HISTORIC AMERICAN LANDSCAPES SURVEY

FOSTER CITY LEVEES

HALS NO. CA-173

Location: The outer levee of Foster City is located between the San Francisco Bay, Belmont Slough, and O'Neill Slough. It is bounded on the northwest by the city limit of San Mateo along East 3rd Avenue, running east and south along the San Francisco Bay to Belmont Slough where it turns south and west to O'Neill Slough ending approximately at the western intersection of Rock Harbor Lane and Port Royal Avenue in the city of Foster City, San Mateo County, California.

37.570767, -122.288383 (Northwestern Limit of Foster City on Levee, Google Earth WGS84).

Significance: Foster City was the first new town community to be planned, constructed, and incorporated in California at a waterfront location along the San Francisco Bay. The Foster City levee system is uniquely tied to Foster City in that without the levee, the city could not exist. The levees were developed to keep bay water from the low-lying property (situated below daily tide levels) that would become the city site. The city was constructed on fill from the 19th century marshlands reclamation period, and further fortified by an additional 18 million cubic yards of fill and periodic levee improvements dating from the city's inception in 1961 through 2023. The levee improvements between 2020 and 2023 have fundamentally altered the community's relationship to the waterfront in response to climate change adaptation for sea level rise.

Description: <u>City Context</u>

The City of Foster City lies on the west shore of San Francisco Bay, on marshland reclaimed during the late 19th century and enhanced during the mid-20th century. Foster City is an example of the new town movement that changed the way communities were envisioned after World War II. A master plan for the city was developed and approved by San Mateo County in 1961. Over the next 40 years it became the home to more than 30,000 people. The city comprises just over 2,600 acres divided into nine residential neighborhoods. Unlike the builder-developed subdivisions of the 1940s and 50s, the Foster City master plan was a community design with provisions for civic, commercial, industrial, and recreational activities in addition to housing. The neighborhoods evolved as intended with mixed architecture and varying lot sizes to avoid the stereotypical look of a suburb.

From the ground up, Foster City was an engineering feat that required coordination between planners, civic engineers, soil scientists, and builders. The result was a unique, man-made land mass and community that is unparalleled in California, and possibly nationwide. The levee system surrounding the land was

instrumental in the creation of Brewers Island, and ultimately Foster City, and represents the pattern of marsh reclamation of the mid- to late 19th century that led to the creation of millions of acres of land[1].

The Foster City levee system is uniquely tied to Foster City in that without the levee, the city could not exist. The levees were developed to keep bay water from the low-lying property (situated below daily tide levels) that would become the city site. Emphasis in the master plan and development advertising was placed on the city's proximity to San Francisco Bay, the man-made lagoons, and the city's park-like feel. A billboard advertisement for the new development showed a graphic of a sailboat and a tree on a field green and blue, emphasizing the connection to the Bay. The slogan stated, "Foster City the island of Blue Lagoons."[2]

Since the initial filling of marsh lands in the 19th century, economic investments have driven flood protection design decisions affecting the relationship of land and water. The significant investment and subsequent valuation of land in Foster City compelled flood protection decisions over the following decades to react to flood risks, rising Bay water levels and land subsidence. The Foster City levees have been raised to maintain Federal Emergency Management Agency (FEMA) requirements for accreditation, gradually changing the relationship of the community to the waterfront. The community's decision in 2018 to bond 90 million dollars in property assessment fees to further protect Foster City from flood risk has significantly altered the community's relationship to the waterfront by blocking views and limiting physical access to the Bay by adding height to earthen berms and introducing substantial vertical sea walls.[3]

The levees are intended to protect properties from flooding due to increased water levels from climate change projected to occur later in the century. However, city officials and their engineering experts have indicated that more significant flood protection and subsequent changes to the relationship between the city and the Bay will be necessary when water levels exceed the design of the levees.[4]

Climate change adaptations of reclaimed marshland developments are not unique to Foster City. In the San Francisco Bay Area, more than 226 square miles of reclaimed marshlands have been developed.[5] Many of these developed places have already or are currently considering similar flood protection measures that will fundamentally alter the relationship between land and water, a relationship that is a defining characteristic of the San Francisco Bay Area.

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[1] (Beard 2016)
[2] (Foster City Community History 2016)
[3] (Foster City Levee FAQs 2020)
[4] (San Francisco Bay Conservation and Development Commission 2019)
[5] (U.S. Army Engineer District, San Francisco Corps of Engineers 1959)

Levee System

Foster City was built on fill dredged from San Francisco Bay. The levees and lagoons provide the city's primary flood control management. The levee system comprises approximately 34,300 linear feet (about 6.5 miles) surrounding Foster City along the San Francisco bayfront, starting at the San Mateo city limit in the north and following the shoreline to Belmont Slough to the east and southeast, and ends adjacent to U.S. Highway 101 in the south at the San Mateo/Belmont city limit along O'Neill Slough. The project site is bordered by San Francisco Bay to the north and east, Belmont Slough to the southeast and south, and O'Neil Slough to the south. The Marina Lagoon is the city's internal stormwater system which is connected to the Bay through two tide gate pumping stations that are built into the levee system – intake and outflow structures.[6]

The levee system consists of parcels owned by the city, State Lands, and private ownership totaling approximately 52-acres. The entire levee is open to the public via the levee-top trail and is recognized as part of the San Francisco Bay Trail, a regional shoreline trail network running over 350 miles.[7] The levee-top trail provides both recreational opportunities and pedestrian/bicycle travel routes for the region. The levee-top trail connects to seven neighborhood waterfront parks and three beaches including Oyster Shell Beach. Along the levee, there are approximately forty-three trail access points from the adjacent community, and fifteen water access points, including Bay Winds Park which is designed for board sailing sports.

The levee protects land uses including streets, housing, office and commercial buildings, landscaped open spaces and recreational uses, unimproved lots, stormwater canals and lagoons, muted tidal wetlands, and seasonal wetlands. The San Francisco Bay side of the levee system consists mostly of fully tidal open water, beaches, slough channels, wetlands, and mud flats.

