actual operation, at seven-thirty a.m.*

Sensitive Receptors

The Tiburon General Plan lists noise-sensitive receptors as schools, churches, convalescent homes, and sensitive wildlife. The nearest residence is approximately 200 feet north of the project site. Sensitive wildlife and associated noise impacts are described in the Biological Resources section in this IS.

Existing Noise Environment

To quantify existing ambient noise levels, this noise study included 3 short-term (5- and 10-minute) noise measurements in and around the project site. Table NOISE-2 summarizes the locations and results of the noise measurements. Figure NOISE-1 shows the measurement locations on a map. Based on observations from the short-term measurements, the main sources of noise in and around the project site included car pass-bys on Tiburon Blvd. (SR 131), parking lot noise, and the sound of waves hitting the shoreline.

Table NOISE-2. Existing Noise Levels

Location	Time Period	Noise Levels (dB)	Noise Sources
Site 1: 70 feet southeast of nearest residence on Greenwood Beach Road, approximately 150 feet from the proposed project site.	Tuesday February 7, 2023 12:31 p.m. to 12:41 p.m.	5-minute Leqs: 54, 54	Car pass-bys on Highway 131 up to 58 dB. Distant parking lot noise up to 50 dB.
Site 2: South of the group of homes on Greenwood Beach Road	Tuesday February 7, 2023 12:42 p.m. to 12:47 p.m.	5-minute Leq: 52	Sound of waves on the shoreline 52 dB. Distant car pass-bys on Highway 131 up to 50 dB.
Site 3: Shoreline along the proposed project site	Tuesday February 7 12:49 a.m. to 12:59 p.m.	5-minute Leqs: 49, 46	Sound of waves on the shoreline up to 49 dB.

Source: RCH Group, 2023

Figure NOISE-1: Noise Measurement Locations



Discussion

a) ***Construction Noise Impacts***.

Construction would result in a temporary increase in ambient noise levels in the vicinity of the proposed project. Noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction.

Construction could occur as close as approximately 200 feet from the nearest residence on Greenwood Beach Road. However, most construction activities would occur at distances much greater than 200 feet from the nearest residence. The maximum noise levels at 50 feet and 200 feet for various types of construction equipment that could be used during construction are provided in Table NOISE-3.

Table NOISE-3. Typical Noise Levels from Construction Equipment (Lmax)

Construction Equipment	Noise Level (dB, Lmax at 50 feet)	Noise Level (dB, Lmax at 200 feet)
Dump Truck	76	61
Backhoe	78	63
Dozer	82	67
Excavator	81	66
Flat Bed Truck	74	59
Front End Loader	79	64

Notes:
1. An attenuation rate of 7.5 per doubling of distance was used to convert the FHWA construction equipment noise levels at 50 feet to the noise levels at 200 feet.
L_{max} = maximum sound level
SOURCE: Federal Highway Administration (FHWA) Roadway Construction Noise Model User's Guide, 2006.

Construction equipment would not all operate at the same time or location. However, several types of construction equipment would typically be in operation at the same time. Table NOISE-4 provides typical construction noise levels for different phases of construction.

Table NOISE-4. Typical Construction Activities Noise Levels

Construction Equipment	Noise Level (dB, Leq at 50 feet)	Noise Level (dB, Leq at 200 feet)
Ground Clearing	84	69
Excavation	89	74

Notes:

Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

Leq= equivalent sound level

Source: U.S. Environmental Protection Agency, Legal Compilation, 1973.

Construction would only occur between the hours of seven a.m. to five p.m., Monday through Friday, and nine thirty a.m. to four p.m. on Saturday to comply with the City of Tiburon established hours of construction. Project construction would not exceed standards established in the local general plan or noise ordinance. Therefore, proposed project construction impacts would be **less than significant.**

Operational Noise Impacts

Following project implementation, the site would continue to be managed by the Town of Tiburon as part of Blackie's Pasture Park, as it is currently. The proposed project would not generate more noise than what is currently generated by the existing project site (See Table Noise-2 for ambient noise levels nearby the shoreline). Therefore, proposed project operational impacts would be **less than significant**.

b) Construction activities have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. In most cases, vibration induced by typical construction equipment does not result in adverse effects on people or structures (Caltrans 2013). Vibrational effects from typical construction activities are only a concern within 25 feet of existing structures (Caltrans 2002). There are no structures within 25 feet of the proposed construction site. Therefore, proposed project vibration impacts would be **less than significant**.

c) The project site is not within the vicinity of a private airstrip or an airport land use plan, or within two miles of a public use airport. The nearest airport is San Rafael Airport (the nearest runway of which is approximately eight miles north of the project site). Therefore, **no impact** would occur.

XIV. Population and Housing

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				**X**
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				**X**

Discussion

a) The proposed beach restoration project would not directly or indirectly increase population growth because no new housing or permanent jobs are proposed as part of the project. The project site and surrounding areas are developed with urban and park land uses and no extensions of roads or other infrastructure would be required that would indirectly induce growth. Therefore, the project would not induce new development on nearby lands, and **no impact** would occur.

b) The project site contains an existing park and beach, with no housing. The proposed project would not displace existing housing or people, so there would be **no impact**.

XV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Fire protection?				**X**
b) Police protection?				**X**
c) Schools?				**X**
d) Parks?				**X**
e) Other public facilities?				**X**

Discussion

a) The Tiburon Fire Protection District (TFPD) provides fire protection and emergency medical services for the project site. The TFPD is a combination department with 21 career safety employees, one clerical and one finance officer, 13 volunteer firefighters, and 6 trainee firefighters. The fire station nearest the project site is Station #11, Sausalito, located at 1679 Tiburon Blvd., approximately 700 feet west of the site. Restoration of the existing beach would not materially alter uses of the site, and therefore would not result in a change in demand for fire protection services. The project would not require the provision of or need for new or physically altered facilities to continue to serve the project site. Therefore, the project would have **no impact** to fire protection services.

b) Police services are provided to Blackie's Pasture Park by the Tiburon Police Department, headquartered at 1155 Tiburon Blvd., about 0.75 miles west of the park. As discussed for fire, above, the project would be a beach restoration, and therefore would not increase the need for police services or facilities. Therefore, the project would have **no impact** to police services.

c) The proposed facilities would not increase the population or otherwise increase demands for school services. It would not alter the capacity of students at school. Therefore, the project would have **no impact** on schools.

d) As described above, the proposed project would not result in an increase in residents and therefore, would not increase demand for any parks facilities from additional residents. The enhanced beach may slightly increase the use of the Greenwood Beach area of Blackie's Pasture Park (see Recreation discussion, in Section XVI, below), however no additional park facilities would be required. For this reason, the project would be expected to have **no impact** on recreational facilities

e) No other public facilities would be required by the proposed project. Therefore, the project would have **no impact** on other facilities.

XVI. Recreation

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?				**X**
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				**X**

Discussion

a) As described in response to question d) under Public Services, above, the project would have no adverse effects on parks and other recreational facilities. A survey of park users was conducted to determine if the proposed beach restoration would increase park visitorship[16]. This survey included 19 in-person interviews at the park parking lot, and an online survey.

Of the 19 individuals interviewed, visitation to Greenwood Beach varied greatly. One interviewee noted only visiting four times a year while another came to Greenwood Beach every day. Average visitation to the site was between 1 and 3 times per week. Nearly everyone interviewed stays at least 30 minutes and leaves within 1.5 hours. Communities represented in the interview pool were Mill Valley, Los Angeles, San Francisco, San Rafael, Sausalito, and Tiburon. Nearly everyone interviewee drove to the site.

The most noted primary activities were walking and using the benches, with several people noting they also walk their dogs along the shoreline. Four individuals stated being in nature was a reason for visiting Greenwood Beach and the shoreline.

When asked about additional sand or gravel placement on the shoreline, 68% of interviewees said this would not increase or decrease their visitation to Greenwood Beach while 21% said it would increase their visitation. Two interviewees were undecided.

The online survey added 6 respondents, all of whom lived in nearby Marin communities.
Those respondents did not state additional sand or gravel on the beach would increase or decrease their visitation to Greenwood Beach.

Overall, a small increase in Park attendance may occur associated with the beach improvements. Given the level of use of Blackie's pasture Park by walkers, bikers, and other non-Greenwood Beach uses, this increase would not be expected to adversely affect the park such that physical

[16] Richardson Bay Audubon Center, Greenwood Beach Engagement Memo, December 2022.

deterioration of any recreational facility would occur or be accelerated. In fact, the project is intended to reverse the ongoing physical deterioration of the beach area of the Park. Therefore, **no impact** would occur.

b) The project includes restoration of the beaches at the site, which are evaluated by topic in this document. The project would not require the construction or expansion of other recreational facilities. **No impacts** would occur that are not already addressed elsewhere in this IS.

XVII. Transportation/Traffic

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadways, pedestrian and bicycle facilities?				**X**
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) (vehicle Miles traveled)?			**X**	
c) Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				**X**
d) Result in inadequate emergency access?				**X**

Discussion

a) The project would not alter uses or any traffic routes compared to existing Park access. Minor construction traffic would not conflict with program, plan, ordinance or policy addressing the circulation system, including transit roadways, pedestrian and bicycle facilities. Therefore, the project would have **no impact** with respect to any such plan or policy, or underlying circulation systems.

b) With the passage of Senate Bill SB 743 in 2013 and full implementation on July 1, 2020, Vehicle Miles Traveled (VMT) became the main metric to evaluate transportation impacts of proposed development projects. Traffic LOS and parking deficiencies are no longer considered significant impacts in CEQA analysis. With SB 743, most development projects need to provide a VMT analysis to determine traffic impacts. However, there are several exceptions. These include small projects that generate fewer than 110 daily trips; locally serving retail and similar land uses; and locally serving public facilities such as public schools and parks.

As discussed above, the project is a restoration of an existing beach, and would not result in additional or more intensive activities at the site that would change the current traffic circulation patterns and operations in the area. The project will not add new driveways or parking. The project is part of a park that primarily serves the residents from the nearby communities and, as such, would be exempt from VMT analysis. The park use survey described above in Section XVI, Recreation, indicates that the project would result in a minor increase in visitors to the park. According to the Governor's Office of Planning and Research (Technical Advisory on Evaluating Transportation Impacts in CEQA, April 2018), similar to small projects, local-serving public facilities are presumed to have a **less-than-significant** impact on VMT.

c, d) The proposed project would not alter any roadways and therefore would not introduce new design features or other changes that are incompatible with the existing transportation infrastructure or otherwise adversely affect emergency access, and it would not create any traffic hazards. Therefore, **no impact** would occur.