Approximately 9,000 individual properties in the city rely on the existing levee system for flood protection. An additional 8,000 individual properties within the City of San Mateo are indirectly protected by the Foster City levee system. Similarly, properties in the City receive flood protection benefit from San Mateo's levee and floodwall systems south of San Mateo Creek.[8]

In 2019, the Foster City levee system consisted of both raised earthen levees and low concrete curb walls in certain locations that were installed in the 1990s. Most of the waterside of the levee has been reinforced with riprap since the 1960s. From 1991 to 2020, the built elevations of the trail or the levee crest ranged from approximately 10 to 13 feet above sea level in the North American

[6] (San Francisco Bay Conservation and Development Commission 2019)
[7] (San Francisco Bay Conservation and Development Commission 2019)
[8] (San Francisco Bay Conservation and Development Commission 2019)

Vertical Datum of 1988 (NAVD88). The average elevation of the city development sits at or below 8 feet NAVD88.

In 2020, construction began to raise the levees with an additional 100,000 cubic yards of earth to be retained by steel sheetpile flood walls, earthen berms, and conventional concrete flood walls of varying heights. The resulting project increased levee elevations to a range from 13 to 16.5 feet NAVD88 with an additional 18 to 42-inch floodwall between the levee-top trail and the waterfront. The additional height functions both as flood protection and a guardrail in certain stretches. The variation in heights accounts for open bay conditions with long wind-wave fetch requiring higher levels of protection and a muted tidal regime in the sloughs requiring less height for adequate protection. The elevated levees are intended to protect the community from storm-related flood risk that could bring an additional 66 inches of water.

The anticipated lifetime for the project is 80 years, which means the project is expected to remain in place through the end of century. The 2018 State guidance assumes that if global greenhouse gas emissions are curbed consistent with the United Nations Framework Convention on Climate Change (UNFCCC) 2015 Paris Agreement—a "low-emissions" scenario—5.7 feet of sea level rise are anticipated to occur by 2100. If global emissions are not aggressively reduced and a "business-as-usual" scenario occurs—a "high-emissions" scenario—6.9 feet of sea level rise are anticipated to occur by 2100.[9]

Planting

Where planting was present on the landside of the levee prior to the 2020 construction, the same planting has been replaced. In some areas this includes ice plant species; other areas identified with habitat value were replanted with native plants supporting the habitat. The forty-three reconstructed trail access points include a mix of native plants and ice plant species. Trees are not allowed to be planted on FEMA certified levees.

Trail and Levee Construction

The raised levee-top trail consists of a 12-foot-wide asphalt trail with decomposed granite shoulders ranging in width from two to four feet. A maximum of thickness of twelve inches of drainage rock gravel was placed below the asphalt surface. In most areas, cellular concrete fill was added to raise the grade of the trail surface above the existing levee. The corrugated steel sheetpile wall was embedded to varying depths depending on the soil properties ranging from ten to seventeen feet below existing grade. The sheet pile wall extends above the trail surface and is terminated with a reinforced concrete cap that measures 15 inches tall by 30 inches wide. Corrosion monitoring devices have been installed at distributed locations on both the waterside and lands-side

[9] (San Francisco Bay Conservation and Development Commission 2019)

of the wall. Where a concrete floodwall was installed, the wall design included a spread footing with a downturned key and rebar extending up the wall. Concrete pilasters were used to transition between the sheetpile walls and concrete walls. On the inland sides of the levee, where retaining walls were required due to increased change in grade, a concrete Allan Block wall with geotextile fabric tiebacks were installed into the lightweight cellular concrete fill. A guardrail was installed on the top of the retaining wall where changes in grade exceeded thirty inches. Stainless steel handrails and guardrails, and reinforced, marine-grade concrete stairs and ramps were installed at overlooks and access points. The upland side access points are marked by decorative paving treatments on the trail. Cast stone panels that fit to the front of the sheetpile walls flank the openings for water-side access points and vista points.

The concrete cap on the seawall provides a wide surface on which to lean or sit in certain locations. However, the seawall creates a physical and visual barrier between the upland community and the waterfront that did not exist prior to 2020. In some areas, there is more than a six-foot difference between the existing riprap shoreline and the top of the seawall cap. The vertical seawall separation between the shoreline, the levee-top trail, and the upland community limits opportunities to move across the levee from the community to the waterfront. The increased height of the levee and the seawall blocks visual access to the waterfront from the adjacent streets. The extended seawall that functions as a solid guardrail blocks visual access to the lower elevations of the trail, impacting people who do not have visual access above 42 inches, such as children, persons in wheelchairs, or recumbent cyclists.[10] The wall also blocks visual access for dogs and other animals.

Access Points

Prior to the 2020 project, there were sixty ad-hoc upland trail and bay access points, along with thirty-nine formal trail access points and fifteen formal bay access points that included ramps and/or stairs. The levee-top trail was constructed of asphalt ranging in width from five to ten feet, with a dirt trail ranging from 12 to 24 inches alongside portions of the asphalt path. The levee-top trail provided unfettered views of the San Francisco Bay and the sloughs, with the adjacent riprap built at approximately the same elevation of the trail.[11] In 1991, an earthen berm was added to the levee crest elevation along sections of Belmont Slough and a low concrete flood wall was installed along O'Neill Slough due to spatial constraints next to residences.

Many of the ad-hoc access points were informal trails leading from the adjacent roadway up through the iceplant to the levee-top trail, or by steps or ramps down the riprap to the waterfront. Given the shallowness of the San Francisco Bay in

[10] (Foster City Public Works 2020)
[11] (San Francisco Bay Conservation and Development Commission 2019)

this area, at lower tides a continuous stretch can be walked along much of the shoreline. The intertidal surfaces are a mix of sand, mud, marsh plants, and oyster shell beach. The presence of the ad-hoc access points and informal trails through the marshlands and beaches indicated a frequent movement of people and animals along the levee-top trail, and across the levee from the landside to the waterside.

Other Amenities

In addition to the levee-top trail, other public amenities that existed prior to the 2020 levee project included benches, picnic tables, and interpretive signage. Street lighting along the adjacent streets provided minimal lighting along most of the trail, while other segments of the trail adjacent to residential uses were not illuminated. The 2020 levee project replaced or relocated most of the benches and picnic tables along the levee-top trail, with most of these amenities located on the landside of the seawall, with views partially obstructed by the seawall. Picnic tables and benches were located on the waterside of the seawall in two locations where beaches exist outboard of the seawall at all tides. No additional lighting was installed with the 2020 improvement project.

Views of the Water and the East Bay

Views of the San Francisco Bay and distant views of the East Bay Marshlands and Mount Diablo are character-defining features of the South Bay Area. They provide direct physical and visual access to large expanses of nature in close proximity to urbanized areas. Shorebirds are often found foraging on the oyster-shell beaches around Foster City and fishing in Belmont and O'Neill Sloughs. Seals are often observed swimming in the Bay and Belmont Slough. Water-based recreation activities such as windsurfing and kite surfing have become popular at Bay Winds Park since the 1990s due to the prominent location in the Bay and orientation of the winds.

History:

Land Acknowledgement

Foster City is located in a low-lying area on the unceded ancestral lands and waters of the Ramaytush Ohlone in an area of the Ssalon tribe.[12]

Land Reclamation and the Development of Foster City

Diking and draining swamp and tidelands was an important part of the San Francisco Bay Area's developmental history. Spurred by federal legislation that ceded control of swamp and tidelands to the state, California granted vast tracks of seasonally inundated land to speculators for the purpose of reclaiming wetlands by the construction of levees and drains. The 1849 and 1850 Swamp Land Acts eventually led to more than two million acres granted in the state of California.[13] The State of California established the Board of Swamp and

[12] (Milliken 2009)
[13] (Fredine 1971)

Overflowed Land Commission in 1861, and in 1866, the affected counties assumed authority over their marshlands. [14]

In 1850 there was approximately 303 square miles of marshlands in the San Francisco Bay Area susceptible to reclamation. By 1957, more than 226 square miles of marshlands had been reclaimed, mostly for agricultural uses.[15] The subsequent conversion of these reclaimed marshlands from agricultural land uses to many other land uses has resulted in the presence of almost every conceivable land use along the edges of the greater San Francisco Bay. The economic investment in many of these land uses has prompted significant efforts to protect these assets from the increasing perils of coastal flooding.

Bromfield's 1894 Official map of San Mateo County shows that Arthur L. Whitney and E.B. Pond built a series of levees to hold back bay waters from their 5,000-acre tract for salt ponds.[16] Historically, the shoals surrounding the area were used extensively by the Morgan Oyster Company. The company was founded by Captain J.S. Morgan, who brought the first railroad shipment of seed oyster from the east in 1869. The Morgan Oyster Company came to monopolize the Bay Area's oyster industry as it bought out most of the other oystermen.[17] The company went out of business in 1921, and its San Mateo beds were sold to the Pacific-Portland Cement Company, which erected a plant at the Port of Redwood City in 1924. The cement company-controlled thousands of acres on the floor of San Francisco Bay where the accumulation of clam, oyster, and mussel shells provided tons of good-grade limestone, and the other ingredients for cement.[18] Ultimately, 18 million cubic yards of dredged material from these nearby shoals would be used to fill the land to create Foster City.[19]

During the 1890s, a portion of the Whitney and Pond tract was purchased by William P.A. Brewer, and he established the San Mateo Ranch Dairy. William Brewer was born in Honolulu, where his father Charles established C. Brewer & Company, the off shoot of a mercantile company that became heavily involved in sugar production in the 1860s. While noted in the 1900 census as a farmer, William Brewer was a wealthy man, and his family was prominent in the San Francisco social scene.[20]

After William Brewer's death in 1905, his son Frank became proprietor of the dairy. Frank resided nearby with his two sisters, Eleanor (Nora) and Amy.[21]

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[14] (Department of Water Resources 1994)
[15] (U.S. Army Engineer District, San Francisco Corps of Engineers 1959)
[16] (Bromfield 1894)
[17] (Barrett 1963)
[18] (Logan 1947)
[19] (Foster City The Creation of Foster City - Land 2016)
[20] (Social Register Association 1909) (San Francisco Call 1908) (Social Register Association 1932)
[21] (United States Bureau of Census 1900)

Nora married into the Cudahy family of Chicago, but neither Frank nor Amy married. By 1930, the siblings reside together in San Mateo County though both traveled extensively over the years. The Brewers sold much of the dairy property, by that time known as Brewer's Island, to the Leslie Salt Refining Company in the 1940s. Leslie Salt had large holdings along both sides of San Francisco Bay, with a large refining plant located near Redwood City, just south of Brewer's Island.

Acting on the 1958 option, Jack Foster purchased the 2,600 acres of swampy grazing land in 1960 and commenced the unparalleled task of creating buildable land. Foster bought out his business partner Grant and Foster's three sons went to work with their father. Over a three-year period, 18 million cubic yards of sand were dredged from the San Bruno Shoals and transported to Brewer's Island by barge to raise the ground level six feet. Foster relied on the expertise of engineering firm Wilsey, Ham & Blair, and soils consultants Dames & Moore to work out issues of subsidence and drainage. At just eight feet above sea level, Foster City relies on a system of levees and lagoons for drainage and flood control. The lagoons also helped offset the need for additional fill, which would have made the project financially infeasible. The resulting landmass featured a system of lagoons created primarily for drainage purposes that became a focal point for the new community.

After World War II, the United States experienced a serious housing shortage due to the number of servicemen returning to an already limited housing supply resulting from the Depression. The sprawling suburbs created by the housing boom received much criticism regarding their uniformity, decentralization, and lack of cultural opportunities. Criticisms of the suburbs caused some developers to rethink the earlier garden city and new town concepts during the 1950s and 60s. Many thought that new towns were the answer to the problem, and planned, self-sustaining communities were promoted across the United States in response. Foster City was one of the first new towns to be designed and constructed, predating Colombia, Maryland and Irvine, California.[22]

In 1961, a Master Plan was submitted to San Mateo County for the development of Brewers Island as Foster City. The plan envisioned a completely self-contained community with diverse housing types, waterfront lots and parks, and marinas with accommodations for professional, commercial, and industrial enterprises and public services. The plan projected a population of 35,000 in 11,000 residential units, and 10,000 jobs.