XVIII. Tribal Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project cause a significant adverse change in the significance of a tribal cultural resource defined in Public Resource Code Section 21074 as either a site, feature, place cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				**X**
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		**X**		

Background

As per compliance with AB 52, Far Western Anthropological Research Group, on behalf of Marin County Department of Public Works and the Town of Tiburon, contacted the NAHC on October 6, 2023, requesting a review of their Sacred Lands File for this project and list of individuals/groups who might have knowledge concerning cultural and tribal resources within the ADI. The NAHC's response, dated November 9, 2023, stated that there are Native American sacred sites documented within the Area of Direct Effect (ADI) and to contact the Federated Indians of Graton Rancheria for information. Additionally, they provided a list of five Native American contacts including the Federated Indians of Graton Rancheria, Guidiville Indian Rancheria, and Wuksachi Indian Tribe/Eshom Valley Band that could provide information about archaeological and/tribal resources in the area.

On behalf of the Town of Tiburon, Far Western sent letters to the Federated Indians of Graton Rancheria and the Guidiville Rancheria of California on October 20, 2023. A letter was sent to the Wuksachi Indian Tribe/Eshom Valley Band on November 9, 2023.

The Federated Indians of Graton Rancheria responded on November 8, 2023, with a formal request for consultation. Follow-up phone calls were made to the other contacts provided by the NAHC on November 20, 2023. Consultation is ongoing between the Town, County, and Graton Rancheria and included a meeting on December 19, 2023, to discuss the proposed project and archaeological findings. The tribe was sent all relevant information on December 20, 2023, and was again contacted on January 10, 2024 to see if additional information was needed for their review. The tribe responded on March 28, 2024, that it was still reviewing the project. The Tribe was again contacted on May 3, 2024 and has not responded. Consultation is ongoing between the Town of Tiburon, County of Marin, and the Federated Indians of Graton Rancheria. Results of this consultation will be included in the Final IS/MND, as required under CEQA.

Follow-up phone calls were made to the other contacts provided by the NAHC on November 20, 2023. No additional responses have been received.

Discussion

a) i. There are no listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), in the ADI. Therefore, the project would have **no impact** on any such resource.

ii. As described in the Cultural Resources section of the IS/MND, the upland and shore parts of the site have already been filled and graded and are the location of an existing park facility, and the tidal areas are recent sediments unlikely to contain cultural resources. Because the project's upland earthmoving would not extend beyond the previously graded depths, and the off-shore excavation would be about two feet in depth, and entirely in recent sediments, impacts to culturally sensitive sites would be unlikely. However, because it is possible that some cultural resources may be included in upland fills in the project area, impacts to these resources may occur. These impacts would be reduced to a less-than-significant level by implementation of Mitigation Measures CUL1, 2, and 3 in the Cultural Resources Section. No adverse post-construction effects are anticipated, the Park uses would not change, and the project would assist in stabilizing the project area. Therefore, the project's potential impacts would be **less than significant with mitigation.**

XIX. Utilities and Service Systems

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				**X**
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				**X**
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			**X**	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				**X**
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				**X**

Background

Blackie's Pasture Park includes water fountains and restroom facilities along the paved trail east of the project site, and also abuts the location of Tiburon's wastewater treatment plant. The Greenwood and Brunini Beach areas have no public utilities other than including the location of the mouth of a flood control channel.

Discussion

a, b, c) The project would be a beach restoration and therefore not increase water demand. Therefore, **no impact** would occur to water supplies or associated facilities. Similarly, a possible small increase in Park usership would not substantially increase the quantity of sewage generated from that generated by the existing park. Therefore, any impacts to water or wastewater facilities would be **less than significant**.

d, e) Because the project would enhance a beach at an existing park, there would be no increase in solid waste generation as a result of project operation. Solid wastes would be generated during removal of the existing rip-rap. Maximum off-haul volume would be 75 CY, if everything had to be taken off-

site, which would be minimal. Therefore, the project would have a less-than-significant impact on solid waste generation or disposal.

XX. Wildfire Hazards

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				**X**
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				**X**
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				**X**
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				**X**

Discussion

a, b) The project is in a park in a developed urban area, surrounded by other urban uses and waters of Richardson Bay. It is mapped as being in a Non-Wildlands/Non-Urban wildfire hazard area[17]. The site itself is generally developed with park uses with the exception of the off-shore tidal area, which is mostly covered with water. The project would not introduce any new fire hazards. Therefore, the project would have a **less-than-significant** impact with respect to wildfire hazards.

c, d) The project would be a beach restoration in a park in an urbanized area, and would not require any additional fire protection infrastructure or fuel breaks. Because of the scope of the project (i.e., beach restoration), it would not construct any new structures or otherwise expose people or structures to post-fire land instability or runoff issues. Therefore, the project would have a **less-than-significant** impact with respect to these wildfire hazards.

[17] https://gisopendata.marincounty.org/datasets/MarinCounty::fire-hazard-severity-zone-1/explore?location=37.894186%2C-122.493274%2C16.00 0

IV. MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Issue	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species or eliminate important examples of the major periods of California history or prehistory?		**X**		
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?				**X**
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			**X**	

a) Compliance with the mitigation measures for the unearthing of any unknown human burials would ensure all potential impacts associated with cultural resources would be reduced to a **less-than-significant** level. Similarly, impacts to biological resources would be mitigated to **less than significant** with measures included in this document.

b) No other projects are proposed at the park that would overlap this project. Based on a review of the Town of Tiburon current projects lists, there are currently no proposed development projects in the project area. Therefore, the proposed project would not contribute to any cumulative impacts associated with development in the project area. **No impact** would result.

c) The proposed project would not increase long-term air pollutant emissions and greenhouse gasses because it would not add any new workers or residents. The project's noise impacts also would be **less than significant**. The project's hazards to human health and safety would **be less than significant**, as described in Section VIII of this Initial Study.

V. REFERENCES

Ayala, G., 2002. Preliminary Greenwood Beach Benthic Macroinvertebrate Investigation. Technical Memorandum. August.

Audubon California, 2022. Shorebird Usage of Greenwood Beach. Technical Memorandum. September.

Bay Area Air Quality Management District (BAAQMD). 2022. *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en

Bay Area Air Quality Management District (BAAQMD). 2017. *CEQA Air Quality Guidelines*, http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement.*

California Department of Transportation (Caltrans). 2002. *Transportation Related Earthborne Vibrations.*

California Department of Transportation (Caltrans). 1998a. *Technical Noise Supplement.*

California Department of Transportation (Caltrans). 1998b. *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Project.*

California Geologic Survey (CGS). 2022. Earthquake Zones of Required Investigation. Interactive

California Ocean Protection Council (COPC). June 2024. State of California Sea-Level Rise Guidance: 2024 Science and Policy Update.

Olofson Environmental. 2021. California Ridgway's Rail Surveys for the San Francisco Estuary Invasive Spartina Project, 2020. Report to the State Coastal Conservancy. February.

Online Map. https://maps.conservation.ca.gov/cgs/EQZApp/app/, Accessed 5/11/2023.

Far Western Anthropological Research Group, *Cultural Resources Inventory for the Greenwood Beach Restoration Project*, Prepared for Marin County Public Works department, December 2023.

Marin County, California

Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model User's Guide*.

.

Intergovernmental Panel on Climate Change (IPCC). *2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2022. Road Construction Emissions Model Version 9.0.1. https://www.airquality.org/residents/ceqa-land-use-planning/ceqa-guidance-tools

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2023. Water Quality Control Plan for the San Francisco Bay Basin. Inclusive of all Amendments through March 2023. >Basin Planning | San Francisco Bay Reqional Water Quality Control Board (ca.gov)

State Water Resources Control Board (SWRCB). 2020. 2018 Integrated Report for Clean Water Act Sections 305(b) and 303(d). Final Staff Report. Adopted by the State Water Resources Control Board, Oct 20, 2020.

Town of Tiburon. 2005. Tiburon 2020 General Plan. *Chapter 7, Noise Element.*

Town of Tiburon. 2022. Climate Action Plan 2030.

U.S. Dept of Agriculture, Soil Conservation Service (USDA). 1985. Soil Survey of Marin County, California.

U. S. Environmental Protection Agency (USEPA). 1973. *Legal Compilation: Statutes and Legislative History, Executive Orders, Regulations, Guidelines and Reports.*

U.S. Geological Survey (USGS). 1997-2007. Marin County-Wide Geology, GIS Shapefile. Compiled from four USGS publications and topographic mapping.

Working Group on California Earthquake Probabilities (WGCEP). 2015. UCERF3: A New Earthquake Forecast for California's Complex Fault System. U.S. Geological Survey Fact Sheet 2015–3009, March 2015.

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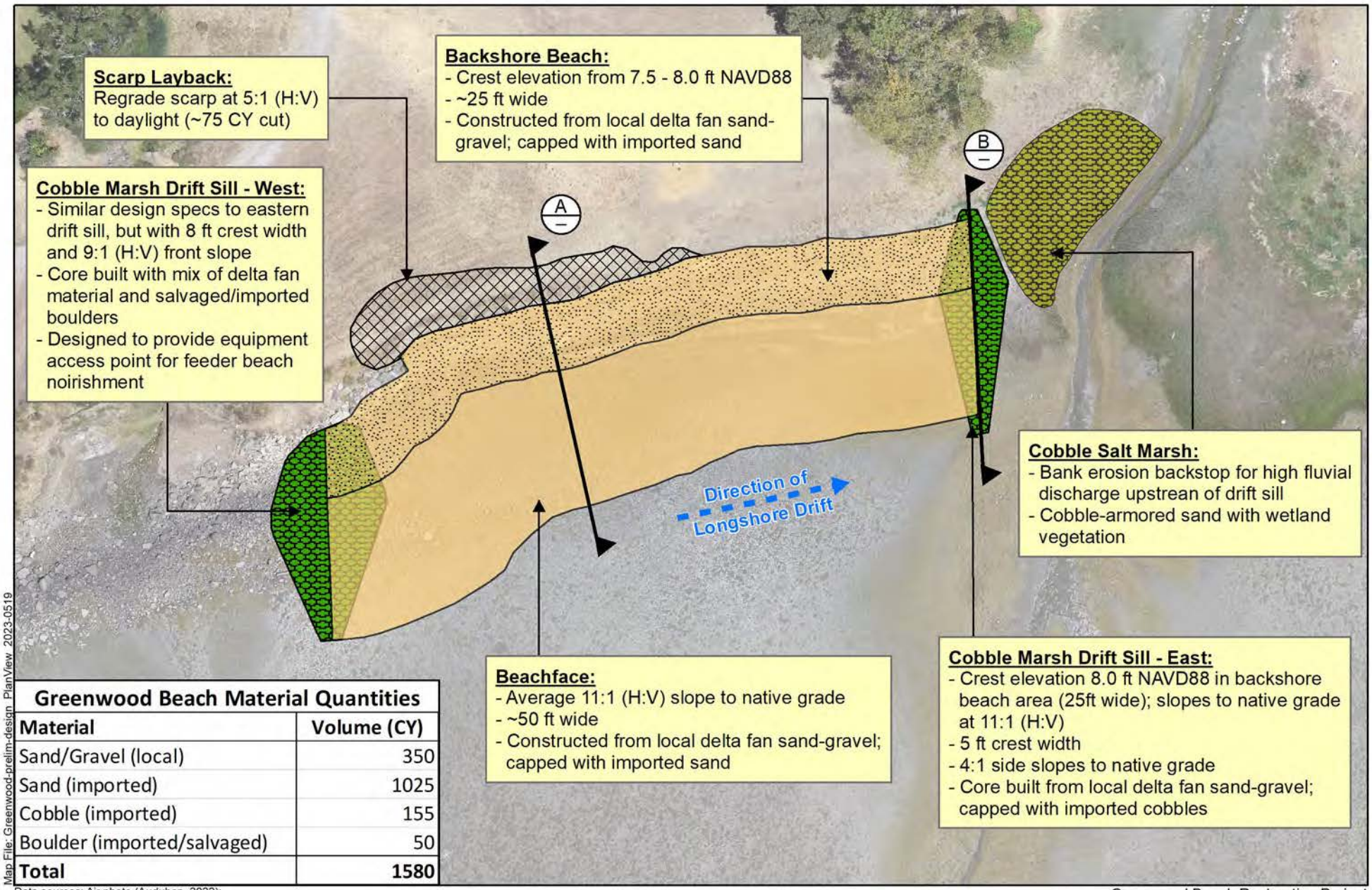
Dan Gillenwater, Principal Environmental Scientist