Half of the residences would be detached, single-family homes, and half would comprise townhouses, garden apartments, and high-rise apartments. Foster's master plan also outlined thresholds for other land uses, and after more than fifty

[22] (Beard 2016)

years, the city has not strayed far from Foster's design. Fewer homes were built than anticipated but the area dedicated to recreation increased by ten percent.

Eventually, Foster City comprised nine residential neighborhoods, a town center, and an industrial center. The neighborhoods were named One through Nine, though they were not built in numerical order. Infrastructure for Neighborhood One was developed in 1962, and in November 1963 construction began on the neighborhood's first homes.

In 1960, the California Legislature created the Estero Municipal Improvement District (EMID), a public agency with general taxing and bonding powers, specially created to aid specific land developments. One of only two such districts in California, "the organizational requirements of these districts placed each of them under the direct control of the developers and encouraged self-dealing between the developer and the district — all without any independent audit controls or other review procedures."[23] The initial bill called for three EMID directors who would all be owners or their Representatives.[24] EMID was granted most of the government powers associated with an incorporated municipality, except the powers to zone and approve development and certain police powers. However, property owners became disenchanted with the developer-run EMID as taxes increased. In 1967, the State amended the enabling act, increasing the number of directors to five distributed such that "two shall be owners or officers or legal representatives of owners, two shall be registered voters resident within the district, and one shall be a public member designated and appointed by the county board of supervisors."[25] In addition, all directors were required to be residents of Foster City by the time of the 1971 election. The city was incorporated that same year. Between 1970 and 2010, the population of Foster City rose from 9,327 to 30,567, not quite reaching Foster's initial projection.[26] However, in 2013, 19,900 jobs, primarily in the technology and finance sectors, were reported for Foster City, indicating that job availability in Foster City has far exceeded the original plan, possibly attributed to higher density commercial land uses, such as those found along the waterfront at 3rd Avenue, and elsewhere.[27] The unique organizational structure of Foster City likely played into the community's decision to pass the bond to improve the levees for FEMA certification. The alternative would be to lose the certification and take on a requirement for individual property flood insurance. The community chose clearly to continue on the path of maintaining the flood protection that had been in place for over a century.

[23] (Foster v. Commissioner of Internal Revenue 1983)
[24] (California Senate 1960)
[25] (State of California 1967)
[26] (Metropolitan Transportation Commission and Association of Bay Area Governments 2010)
[27] (BAE Urban Economics 2013)

Levee Construction History

Work to create Foster City barely predated state legislation (McAteer Petris Act) in 1965 that formed the San Francisco Bay Conservation and Development Commission (BCDC), which regulates development activities in the San Francisco Bay, its tributaries, and shoreline. The San Mateo Senator Richard Dolwig was the chairman of the rules committee, and he held the bill in committee until the Foster City lands were removed from the proposed legislation's jurisdiction, allowing the filling and development to proceed without additional regulatory requirements.[28] However, the water-side shoreline of Foster City would still be subject to BCDC permits, and in 1967, BCDC issued a permit for dredging and maintenance of the lagoon intake and outtake structures for Foster City, marking the beginning of a long-term regulatory relationship between Foster City and the Commission.[29]

Construction of the Foster City levee system was eventually authorized by the United States Army Corps of Engineers (USACE) in February 1976 to protect properties interior of the levee from flooding. Also in 1976, BCDC issued a permit to EMID for the first elevation increase and improvement of a portion of the levee from just north of the San Mateo-Hayward Bridge to the project terminus at O'Neill Slough near US 101, which included an authorization for a bicycle/pedestrian pathway. The 1976 project provided riprap improvements and 2000 cubic yards of earthen fill placed over a series of years to adjust the grade of the levee up to the designed elevation after subsidence had occurred. [30] The public shoreline trail on top of the levee has been an integral component of Foster City's open space since its early development stages.

Foster City continued to improve the levee system over time to maintain FEMA accreditation through the 1980s, 1990s, and early 2000s. These maintenance activities included a number of smaller projects along various segments of the levee, as well as a significant project along the entire levee for which BCDC issued a permit in November 1991 to the City, EMID, and the California Department of Transportation (Caltrans), to raise the elevation of the levees again for flood protection and included extensive public access improvements.[31]

The 1991 permit authorized improvements to the shoreline protection along 5.3 miles of the levee system including the replacement and reinstallation of the riprap shoreline to current engineering standards, constructing a 1 to 4-foot-tall soil mound along the waterside of the levee crest along Belmont Slough, and constructing a 2-foot-tall concrete wall along sixty feet of shoreline along O'Neill Slough. The public access improvements required in this permit formalized much of the land-side and water-side access points along the levee

[28] (T. Jack Foster 2012)
[29] (San Francisco Bay Conservation and Development Commission 1976)
[30] (San Francisco Bay Conservation and Development Commission 1976)
[31] (San Francisco Bay Conservation and Development Commission 2019)

system, including: widening the levee-top path from eight to ten feet, adding unpaved jogging shoulders next to the paved path, constructing four universally accessible trail access points from adjacent streets, adding two paved access points to Sea Cloud Park, adding a board sailing launch area with upland amenities, incorporating six water egress points built into the riprap for board sailors with upland amenities, and the removal of a fence that limited access to Oyster Shell Beach which formalized the public access to this area of the shoreline. [32]

FEMA re-certified and accredited the levee system in 2007 designating land within Foster City as "Zone X low-risk area." Advances in flood modeling and climate science expanded in the following years, and in 2014, FEMA conducted a coastal flood hazard study which determined that roughly eighty-five percent of Foster City's levee system did not meet FEMA requirements. FEMA granted Foster City a temporary "seclusion mapping" designation in 2015 to remain classified as Zone X low-risk area, so long as progress was made to address the deficiencies of the levee. To satisfy FEMA requirements, the required freeboard elevation of the levee needed to be raised. Freeboard is considered the additional height above the 100-year flood elevation that tends to compensate for the factors that could contribute to greater flood heights such as wave action and the hydrological effect of urbanization of the watershed.