Peter Baye, PhD. Consulting Biologist

RCH Group, Inc.

Paul Miller, RCH Group, Air Quality/Noise Specialist
Dan Jones, RCH Group, Air Quality Specialist
Luis Rosa, RCH Group, Noise Specialist

APPENDIX A: PRELIMINARY RESTORATION DESIGN DRAWINGS



Greenwood Beach Material Quantities

Material	Volume (CY)
Sand/Gravel (local)	350
Sand (imported)	1025
Cobble (imported)	155
Boulder (imported/salvaged)	50
Total	**1580**

Map File: Greenwood-prelim-design_PlanView_2023-0519

Data sources: Air photo (Audubon, 2022);
Topo/grain size data (GillenH2O, 2022)

Greenwood Beach Restoration Project

1:600 (1" = 50' at letter size)

0 25 50 Feet

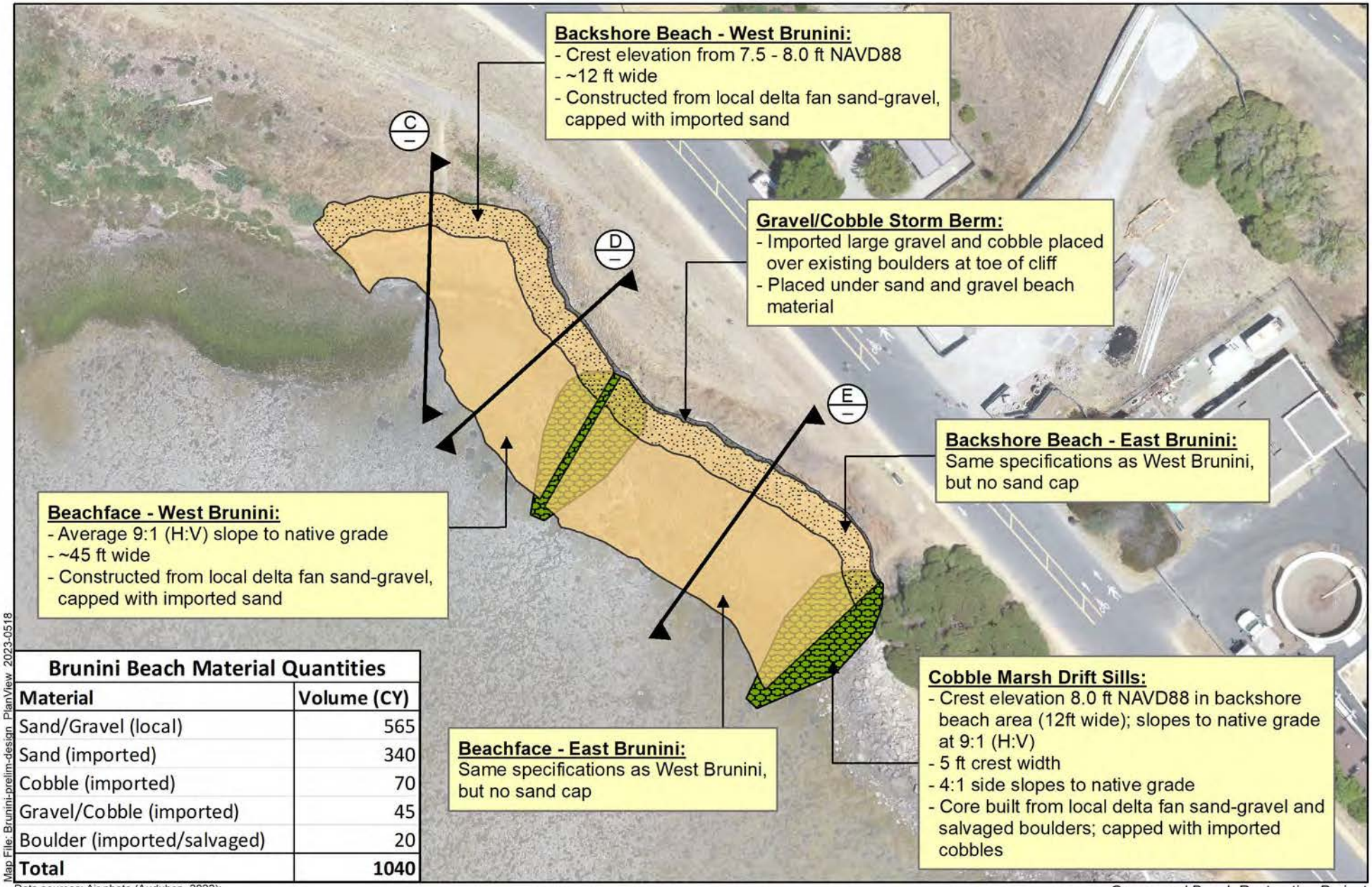
0 7.5 15 Meters

Gillenwater GillenH2O Consulting

Layout represents beach design profile, not as-built conditions. Profile will adjust over time based on cross-shore and long-shore transport processes.

Figure 1

Greenwood Beach
Preliminary Beach Restoration Design



Brunini Beach Material Quantities

Material	Volume (CY)
Sand/Gravel (local)	565
Sand (imported)	340
Cobble (imported)	70
Gravel/Cobble (imported)	45
Boulder (imported/salvaged)	20
Total	**1040**

Map File: Brunini-prelim-design_PlanView_2023-0518

Data sources: Air photo (Audubon, 2022);
Topo/grain size data (GillenH2O, 2022)

Greenwood Beach Restoration Project

1:600 (1" = 50' at letter size)

0 25 50 Feet

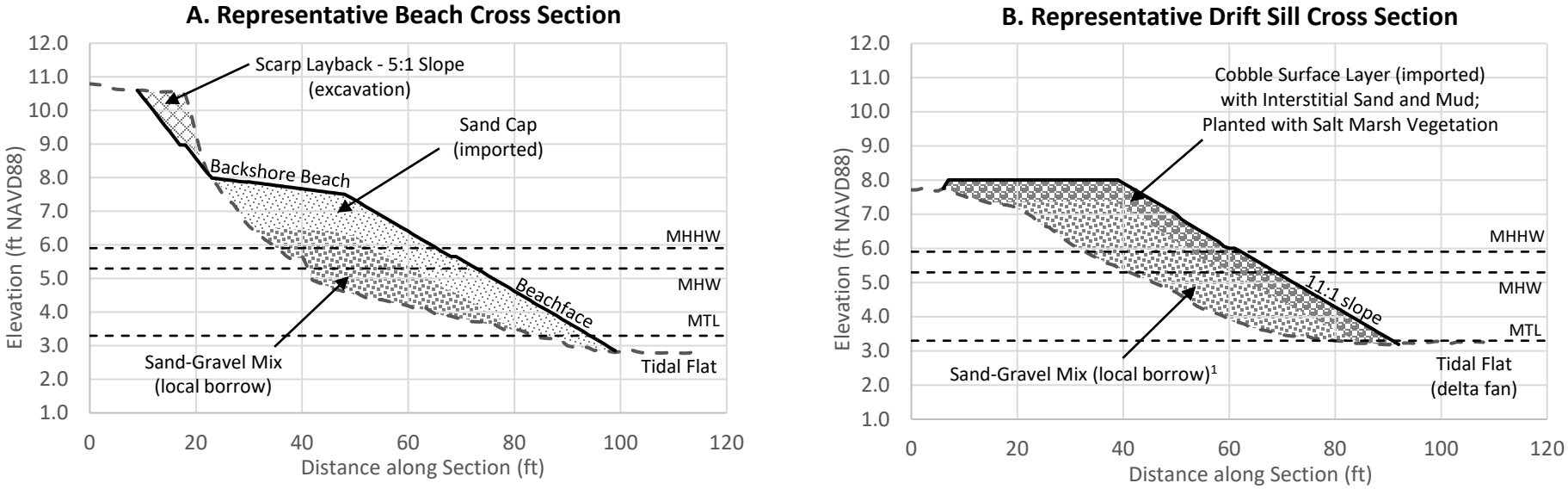
0 7.5 15 Meters

Gillenwater GillenH2O Consulting

Layout represents beach design profile, not as-built conditions. Profile will adjust over time based on cross-shore and long-shore transport processes.

Figure 2

Brunini Beach
Preliminary Beach Restoration Design

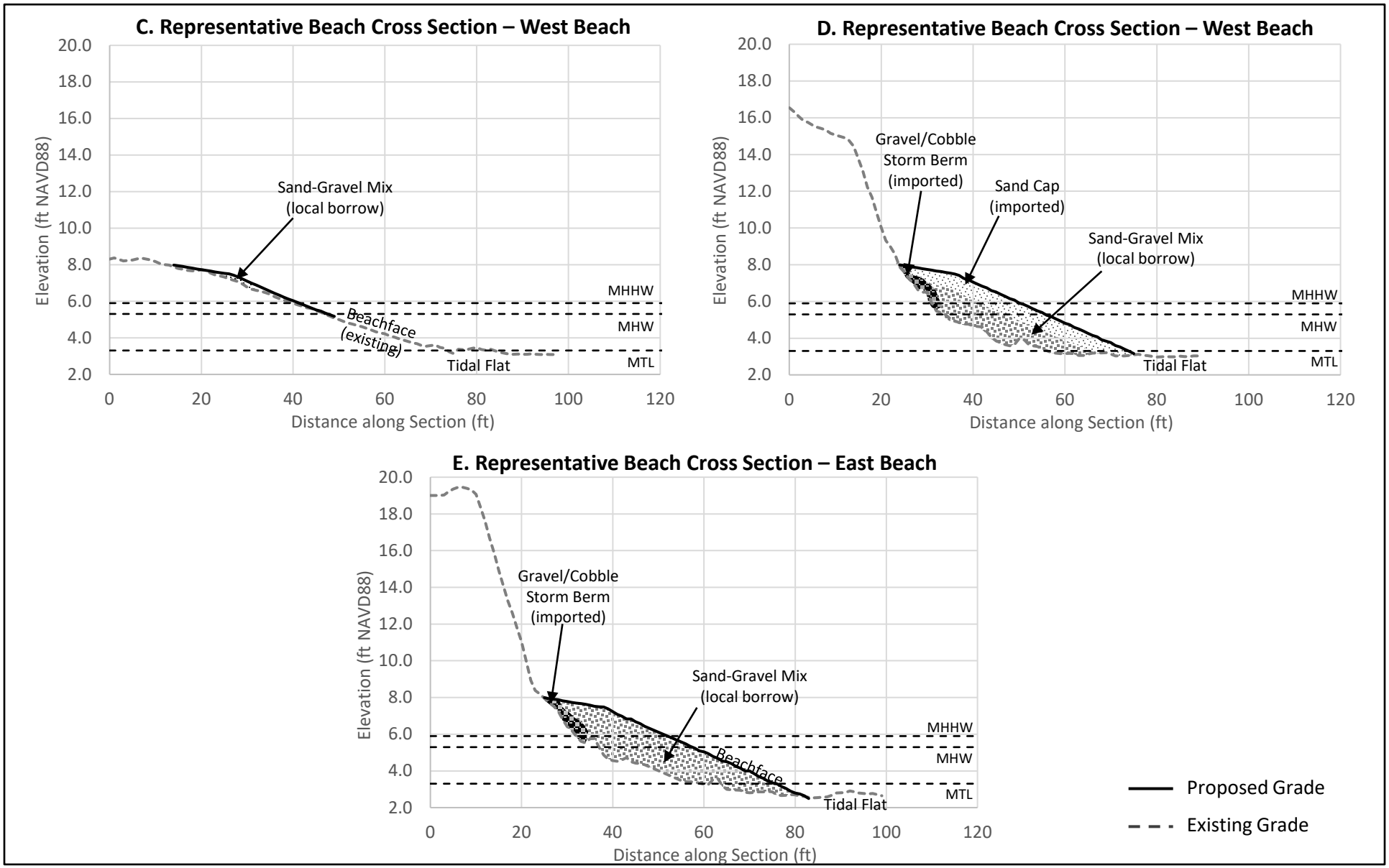


Greenwood Beach Restoration Project

Figure 3

Greenwood Beach
Preliminary Beach Restoration Design – Typical Cross Sections

Gillenwater
GillenH2O
Consulting



Greenwood Beach Restoration Project

Figure 4

Gillenwater GillenH2O Consulting

Brunini Beach

Preliminary Beach Restoration Design – Typical Cross Sections

APPENDIX B: REGIONAL SPECIAL-STATUS SPECIES NOT CONSIDERED FURTHER IN THIS ANALYSIS

Special-status plant species	English name	Biogeographic or ecological exclusion factors	Confidence of permanent absence determination for project effects area*
Amorpha californica var. *napensis*	Napa false indigo, mock-locust	Restricted to higher interior ridges of Marin County chaparral, woodland; suitable substrate and vegetation absent	Confirmed absent
Amsinckia lunaris	Bent-flowered fiddleneck	High well-drained slopes and bluffs of Marin County	Confirmed absent
Arctostaphylos franciscana	Franciscan manzanita	Local endemic of San Francisco serpentinite or greenstone outcrops	Confirmed absent
Arctostaphylos montana subsp. *ravenii*	Raven's manzanita	Local endemic of San Francisco serpentinite outcrops	Confirmed absent
Arctostaphylos montana subsp. *montana*	Mt. Tam manzanita	Restricted to high interior serpentinite outcrops on interior ridges of Marin County	Confirmed absent
Arctostaphylos virgata	Bolinas manzanita	Restricted to sandstone outcrops bordering conifer forest vegetation, western Marin County	Confirmed absent
Astragalus pycnostachyus subsp. *pycnostachyus*	Coastal marsh milkvetch	Restricted to maritime salt marsh edges of West Marin County; not in San Francisco Bay	Confirmed absent
Astragalus tener	Alkali milkvetch	No historic records from Marin County; restricted to alkali seasonal wetlands.	Confirmed absent
Calamagrostis crassiglumis	Thurber's reedgrass	Restricted to coastal perennial freshwater wetlands north of Marin County	Confirmed absent
Calochortus tiburonensis	Tiburon mariposa-lily	Restricted to serpentine grassland ridges of Ring Mountain.	Confirmed absent
Carex comosa	Bristly sedge	No Marin County historic records. Restricted to freshwater marsh.	Confirmed absent
Carex lyngbyei	Lyngbye's sedge	Restricted to brackish tidal marshes	Confirmed absent
Carex praticola	Northern meadow sedge	No Marin County historic records or in San Francisco Bay watersheds.	Confirmed absent
Castilleja affinis var. *neglecta*	Tiburon paintbrush	Restricted to serpentine chaparral or grassland	Confirmed absent
Ceanothus decornutus	Nicasio ceanothus	Narrow serpentine endemic, Nicasio highlands	Confirmed absent
Chloropyron maritimus subsp. *palustre*	North coast salt marsh bird's-beak	Potential habitat in project area and present in Richardson Bay salt marshes	Confirmed absent through 2022

Special-status plant species	English name	Biogeographic or ecological exclusion factors	Confidence of permanent absence determination for project effects area*
Chloropyron molle subsp. *molle*	Soft bird's-beak	Restricted to brackish tidal marshes	Confirmed absent
Chorizanthe cuspidata var. *cuspidata*	San Francisco spineflower	Restricted to stabilized maritime coastal dunes.	Confirmed absent
Chorizanthe cuspidata var. *robusta*	Robust spineflower	Not present in eastern Marin County; known only from Point Reyes in Marin.	Confirmed absent
Cirsium andrewsii	Franciscan thistle	Restricted to freshwater wetland seeps or marshes. Habitat not present at project site.	Confirmed absent
Cirsium hydrophilum var. *hydrophilum*	Suisun thistle	Variety not present in Marin County. Endemic to brackish tidal marshes.	Confirmed absent
Clarkia franciscana	Presidio clarkia	Not present in Marin County.	Confirmed absent
Collinsia multicolor	San Francisco Collinsia	Not present in Marin County. No suitable moist grassland or woodland edge habitat present.	Confirmed absent
Dirca occidentalis	Western leatherwood	Restricted to moist, shaded coastal forest or woodland.	Confirmed absent
Eriogonum luteolum var. *caninum*	Tiburon buckwheat	Endemic to serpentine soils or outcrops.	Confirmed absent
Erysimum franciscanum	Franciscan wallflower	Rocky soil or rock outcrop habitats not present at project site.	Confirmed absent
Fritillaria liliacea	Fragrant fritillary	Grassland hillslopes, coastal; no records in southern Marin bayland watersheds	Confirmed absent
Fritillaria lanceolata var. *tristulis*	Marin fritillary	Strictly maritime distribution and habitats. No records in Marin bayland watersheds	Confirmed absent
Gilia capitata subsp. *chamissonis*	Coast gilia	Endemic to stabilized maritime coastal dunes.	Confirmed absent
Grindelia hirsutula var. *maritima*	San Francisco gumplant	Not present along Marin bayland coast.	Confirmed absent
Helianthella castanea	Diablo helianthella	Presumed extirpated in Marin County. Rocky habitat does not present at site.	Confirmed absent
Hemizonia congesta subsp. *congesta*	White hayfield tarweed	Suitable habitat present, but only yellow hayfield tarweed (subsp. lutescens) prevails in southern Marin baylands.	Confirmed absent
Hesperolinum congestum	Marin western	Serpentine soil endemic,	Confirmed absent

Special-status plant species	English name	Biogeographic or ecological exclusion factors	Confidence of permanent absence determination for project effects area*
	flax	present in Ring Mountain. No bayland habitat or populations	
Holocarpha macradenia	Santa Cruz tarplant	Potential habitat present, but no modern or historic populations in Marin bayland watersheds.	Confirmed absent
Horkelia cuneata var. *sericea*	Kellogg's horkelia	Restricted to old stabilized coastal dunes and maritime sandy soils, west Marin, historic locality only	Confirmed absent
Horkelia tenuiloba	Thin-lobed horkelia	Mt. Tamalpais is southern range limit. Restricted to clayey moist or seep soils not present at site.	Confirmed absent
Kopsiopsis hookeri	Small groundcone	Restricted to infertile forest and chapparal soils. No records from Marin baylands	Confirmed absent
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	Restricted to brackish estuarine tidal marshes. Not present in Marin County.	Confirmed absent
Layia carnosa	Beach layia	Restricted to coastal dunes of Point Reyes	Confirmed absent
Leptosiphon rosaceus	Rose leptosiphon	Restricted to coastal dunes of Point Reyes	Confirmed absent
Lessingia germanorum	San Francisco Lessingia	Restricted to old stable dunes of San Francisco and San Bruno Mountain	Confirmed absent
Lessingia hololeuca	Woolly headed Lessingia	Rock outcrops and serpentine grassland soils, absent at project site.	Confirmed absent.
Lessingia micradenia var. *micradenia*	Tamalpais Lessingia	Restricted to thin gravelly serpentine soil or outcrops, Mount Tamalpais and vicinity	Confirmed absent
Lilaeopsis masonii	Mason's lilaeopsis	Restricted to brackish tidal marsh. Not present in Marin baylands. Indistinct from L. occidentalis.	Confirmed absent
Microseris paludosa	Marsh microseris	Grassland slopes, scrub borders. Potential habitat in Marin Baylands, but not in project area.	Confirmed absent
Navarretia rosulata	Marin County navarretia	Restricted to serpentine outcrops on high ridges.	Confirmed absent
Pentachaeta bellidiflora	White-rayed pentachaeta	Restricted to serpentine grassland and scrub borders.	Confirmed absent
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcornflower	Restricted to coastal prairie in western Marin County.	Confirmed absent