In 2018, the city wanted to address FEMA certification as well as any additional risks associated with sea level rise that had a high likelihood of occurring over the next thirty years to the year 2050, with a hopeful goal of providing protection through the end of the century. The proposed changes to the levee system included adding taller steel and concrete sea walls and increasing the minimum grade elevations ranging from 13.5 to 16.5 feet NAVD88.

The decision in 2018 to bond 90 million dollars in property assessment fees to further protect Foster City from flood risk has significantly altered the community's relationship to the waterfront by blocking views and limiting physical access to the Bay, impacting the original intent of this waterfront community.[33] The city has ensured flood protection from a certain water level that will likely provide protection for decades, but the trade-off in the community's relationship to the waterfront is a tangible consideration for future flood protection and climate adaptation projects.

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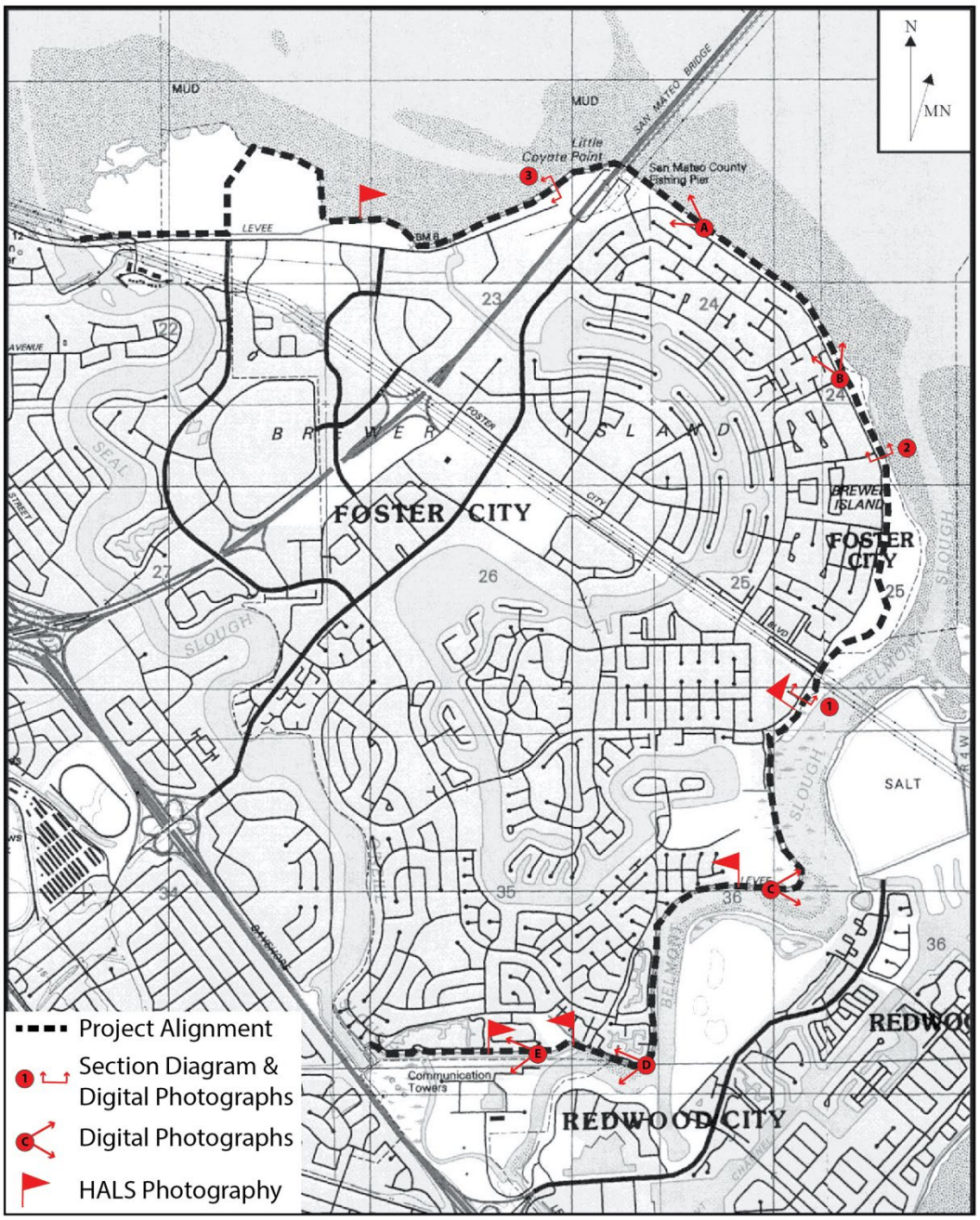
Historian: Vicki R. Beard prepared the Cultural Resources Report for the Environmental Impact Report for the Foster City Levee Protection Planning and Improvements Project. The Cultural Resources report has been heavily excerpted and edited to create this report.