Special-status plant species	English name	Biogeographic or ecological exclusion factors	Confidence of permanent absence determination for project effects area*
Plagiobothrys glaber	Hairless popcornflower	Presumed extinct since early 20th century in Marin County, but potential shoreline habitat at project site.	Confirmed absent
Pleuropogon hooverianus	Hoover's semaphore-grass	Restricted to vernal marsh and grassland swale wetland habitats, absent at the project site.	Confirmed absent
Polemonium carneum	Fleshy polemonium	Potential habitat on grassy or brush slopes.	Confirmed absent
Quercus parvula var. *tamalpaisensis*	Tamalpais oak	No oaks present in the project area. Nearby oaks all *Q. agrifolia*.	Confirmed absent
Ranunculus lobbii	Lobb's aquatic buttercup	Restricted to seasonal freshwater pool and swale habitats, absent at the project site	Confirmed absent
Sanicula maritima	Adobe sanicle	Presumed extinct in San Francisco Bay since 19th century, never reported from Marin County. Alkali clay wetland soil habitat absent.	Confirmed absent
Sidalcea calycosa var. *rhizomata*	Point Reyes checkerbloom	Restricted to maritime freshwater marsh and wetland grassland swales, west Marin	Confirmed absent
Sidalcea hickmanii var. *viridis*	Marin checkerbloom	Restricted to serpentine grassland	Confirmed absent
Silene scouleri var. *scouleri*	Scouler's catchfly	Restricted to maritime soils and rock outcrops, west Marin	Confirmed absent
Silene verecunda subsp. *verecunda*	San Francisco campion	No occurrences in Marin County. Sandy maritime habitat absent at project site.	Confirmed absent
Stebbinsoseris decipiens	Santa Cruz microseris	Restricted to serpentine grassland or rock outcrops.	Confirmed absent
Streptanthus batrachopus	Mt. Tamalpais jewelflower	Restricted to serpentine rock outcrops	Confirmed absent
Streptanthus glandulosus var. *niger*	Mt. Tamalpais bristly jewelflower	Restricted to serpentine rock outcrops	Confirmed absent
Symphyotrichum lentum	Suisun aster	Restricted to brackish tidal marsh. No historic records in Marin baylands; only *S. douglasii* and *S. chilense*	Confirmed absent
Trifolium amoenum	Showy Indian clover	Restricted to maritime coastal prairie; in Marin, reported only from one	Confirmed absent

Special-status plant species	English name	Biogeographic or ecological exclusion factors	Confidence of permanent absence determination for project effects area*
		West Marin locality	
Trifolium hydrophilum	Saline clover	Restricted to alkali grassland swales or tidal brackish marsh edges. No historic Marin localities.	Confirmed absent
Triphysaria floribunda	San Francisco owl's-clover	Narrow endemic, San Francisco and Point Reyes coastal prairie only	Confirmed absent
Triquetrella californica	Coastal triquetrella (moss)	No moss species in project area	Confirmed absent

* Determination of "confirmed" absence of special-status plants at the project site(s) is based on over 10 years of site-specific observations of the Blackie's Pasture shoreline by a qualified botanist/coastal ecologist (Peter Baye, PhD) familiar with the Marin and adjacent Sonoma and San Francisco County floras, the San Francisco Estuary bayshore flora, and the plant genera assessed.

APPENDIX C: MITIGATION MONITORING AND REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

INTRODUCTION

Mitigation Monitoring and Reporting Programs (MMRPs) are required by the California Environmental Quality Act (CEQA) Section 21081.6 to be adopted by CEQA Lead Agencies for projects having the potential to cause significant environmental impacts. The MMRP describes changes to the project or conditions of project approval that mitigate or avoid the project's potential significant effects on the environment. This MMRP addresses the greenwood Beach Restoration Project. A brief description of the proposed project is provided below. The proposed project is located within the Town of Tiburon (Town), which is the Lead Agency under CEQA and has discretionary authority over the proposed project.

MMRP FORMAT AND IMPLEMENTATION

Mitigation measures that would reduce or eliminate potential environmental impacts of the proposed project are identified in the Greenwood Beach Restoration Project Initial Study/Mitigated Negative Declaration. These mitigation measures will become conditions of project approval if the project is approved. The Town is required to verify that all adopted mitigation measures are implemented properly and to ensure compliance, the MMRP has been adopted by the Town and will be administered by personnel from the Town Planning and Public Works Departments. Specific responsibilities are delineated for each measure in the attached checklist table and these responsibilities may be delegated to qualified Town staff or consultants.

The checklist, which follows as Table A-1, is intended to be used by the applicant, grading/construction contractors, and personnel from the above-listed Town Departments, as the appointed mitigation implementation and monitoring entities. Information contained within the checklist clearly identifies each mitigation measure, defines the conditions required to verify compliance, and delineates the monitoring schedule. Following is an explanation of the three columns that constitute each MMRP checklist.

Column 1 — *Mitigation Measure*: An inventory of each mitigation measure is provided.

Column 2 — *Implementing Responsibility*: Identifies parties responsible for implementing each mitigation measure (e.g., construction contractor, project applicant, qualified biologist).

Column 3 — *Monitoring Responsibility:* Identifies parties responsible for determining compliance with each mitigation measure (e.g., Town Planning Department, qualified biologist, qualified archaeologist).

Column 3 — *Implementation Schedule*: As scheduling is dependent upon the progression of the overall project, specific dates are not used within the "Schedule" column. Instead, scheduling describes a logical succession of events (e.g.,

prior to ground-disturbing activities, etc.) and, if necessary, delineates a follow-up program.

Column 4 *Monitoring Compliance Record Name/Date*: Column is left blank and is to be signed and dated when compliance with the mitigation measure has been met.

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Implementation Schedule	Monitoring Compliance Record Name/Date
Biological Resources				
Mitigation Measure BIO-1. a. Most weed seeds are deposited in the upper few inches of sand or soil. Best Management Practices applied during sand harvest shall include scraping the surface of the sand prior to sand quarrying at Shollenberger Park to clear weeds and accumulated seeds in the top few inches of sand in excavation areas. This minor modification would minimize the contamination of weed seeds in imported sand. The scraped surface material containing weeds/weed seeds would be locally stockpiled within the dredge disposal site (outside of sensitive wetland areas) and redistributed across the sand borrow area upon completion. b. During the first two winter rainy seasons following sand placement, when weed seedling establishment is at the 2nd-3rd leaf stage, the shoreline weed seedling zone shall be monitored to detect elevated frequencies of weeds. If elevated levels of weed seedlings are detected, they shall be manually removed (rake, hoe or spade) at the	Project Biologist	Town Project Manager to monitor implementation	Prior to importation of sand/soil As specified in the measure	

seedling-juvenile stage, before flowering or seed set. The shoreline weed seedling zone shall be limited to the zone below the highest tide line or the landward limit of imported sand placement, whichever is higher.				
Mitigation Measure BIO-2: The evolution of the borrow area depression/pond and outlet channel shall be monitored monthly at low tide for the first 2 years post-construction. If erosion of a continuous ebb tidal outlet channel is slow enough to restrict fish movement on ebb tides by the first winter after construction, the project manager shall consult with NMFS and CDFW. The consultation shall focus on practical adaptive management measures to reduce restrictions to movement of estuarine fish out of the pool to insignificant levels. The project manager shall implement such measures if the tidal channel constriction does not self-correct by mid-winter after construction. Adaptive management measures may include partial manual removal of sills that persist and restrict ebb drainage, sufficient to correct potential impairment of fish movement to the bay during lower ebb tide stages. If the ebb outlet channel erosion is impeded by exposure of a relatively erosion-resistant sill, such as a heavier gravel lens or firm clayey mud, such sills may be manually excavated to a depth of half a foot, in a zone 1-foot wide.	Project Biologist	Town Project Manager	As specified in the measure.	

Mitigation Measure BIO-3. The tidal flood control channel mouth shall be monitored bimonthly during the spring, summer and fall months of the first year after construction. If drifted sand or gravel chokes the mouth of the tidal flood control channel by approximately 75% or more (cross-section area) based on visual observations during neap tide series (the weakest tides of the month), it shall be manually excavated to provide at least 50% unimpeded cross-section area to facilitate tidal drainage and circulation. If the drift-sill is not adequately vegetated to significantly inhibit sand drift into the channel mouth by the second year after construction, the project manager shall supplement it with additional transplants of species adapted to the tide zones where sand or gravel drift is occurring. Transplants of sand-trapping native vegetation shall be secured in position by placement of protective cobbles embedded in sandy mud.	Project Biologist	Town Project Manager	As specified in the measure	
Cultural Resources				
Mitigation Measure CULT-1: Human Remains. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public	Construction Contractor; Qualified Archaeologist	Town Project Manager	During ground-disturbing activities at the project site.	

Resources Code Section 5097. In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the Town shall be notified. The District shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the District for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The Town or their appointed representative and the professional archaeologist would consult with a Most Likely Descendent determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.				

APPENDIX D: COMMENTS AND RESPONSES ADDENDUM

COMMENTS AND RESPONSES ADDENDUM

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Greenwood Beach Restoration Project

Prepared for:

Town of Tiburon
1505 Tiburon Blvd
Tiburon, CA 94920

Prepared by:

Grassetti Environmental Consulting
7008 Bristol Drive
Berkeley, CA 94705

August 2024

Introduction

The Initial Study/Proposed Mitigated Negative Declaration (IS/MND) for the Greenwood Beach Restoration Project was circulated for public and agency review from July 5, 2024 through August 12, 2024. Several agencies provided comments on the Draft IS. The Final IS/MND has been revised to address these comments. This Addendum to the Final IS/MND includes the comments received and a discussion of how the environmental issues raised in the comments have been addressed in the Final MND.

Comments were received from the following organizations:

- California Department of Transportation, Letter, July 26, 2024
- California Department of Fish and Wildlife, Letter, August 5, 2024
- San Francisco Bay Conservation and Development Commission, Letter, August 12, 2024

The comments in each of these letters have been numbered, and the numbered comments and corresponding responses are provided on the following pages.

CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, GOVERNOR

California Department of Transportation

DISTRICT 4
OFFICE OF REGIONAL AND COMMUNITY PLANNING
P.O. BOX 23660, MS–10D | OAKLAND, CA 94623-0660
www.dot.ca.gov

July 26, 2024

SCH #: 2024061144
GTS #: 04-MRN-2024-00326
GTS ID: 33244
Co/Rt/Pm: MRN/131/1.641

Dina Tasini, Director of Community Development
City of Tiburon
1505 Tiburon Boulevard
Tiburon, CA 94920

Re: Greenwood Beach Restoration Project – Mitigated Negative Declaration (MND)

Dear Dana Tasini:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Greenwood Beach Restoration Project. The Local Development Review (LDR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities. The following comments are based on our review of the June 2024 MND.