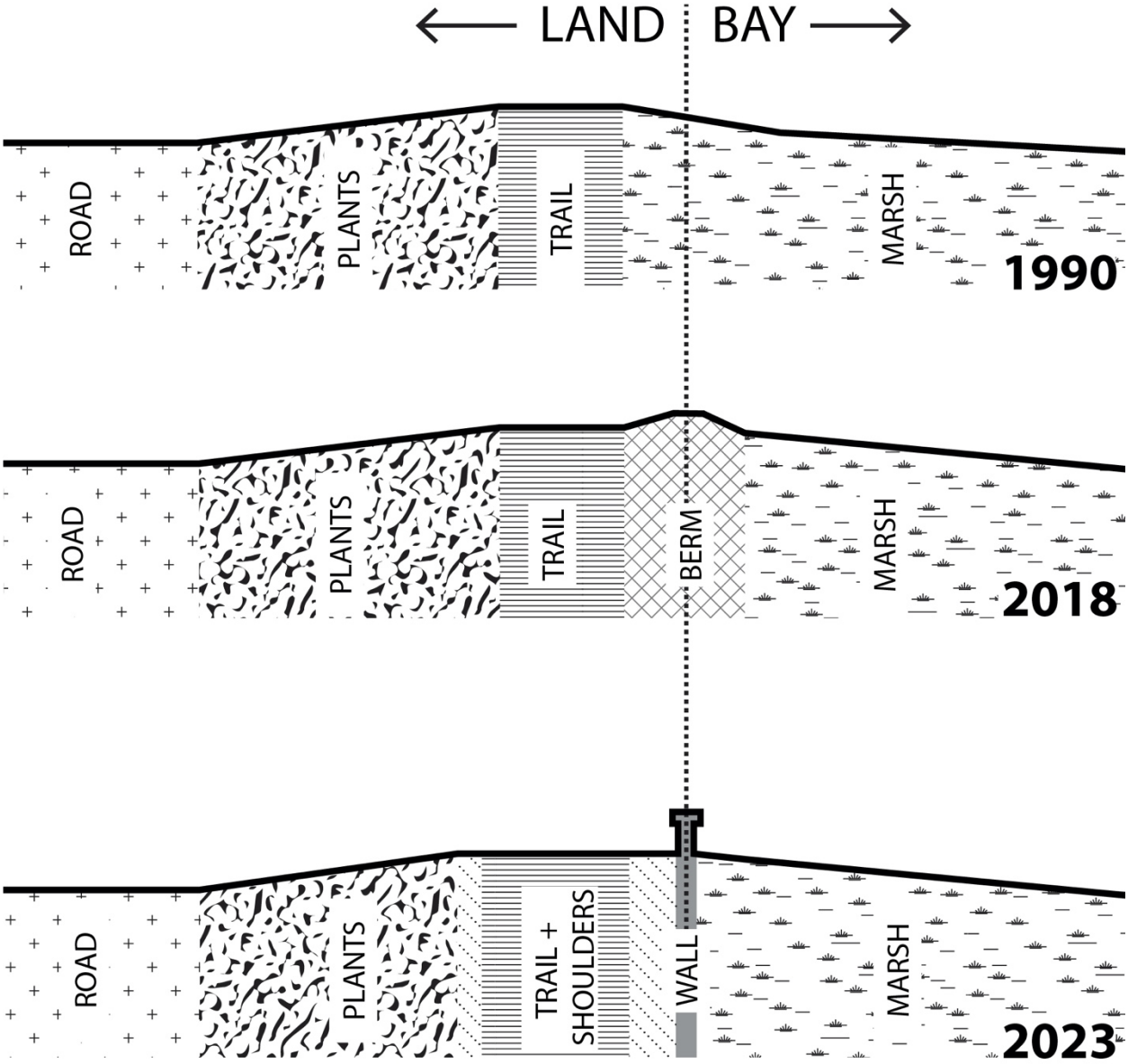
Andrea Gaffney edited the excerpted content and authored portions of the report.

Completed July 30, 2023

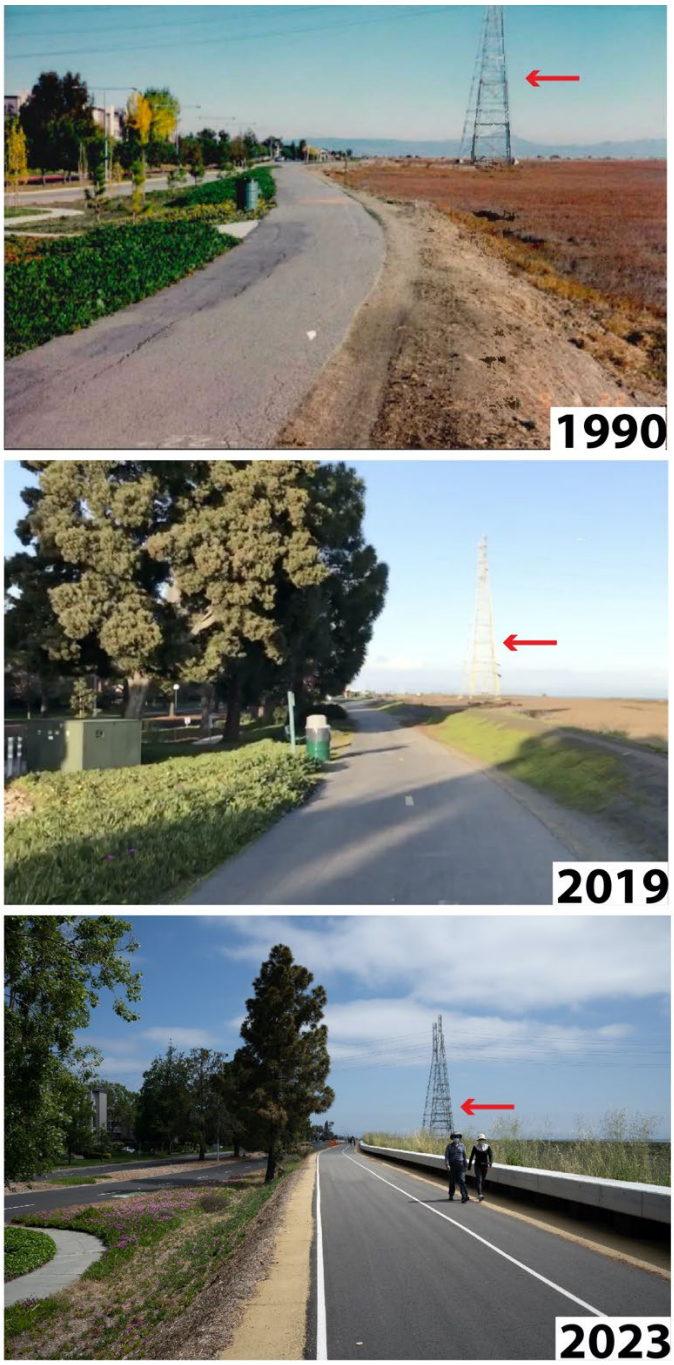
Second Place Winner - 2023 HALS Challenge: Working Landscapes