Please note this correspondence does not indicate an official position by Caltrans on this project and is for informational purposes only.

Project Understanding
The proposed project calls for the restoration and enhancement of Greenwood and Brunini beaches at Blackie's Pasture Park on Tiburon Blvd. using "nature-based" or "living shoreline" solutions to reduce rates of shoreline erosion, improve shoreline habitat and recreational values, and improve shoreline sea-level rise resilience.

Climate Change
Please ensure that Caltrans remains informed about the diverse climate stressors affecting this project location, as well as the ongoing development and implementation of adaptation and resilience initiatives. Caltrans is particularly interested in initiatives that incorporate green or hybrid (green-gray) infrastructure to enhance adaptation measures and resilience in areas within or near its right-of-way (ROW). Additionally, Caltrans emphasizes the potential benefits of sharing knowledge between local and regional initiatives, facilitated through channels like San Francisco Bay Conservation & Development Commission's (BCDC) Regional Shoreline

1

1 (cont.) Adaptation Plan (RSAP). Current nature-based strategies aimed at mitigating coastal erosion risks could be developed for future adaptation measures alongside State Route (SR)-131.

For any questions and concerns within District 4's geographical boundaries, please reach out to the Caltrans Bay Area Climate Change Planning Coordinators at vishal.ream-rao@dot.ca.gov and lucius.wu@dot.ca.gov.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Melissa Hernandez, Associate Transportation Planner via LDR-D4@dot.ca.gov. For future early coordination opportunities or project referrals, please contact LDR-D4@dot.ca.gov.

Sincerely,



YUNSHENG LUO
Branch Chief, Local Development Review
Office of Regional and Community Planning

c: State Clearinghouse

Responses to California Department of Transportation (CalTrans) Comments

Comment 1. *Climate Change Consideration*.

CalTrans has expressed interest in climate resiliency projects. The proposed project is designed to consider climate change and resiliency. The Town of Tiburon will make available any monitoring reports from this effort with interested entities to advance and disseminate the science of nature-based shoreline adaptation approaches.

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

August 5, 2024

Dina Tasini, Director of Community Development
Town of Tiburon
1505 Tiburon Boulevard
Tiburon, CA, 94920
DTasini@townoftiburon.org

Subject: Greenwood Beach Restoration Project, Draft Initial Study/Mitigated Negative Declaration, SCH No. 2024061144, Town of Tiburon, Marin County

Dear Dina Tasini:

The California Department of Fish and Wildlife (CDFW) received a Notice of Intent to Adopt a Draft Initial Study/Mitigated Negative Declaration (IS/MND) from the Town of Tiburon (Town) for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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proposed, for example, the Project may be subject to CDFW's Lake and Streambed Alteration (LSA) regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the Project proponent may seek related take authorization as provided by the Fish and Game Code.

REGULATORY REQUIREMENTS

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA permit.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially restrict the range or reduce the population of a threatened, rare, or endangered species. (Pub. Resources Code, §§ 21001, subd. (c), 21083; CEQA Guidelines, § 15380, 15064, and 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code section 2080.

Lake and Streambed Alteration

1 CDFW requires an LSA Notification, pursuant to Fish and Game Code § 1600 et. seq., for Project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake, or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document for the Project and may issue an LSA Agreement. CDFW may not execute the final LSA Agreement (or ITP) until it has complied with CEQA as a Responsible Agency.

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Cutting the Green Tape Program

CDFW's Cutting the Green Tape (CGT) program is a statewide effort, representing CDFW's environmental permitting and grant funding programs with added support from its general counsel and executive leadership. This program is leading efforts to develop and implement improvements to how the department issues permits and administers its grant programs, to accelerate the pace and scale of restoration throughout the state.

A Restoration Management Permit (RMP) is a tool available under the CGT program that consolidates "take" authorizations that voluntary habitat restoration projects may need to obtain into a single streamlined permit. The RMP can authorize state-defined take (hunt, pursue, capture, catch, or kill, or attempt to do so) of endangered, threatened, and candidate species pursuant to section 2081, subdivision (a), of CESA as well as fully protected species (FPS) pursuant to Fish and Game Code, §§ 3511, 4700, 5050, and 5515.

PROJECT DESCRIPTION SUMMARY

Proponent: Town of Tiburon

Objective: The goal of the Project is to restore and enhance Greenwood and Brunini beaches using a "living shoreline" approach (techniques and materials that take advantage of natural processes and provide living space for estuarine organisms) to reduce rates of shoreline erosion, improve shoreline habitat and recreational values, and improve shoreline sea level rise resilience. The objectives of the Project are to restore the mixed sand-gravel beach and salt marsh vegetation at Greenwood Beach with enhanced resistance to erosion; replenish Brunini Beach with mixed sand and gravel and expand it to the southeast; use locally sourced sediments and/or beneficially reuse off-site navigational dredging sediments for beach restoration and enhancement; restore native backshore and salt marsh vegetation communities; pre-empt the need for rip-rap placement typical of shoreline erosion response; and demonstrate the applicability of restoring bay beaches as a viable alternative to traditional rip-rap shoreline stabilization to inhibit shoreline erosion while providing species habitat.

Location: The Project is located on approximately 1.4 acres of the Richardson Bay shoreline at Blackie's Pasture Park in the Town of Tiburon, Marin County, California. The Project is situated on lands owned by the Town of Tiburon (APNs: 055-041-18, 055-041-17, and 055-014-12) and intertidal lands under a Public Trust easement held by the State of California. The site is accessed from the terminus of both Greenwood Beach Road and Blackie's Pasture Road, from Tiburon Boulevard.

Timeframe: Construction would take approximately two months during the dry season (August-October) as early as 2024.

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COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the Town in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, CDFW concludes that an MND is appropriate for the Project.

I. Project Description and Related Impact Shortcoming

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or US Fish Wildlife Service (USFWS)?

COMMENT 1: Page 13 – Concrete Pieces

Issue: The draft IS/MND describes the presence of exposed remnants of fill material at the eroded scarp, including asphalt and concrete rubble. The draft IS/MND states that larger asphalt pieces, reinforced concrete, and other deleterious waste will be removed from the shoreline to the extent feasible and hauled to a landfill for disposal. The draft IS/MND then states that larger non-reinforced concrete pieces will be broken up, and the remainder of fill will be spread along the newly graded shoreline slope. The area will then be covered with 6-12 inches of sand for planted beach vegetation.

Specific impact and why impact would occur: Placement or reuse of hardscape such as concrete can result in less vegetation establishment, less improved habitat, and increase the risk of unintended erosion of the sloped shoreline. 2

Evidence impact would be significant: Erosion that starts along the graded scarp along the sloped shoreline could extend into the newly established beach habitat, impacting the establishment of backshore beach vegetation (including federally endangered California sea-blite (*Suaeda californica*)), as well as into the terrestrial grassland transition area. In addition, erosion could also create depressions that could inadvertently entrap fish species washed in during higher tides or winter storm surge that are unable to move out of the Project area when waters recede.

Recommended Potentially Feasible Mitigation Measure(s) (Regarding Project Description and Related Impact Shortcoming)

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2 (cont.) **Mitigation Measure 1:** CDFW recommends removal of all asphalt, reinforced concrete, and non-reinforced concrete from the Project site, as feasible. Any materials that cannot feasibly be removed from the Project site should be clean, inert, free of extraneous material, and be properly sized and placed to minimize the risk of unintended erosion.

II. Environmental Setting and Related Impact Shortcoming

Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filiing, hydrological interruption or other means?

COMMENT 2: Pages 38 and 45 – Shollenberger Park

Issue: The off-site source of imported sand (Shollenberger Park) is a dredge disposal site located within a diked bayland with fringing brackish tidal marsh.

Specific impact and why impact would occur: Operation of vehicles/equipment directly adjacent to or within the brackish tidal marsh could result in potential short-term and/or long-term impacts to this sensitive habitat by removing or crushing marsh vegetation or inadvertently depositing sand into the marsh habitat during sand extraction activities.

3 In addition, the draft IS/MND states that the Project will implement Mitigation Measure BIO-1 at Shollenberger Park, to scrape the surface of the sand prior to sand harvesting to clear accumulated weeds and weed seeds in the top few inches of sand in excavation areas. Depending on where this top layer of sand with accumulated weeds and seeds is placed and whether the weeds and seeds are inadvertently deposited or are blown into the brackish tidal marsh, this activity could result in potential short-term and/or long-term impacts to brackish tidal marsh habitat by increasing invasive weed cover.

Evidence impact would be significant: Brackish tidal marsh is a type of federally protected wetland as defined by Section 404 of the Clean Water Act. Approximately 90 percent of tidal marsh habitat along the shorelines of San Francisco Bay has been lost or fragmented since the 1800's. Filling or crushing of brackish tidal marsh at Shollenberger Park will contribute to further loss of this sensitive habitat. Therefore, Project impacts to brackish tidal marsh would be potentially significant.

Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact Shortcoming)

Mitigation Measure 2: Restricting Vehicles to Top of Levee

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The draft IS/MND describes a perimeter levee that separates the brackish tidal marsh from the sand mound area. The draft IS/MND should state that all vehicles and equipment accessing the sand mound stockpile will be restricted to the perimeter levee that separates the sand mound from the brackish tidal marsh habitat.

3 *(cont.)*

Mitigation Measure 3: Placement of Scraped Sand Surface Layer

The draft IS/MND should state that any materials that are scraped from the surface of the sand during sand harvesting activities will not be placed into the adjacent brackish tidal marsh. If feasible, CDFW recommends that the scraped materials be disposed of to minimize the likelihood of spread of weeds/weed seeds to nearby sensitive habitats.

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?

COMMENT 3: Pages 34-35 – Channels

Issue: The draft IS/MND describes a small freshwater drainage ditch with sparse, shaded freshwater marsh and riparian thicket at the west end of the Project. The document also describes an artificially-constructed tidal flood control channel with steep grassy banks that drains a sub-watershed of Ring Mountain, bisects the grasslands of Blackie's Pasture, and opens to the tidal delta of mixed gravel and sand flats between Greenwood and Brunini beaches. The freshwater drainage ditch and the tidal flood control channels are subject to CDFW's LSA authority, pursuant to Fish and Game Code 1600 et. seq.

4

Specific impact and why impact would occur: Placement of imported sand into the Project area, excavation of a borrow depression at the flood control channel and enlargement of the channel outlet, and excavation of a low-flow bypass channel around the borrow depression has the potential to result in substantial diversion or obstruction of natural flows and substantial change or use of material from the bed, bank, or channel.

Evidence impact would be significant: Substantial diversion or obstruction of natural flow, change in stream bed or bank, or deposit of debris into streams without necessary permitting would be a violation under Fish and Game Code 1600 et. seq.

Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact Shortcoming)

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Mitigation Measure 4: Notification of Lake and Streambed Alteration

Fish and Game Code 1600 et. seq requires an entity to notify CDFW prior to commencing any activity that may (a) substantially divert or obstruct the natural flow of any river, stream, or lake; (b) substantially change or use any material from the bed, bank, or channel of any river, stream, or lake: (c) deposit debris, waste or other materials that could pass into any river, stream, or lake. Project construction activities may necessitate that the Project proponent submit a Notification of LSA to CDFW. CDFW is required to comply with CEQA in the issuance of an LSA Agreement. Additional information can be found at https://www.wildlife.ca.gov/Conservation/LSA.

4 (cont.)

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS?

COMMENT 4: Page 41 – Fish Species

Issue: The draft IS/MND describes special-status fish species that are known to migrate through or inhabit Richardson Bay and may be impacted by the Project. The draft IS/MND does not include white sturgeon (*Acipenser transmontanus*), which has recently been listed as a state candidate species under CESA.

Specific impact and why impact would occur: Potential impacts described in the draft IS/MND (e.g., injury/mortality from excavation activities, elevated turbidity and sediment suspension, habitat degradation, fish stranding during outgoing tides within the borrow depression, and increased bird predation associated with fish residence within the borrow depression) pertaining to other special-status fish species also will apply to white sturgeon if they are present.

5

Evidence impact would be significant: The population abundances of special-status species, including species listed as candidate species under consideration for listing under CESA, are typically low. The white sturgeon population in San Francisco Bay may be susceptible to further decline from injury or mortality from Project activities.

Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact Shortcoming)

Mitigation Measure 5: White Sturgeon Impacts

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Please revise the draft IS/MND to include white sturgeon in the section describing potential impacts and associated mitigation measures for special-status fish species.

Mitigation Measure 6: Impact Minimization

5 *(cont.)* Page 47 of the draft IS/MND describes several measures to prevent direct and indirect construction-related impacts to fish, including: 1) conducting all work on the shoreline and low tide terrace, including excavation of the borrow depression, at low tide when the work area is emergent and fish are absent from the work area; 2) enlarging the borrow area outlet channel following excavation activities to ensure adequate tidal drainage and fish egress; and 3) constructing a low-flow bypass channel around the borrow area to re-route flood channel outflows and avoid intercepting estuarine fish movement between the shallow submerged tidal flats and the tidal flood control channel. Please provide a plan sheet (or at least a conceptual diagram) that shows more detail of the proposed dimensions and orientation of the enlarged borrow area and low-flow bypass channel.

III. Mitigation Measure or Alternative and Related Impact Shortcoming

COMMENT 5: Pages 44-45 – Mitigation Measure BIO-1

Issue: The draft IS/MND states that the sand imported from Shollenberger Park will contain non-native/invasive plant seeds and may cause a flush of weed growth at the back of the constructed beach. The draft IS/MND proposes Mitigation Measure BIO-1, which includes scraping the top few inches of sand prior to sand harvesting at Schollenberger Park (as described above in the first comment of this letter), monitoring of the shoreline weed seedling zone during the first winter rainy season following sand placement, and manual removal of detected seedlings prior to flowering or seed set.

6 **Specific impact and why impact would occur:** If the imported sand still contains some non-native/invasive plant seeds (despite scraping during harvesting), a flush of weed growth at the Project site may increase the concentration of existing non-native/invasive plant species and introduce new non-native/invasive plants into the Project area.

Evidence impact would be significant: Further spread of existing non-native/invasive plant species and/or introduction of new non-native/invasive plant species not already present at the side could spread into sensitive marsh habitat or impede the ability of federally endangered California sea-blite to thrive at the Project site.

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Recommended Potentially Feasible Mitigation Measure(s) (Regarding Mitigation Measure or Alternative and Related Impact Shortcoming)

6 (cont.) **Mitigation Measure 7:** CDFW recommends modifying Mitigation Measure BIO-1 to include an additional year of monitoring the shoreline weed seedling zone beyond the initial first winter, to ensure that non-native/invasive weed species are effectively removed by hand and minimize the chance of further spread.

IV. Editorial Comments and/or Suggestions

7 Please clarify the construction window, as page 24 states construction to be August-October, while page 45 states that construction will occur outside of the nesting and breeding season (after September 1). CDFW supports the later construction window, if possible, to better ensure avoidance to nesting bird species, including avoidance of impacts to nesting federal and state endangered and state fully protected California Ridgway's rail (*Rallus obsoletus obsoletus*) or state threatened and state fully protected California black rail (*Laterallus jamaicensis coturniculus*) that may be in close vicinity to sand harvesting activities at Shollenberger Park.

8 In addition, please be aware that CDFW should be listed on page 24 (under State and Local Agency Approvals Utilizing this Document) as both a CEQA Trustee Agency and CEQA Responsible Agency and may issue a 1600 LSA Agreement.

9 Also, please revise the draft IS/MND on pages 41-43 to note that steelhead (*Oncorhynchus mykiss*), green sturgeon (*Acipenser medirostris*), San Pablo song sparrow (*Melospiza melodia samuelis*), northern harrier (*Circus hudsonius*), salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), and salt marsh wandering shrew (*Sorex vagrans halicoetes*) are state species of special concern; California black rail is state threatened and state fully protected; and that California Ridgway's rail and salt-marsh harvest mouse (*Reithrodontomys raviventris raviventris*) are state fully protected.

ENVIRONMENTAL DATA

10 CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

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ENVIRONMENTAL DOCUMENT FILING FEES

(11) The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (See Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the draft IS/MND to assist the Town of Tiburon in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Tami Schane, Senior Environmental Scientist (Specialist) at (415) 710-0711 or Tami.Schane@wildlife.ca.gov; or to Peter McHugh, Environmental Program Manager at Peter.McHugh@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

ec: Office of Planning and Research, State Clearinghouse (SCH No. 2024061144)
Craig Weightman, CDFW Bay Delta Region – Craig.Weightman@wildlife.ca.gov
Mitsuko Grube, CDFW Bay Delta Region – Mitsuko.Grube@wildlife.ca.gov
Arn Aarreberg, CDFW Bay Delta Region – Arn.Aarreberg@wildlife.ca.gov

Responses to California Department of Fish and Wildlife Comments

Comment 1: *Possible Need for Lake and Streambed Alteration Agreement*

CDFW notes that the project may need to acquire a Lake and Streambed Alteration (LSA) Agreement from that agency. Should that permit be required, the project would apply for and acquire that permit prior to any construction work. At this time, we do not anticipate the need for an Agreement as all project work occurs within the tidal extent of Richardson Bay and was intentionally located outside of CDFW Section 1600 jurisdiction. The need for an LSA Notification/Agreement has not been mentioned in any of our previous interactions and correspondence with the BRRIT for this project. Please notify us if CDFW does not concur with this assessment and that an LSA Notification/Agreement may be required.

Comment 2: *Reuse of Concrete Pieces*

CDFW recommends that all concrete (even non-reinforced pieces) removed from the scarp grading areas be removed from the project site, as feasible, or be properly sized and placed to minimize risk of erosion. Properly sized non-reinforced concrete pieces may be used in the construction of the drift sills and/or cobble armor salt marsh design elements (which are to be built from imported and locally salvaged rock), but such material would not be placed along the restored beach areas where they may cause unintended erosion. This clarification has been added to page 13 in the Final IS/MND.

Comment 3: *Potential Issues with Shollenberger Park Imported Sands*

CDFW requests that the ISMND be revised to state that all vehicles and equipment accessing the Shollenberger sand stockpile would be restricted to the perimeter levee that separates the sand stockpile from the adjacent brackish marsh. This clarifying text has been added to page 52 of the Final IS/MND. The vehicle path from levee road to the sandy dredged material fan is entirely upland dominated by non-native weedy upland vegetation, with no crossing over or proximity to any non-tidal or tidal marsh, or seasonal pond. All seasonal wetlands and ponds within the Shollenberger Park dredge disposal site are outside the proposed sand borrow area, with at least fifty feet of upland separating any wetland or pond margins and sand harvest equipment activity. The boundaries of the sand harvest area would be flagged in the field by a qualified wetland expert with local knowledge of habitats and vegetation.

CDFW also requests that any materials scraped from the surface of the sand mound during harvesting will not be placed in the adjacent tidal marshes, and that the scraped materials be “disposed of” to minimize the likelihood of weed seed spread to nearby sensitive habitats. The text of Mitigation Measure BIO-1 on page 45 has been revised to indicate that scraped surface material containing weeds/weed seeds will be locally stockpiled within the dredge disposal site (outside of sensitive wetland areas) and redistributed across the sand borrow area upon completion. The pre-existing weedy, predominantly non-native vegetation of the sand borrow

area would be essentially the same composition before and after sand removal, but with lower percent cover the year after disturbance. Weed/weed seed infested materials will not be removed to an off-site disposal location as that could lead to predictable spread of weeds into other sensitive areas during transportation and disposal.

Comment 4: *Impacts to Riparian Habitats/Sensitive Natural Communities*

CDFW states that several project design elements occur within Section 1600 jurisdictional areas. None of the stated design elements occur within or adjacent to the bed or bank of the flood control channel, or the small freshwater drainage ditch to the west (which is entirely outside of the project work area). Several design elements, including the borrow area and low-flow bypass channel, occur bayward of the mouth of the flood control channel on the Richardson Bay tidal flats lacking any perennial channel bed or bank morphology, outside of Section 1600 jurisdiction. It is our assessment that no LSA Notification is required for this project, but we will consult with DFW regarding this assessment following subsequent review of the design drawings. Note that the need for an LSA Notification has not been mentioned in any of our previous presentations and correspondence with the BRRIT for this project, which included graphics showing the locations of project features bayward of any channelized stream features.

Comment 5: *Impacts to Special-Status Fish Species*

CDFW notes that white sturgeon should be added to the list of special status fish species in the project area. The Final IS/MND has been updated to include this species on page 42.

CDFW also requests a plan sheet or a conceptual diagram showing more detail for the proposed borrow area and low-flow bypass channel. Graphic scale representations of borrow areas and temporary bypass flow channel will be included in the design materials provided for permit applications and agency consultations.

Comment 6: *Adequacy of Mitigation- Potential for Non-Native Seeds in imported fill*

CDFW requests an additional year of monitoring and removal of weed seedlings from the shoreline following construction. Mitigation Measure BIO-1 on page 45 has been revised to incorporate this change.