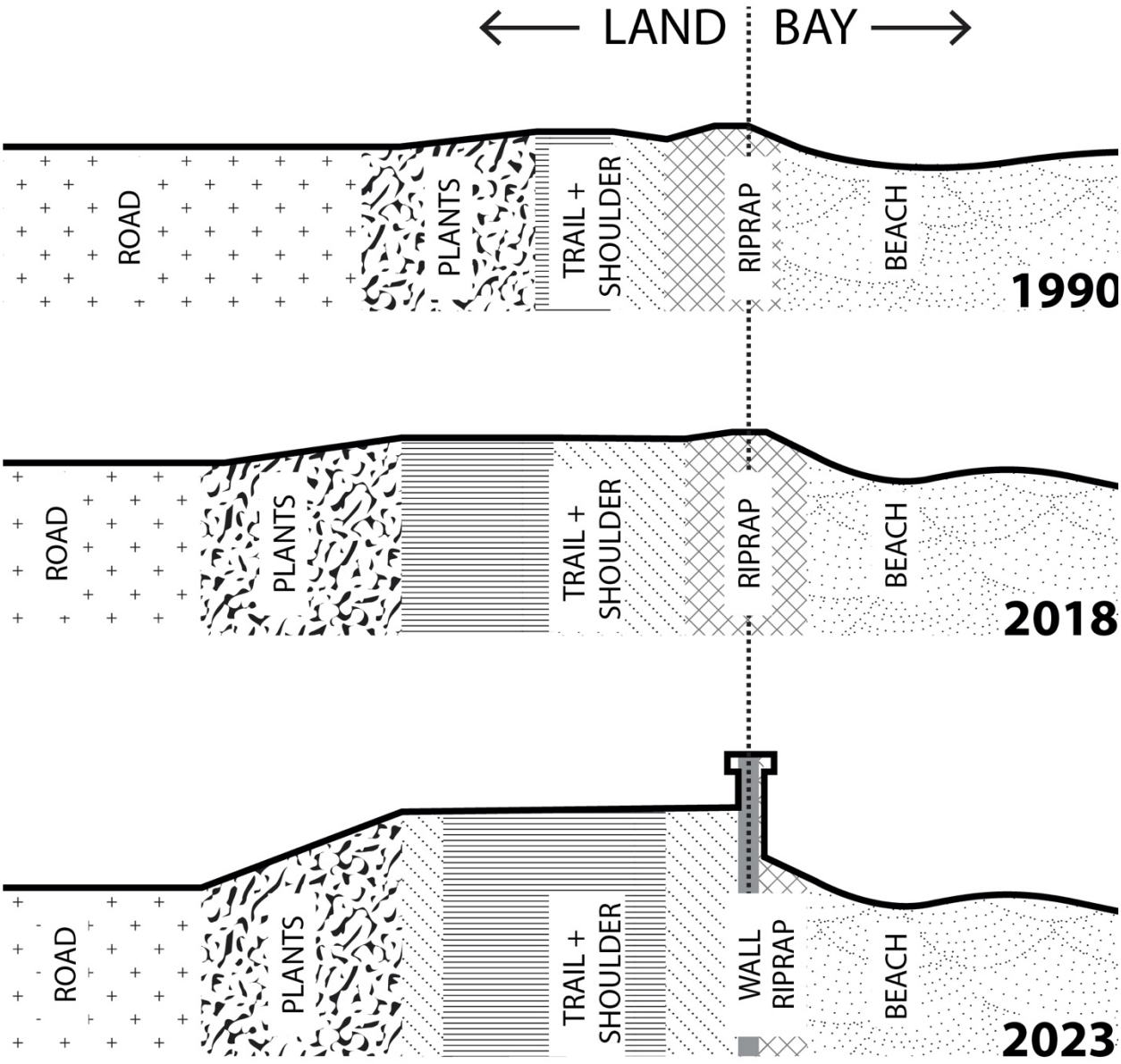
Location Map. Foster City location map adapted from USGS 1997 San Mateo and 1993 Redwood Point 7.5' maps. (V. Beard, 2016) The map shows the locations of the section diagrams and photograph views. (A. Gaffney, 2023)



Sections 1. Levee section diagrams at Beach Park Boulevard north of Outrigger Lane looking northeast. The diagrams illustrate levee conditions in relationship to upland and waterside conditions in 1990, 2018, and 2023. Sections are diagrammatic showing the change in levee and trail design. The diagrams are drawn in relative scale and show correct proportions of improvements. Diagrams are based on construction drawings available as part of BCDC permit records. (A. Gaffney, 2023)