Comment 7: *Construction Windows with Respect to Special Status Birds*

CDFW requests that the construction windows be clarified in the document and prefers that construction be conducted after September 1, outside the nesting bird season. The Final IS/MND has been revised on page 24 and 46 to clarify the preferred construction window. The text has been revised on page 46 to indicate that, if construction before September 1 is necessary, appropriate surveys for rails and other nesting birds would be conducted and disturbance buffers established around any active nesting sites.

Comment 8: *CDFW is both a CEQA Responsible and Trustee Agency*

CDFW notes that they should be listed as a CEQA Trustee/Responsible agency. The Final IS/MND has been updated accordingly.

Comment 9: *Note that certain Species Listed are also California Species of Special Concern*

CDFW requests that the listing status of several species be updated. The Final IS/MND has been revised accordingly on page 41-44. Note that song sparrow, northern harrier, and salt marsh wandering shrew were assigned the requested listing status in the original document.

Comment 10: *Need to Report Special Status Species and Natural Communities to CDFW*

The comment is noted. Project biologists will report special-status species and natural communities to CDFW as requested in the comment.

Comment 11: *Environmental Document Fees*

The comment is noted; the applicant will pay all required CEQA document review fees to the CDFW via the County along with the appropriate notice submittals.

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San Francisco Bay Conservation and Development Commission
375 Beale Street, Suite 510, San Francisco, California 94105 tel 415 352 3600
State of California | Gavin Newsom – Governor | info@bcdc.ca.gov | www.bcdc.ca.gov

Transmitted Via Electronic Mail

August 12, 2024

Dina Tasini
Director of Community Development
Town of Tiburon
1505 Tiburon Boulevard Tiburon, CA, 94920
Via email: < DTasini@townoftiburon.org>

SUBJECT: BCDC Review of the *Draft Initial Study/ Mitigated Negative Declaration for the Greenwood Beach Restoration Project,* in the Town of Tiburon, Marin County (BCDC Inquiry File No. MR.TB.2024.1; SCH # 2024061144)

Dear Dina Tasini:

Thank you for the opportunity to comment on the *Draft Initial Study/ Mitigated Negative Declaration for the Greenwood Beach Restoration Project* (CEQA Document), released on June 26, 2024. The project would be located at an approximately 1.4-acre site along the Richardson Bay shoreline at Blackie's Pasture Park, in the Town of Tiburon, Marin County (APNs: 055-041-18, 055-041-17, 055-014-12). The goal is to restore and enhance Greenwood and Brunini beaches using a "living shoreline" approach to reduce rates of shoreline erosion, improve shoreline habitat and recreational values, and improve shoreline sea level rise resilience.

The San Francisco Bay Conservation and Development Commission (Commission) is a responsible agency for this project and will rely on the CEQA Document when it considers the project. Our staff has prepared several questions and comments, below, that should be addressed through the Commission permitting process as appropriate. As we receive additional details on the project, we will be able to provide more detailed responses and can work closely with the project proponents to ensure the project is consistent with Commission laws and policies.

1. **Public Access and Recreation.** Section 66602 of the McAteer-Petris Act states, in part, "that maximum feasible public access, consistent with a proposed project, should be provided." In addition, the Bay Plan includes a number of relevant policies related to Public Access and Recreation. The Public Access policies provide that maximum feasible public access to and along the waterfront, and on permitted fills, should be provided in and through every new development in the Bay or on the shoreline, whether it be for housing, industry, port, airport, public facility, wildlife area, or other use for wildlife and restoration areas. Please see a few questions and comments specific to public access below:

(1)

   a. **Impacts to public use from excavation of the local borrow area.** On August 4, 2024, BCDC received comments (via two e-mails) from a member of the public regarding potential impacts to public use of the beach area from excavation of the local borrow area (local flood control delta). The project team was copied on the e-mails sent to me.

(2)

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2 *(cont.)* We understand that the borrow area would expect to naturally fill in within one to three years through natural sedimentation from storm outflows and deposition of Bay mud, and that this would be monitored over time. Please address whether it is expected that the naturally re-deposited material would be of similar stability and quality of the existing substrate, such that it would allow people to safely access the mudflat area at lower tides as they do today. If not, please explore any potential modifications to the design that may allow this area of the site to continue to provide similar public use opportunities as it does today. Please note that we may require the stability of this area for public access to be monitored as part of the monitoring program.

3 b. **Improved path of travel to the beach.** As we discussed during our meeting regarding public access on May 2, 2023, an improved path of travel should be provided to the beach to ensure the project provides maximum feasible public access. Please also confirm with the appropriate ADA coordinator (Town of Tiburon or Marin County) whether accessible beach access at this site (i.e., an accessible route of travel to the high tide line) may be required to fulfill the Town's or County's obligation for programmatic beach access under Title II of the Americans with Disabilities Act. Please share with BCDC staff the results of that discussion as soon as you are able. We are happy to discuss this with you further.

4 c. **Cable and post fences.** Page 19 of the CEQA document mentions placement of temporary cable and post fences with dedicated public access gaps. Please provide a conceptual plan showing the extents of the fences and the locations and dimensions of the public access gaps.

5 d. **Impacts to public access during construction.** Any future BCDC permit issued under the project will require a detailed construction detour and closure plan to ensure that impacts to public access are avoided and minimized during construction.

6 e. **Other public access comments.** Please also be sure to review and address other questions and comments related to public access in the December 21, 2022, sent to the project team by the Bay Restoration Regulatory Integration Team (BRRIT).

7 2. **Basis of Design** and **Monitoring and Adaptive Management Plan**. As requested in previous letters sent to the project team by the BRRIT, it will be important to provide a basis of design document describing the principles, assumptions, rationale, criteria, and considerations used for calculations and decisions during project design. In addition, please provide a draft Monitoring and Adaptive Management Plan (MAMP) when you are able. The MAMP should describe monitoring metrics, methods, duration, and frequency; include performance criteria to evaluate the Project's progress towards meeting goals and objectives; discuss adaptive management that may be implemented if performance criteria are not met; and include long-term management and maintenance.

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3. **Updated State of California Sea Level Rise Guidance.** The CEQA document references the 2018 Sea Level Rise Guidance from the State of California Ocean Protection Council (OPC). The OPC updated this guidance in 2024, and we recommend that this be used for any sea level rise planning. The new guidance can be found at the following URL: https://opc.ca.gov/2024/06/for-immediate-release-ocean-protection-council-adopts-updated-guidance-to-help-california-prepare-for-and-adapt-to-rising-seas/

9

4. **Other remaining comments from previous letters from the BRRIT.** We also recommend reviewing in general the previous comment letters sent from the BRRIT to ensure that the regulatory agency concerns are addressed during the pre-application and application process. Where feasible, we recommend that draft reports and materials be provided prior to application submittals, so that any remaining agency concerns are addressed early in the process.

Thank you for providing the staff with an opportunity to review the *Draft Initial Study/ Mitigated Negative Declaration for the Greenwood Beach Restoration Projec*t. We recognize the importance and scope of this project and hope these comments aid you in finalizing the environmental document and your BCDC permit application. We look forward to working with you and the project sponsors as the project is developed and through the permitting stage. If you have any questions regarding this letter or the Commission's policies and permitting process, please do not hesitate to contact me at 415-352-3668 or schuyler.olsson@bcdc.ca.gov.

Sincerely,

DocuSigned by:
A67BAB4E82A64F7...

SCHUYLER OLSSON
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San Francisco Bay Conservation and Development Commission
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SO/ra

cc: State Clearinghouse, state.clearinghouse@opr.ca.gov

Responses to San Francisco Bay Conservation and Development Commission (BCDC) Comments

Comment 1: *Public Access and Recreation*

BCDC notes that the McAteer/Petris Act, which established BCDC, includes policies promoting public access. This comment is noted. It is also essential to note that this project, by design, improves public access to the shoreline by restoring and expanding beach habitat and removing dangerous vertical erosion scarps along a highly used public shoreline. Responses to specific comments on public access features are addressed below.

Comment 2: *Impacts to Local Use from Excavation of Borrow Area*

BCDC notes that recent public input identifies a recreational use of the offshore flood control delta within the proposed borrow area and requests information on whether re-deposited material in the borrow area would have similar stability to the delta today. A study conducted by the project team in winter of 2024 indicates that ~1ft deep depressions on the delta are completely filled in during storm events (within 1-2 days) with sediment similar in grain size distribution to the native delta, by a combination of locally mobilized sediment and deliveries from the flood control channel. It is likely that the post-project delta will have similar topography to current conditions after 1-2 years, assuming normal winter storm rainfall, resulting in a less-than significant, short-term impact to recreation. The Final IS/MND has been revised on page 16 to incorporate the information from this study. The borrow area design presented in the IS/MND captures the maximum potential impact extent. Future revisions to the borrow area design may occur based on permitting consultation with applicable regulatory agencies, including BCDC. Should design changes occur, the Town will prepare subsequent CEQA analysis as necessary.

Comment 3: *Improved Path of Travel to the Beach*

BCDC is requesting an “improved” path of travel to the beach, with a graded, treated surface through the existing rough turf, in the upland park outside the shoreline project area. This request is noted. No new trail elements are proposed as part of this project as the Town of Tiburon is currently in the process of preparing a Parks Master Plan that includes improvements at Blackie’s Pasture Park. That plan may include improved beach access in this area in accordance with the regulations cited in BCDC’s comment letter. Impacts and mitigation measures associated with any such trail elements would be addressed in the CEQA assessment of the Parks Master Plan. The Town of Tiburon is reluctant to prematurely propose singular trail elements outside of the parks master planning process that may be inconsistent with the publicly supported vision of that effort.

Comment 4: *Cable and Post Fences*

BCDC requests a conceptual plan showing details of the proposed cable and post fencing. This level of detail will be provided in the permit application materials for this project.

Comment 5: *Impacts to Public Access During Construction*

BCDC indicates that their permit will require a detailed construction detour and closure plan. This information will be included in the BCDC permit application materials, as requested.

Comment 6: *Please Review and Address Other Questions and Comments Submitted Previously by the BRITT*

The comment is noted. All BRRIT comments will be addressed in the permit application materials.

Comment 7: *Basis of Design/Adaptive Management Plan*

BCDC indicates that the BRRIT has requested a basis of design report and Monitoring and Adaptive Management Plan for the project. These documents will be provided as part of the permit applications for the project.

Comment 8: *Please Incorporate 2024 California Sea Level Rise Guidance*

BCDC requests that the newly released, 2024 OPC sea level rise guidance be used moving forward. The updated sea level rise projections will be used for subsequent project planning and design and have been incorporated into the Final IS/MND.

Comment 9: *Please Review and Address Other Questions and Comments Submitted Previously by the BRITT*

Please see response to comment 6, above.