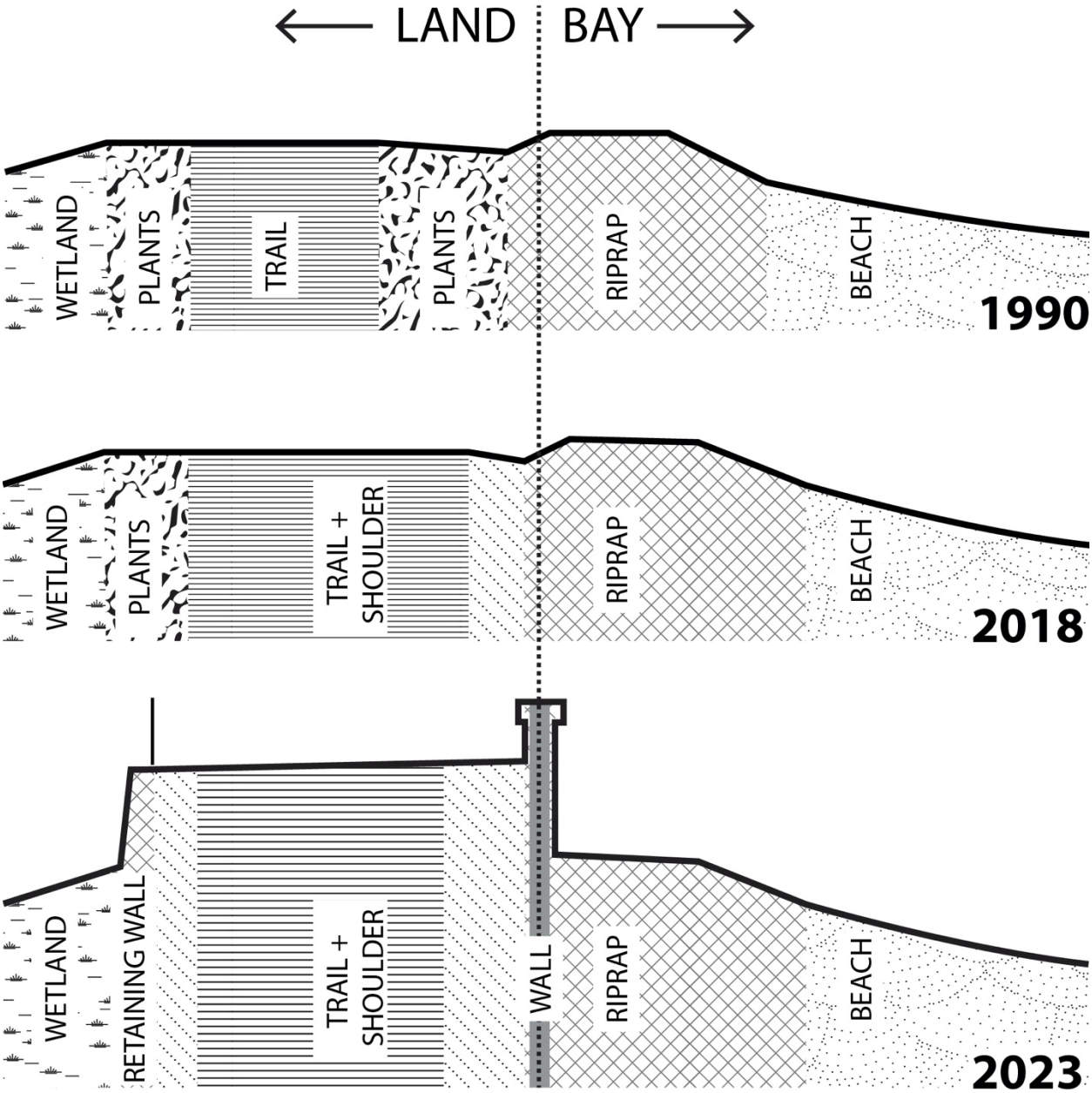


Photograph 1. Digital and digitized photographs of the levee and trail taken near Beach Park Boulevard north of Outrigger Lane looking northeast in 1990, 2019, and 2023. 1990 photograph provides a close approximation of the original master plan design while the 2019 image shows the improvements made in 1991 including an earthen berm and trail widening. The 2023 photograph shows the increased elevation of the trail and the seawall. An electrical transmission tower is marked by an arrow in each photograph to provide a relative location. The 1990 digitized image is part of the BCDC permit 1991.016.00 record file. (BCDC, 1990; A.Gaffney, 2019, 2023)



Sections 2. Levee section diagrams at Beach Park Boulevard at Tarpon Street looking northwest. The diagrams illustrate levee conditions in relationship to upland and waterside conditions in 1990, 2018, and 2023. Sections are diagrammatic showing the change in levee and trail design. The diagrams are drawn in relative scale and show correct proportions of improvements. Diagrams are based on construction drawings available as part of BCDC permit records. (A. Gaffney, 2023)

Photographs 2. Digital and digitized photographs of the levee and trail taken near Beach Park Boulevard at Tarpon Street along the San Francisco Bay looking northwest in 1990, 2018, and 2023. The 1990 photograph provides a close approximation of the original master plan design while the 2018 image shows the improvements made in 1991 including additional riprap, trail widening, and a universally accessible trail access point. The 2023 image shows a reconstructed access point, a raised and widened trail, and a seawall. The wooden pier pile is marked by an arrow in each photograph to provide a relative location. The 1990 digitized image is part of the BCDC permit 1991.016.00 record file. (BCDC, 1990; A.Gaffney, 2018, 2023)



Sections 3. Levee section diagrams north of the San Mateo Bridge looking southwest. The diagrams illustrate levee conditions in relationship to upland and waterside conditions in 1990, 2018, and 2023. Sections are diagrammatic showing the change in levee and trail design. The diagrams are drawn in relative scale and show correct proportions of improvements. Diagrams are based on construction drawings available as part of BCDC permit records. (A. Gaffney, 2023)

Photographs 3. Digital and digitized photographs of the levee and trail taken north of the San Mateo Bridge looking southwest in 1990 and 2018. The 1990 photograph provides a close approximation of the original master plan design while the 2018 image shows the improvements made in 1991 including additional riprap and trail widening. An adjacent building is marked by an arrow in each photograph to provide a relative location. Construction of this section of the levee and trail was not yet complete on July 31, 2023, but will be documented when it's open to the public in August 2023. The 1990 digitized image is part of the BCDC permit 1991.016.00 record file. (BCDC, 1990; A.Gaffney, 2018)

Photographs A. Digital and digitized photographs of the levee and trail taken near Beach Park Boulevard along the San Francisco Bay north of Egret Street looking northwest in 1990, 2019, and 2023. The 1990 photograph provides a close approximation of the original master plan design while the 2019 image shows the improvements made in 1991 including additional riprap and trail widening. The 2023 image shows a reconstructed access point, a raised and widened trail, and a seawall. The San Francisco Airport beacon station is marked by an arrow in each photograph to provide a relative location with the San Mateo bridge in the background. The 1991 digitized image is part of the BCDC permit 1991.016.00 record file. (BCDC, 1990; A.Gaffney, 2019, 2023)

Photographs B. Digital and digitized photographs of the levee and trail taken near Beach Park Boulevard along the San Francisco Bay south of Marlin Avenue looking northwest in 1990, 2018, and 2023. The 1990 photograph provides a close approximation of the original master plan design while the 2018 image shows the improvements made in 1991 including additional earthen berm and trail widening. The 2023 image shows a reconstructed access point, a raised and widened trail, and a seawall with a waterside overlook. A house is marked by an arrow in each photograph to provide a relative location. The 1990 digitized image is part of the BCDC permit 1991.016.00 record file. (BCDC, 1990; A.Gaffney, 2018, 2023)

Photographs C. Digital and digitized photographs of the levee and trail taken east of Sea Cloud Park along Belmont Slough looking northeast in 1990, 2019, and 2023. The 1990 photograph provides a close approximation of the original master plan design while the 2019 image shows the improvements made in 1991 including an additional earthen berm, trail widening, and a habitat exclusion fence. The 2023 image shows a raised and widened trail with the habitat fence relocated to the bottom of the slope to increase visual access. A radio tower is marked by an arrow in each photograph to provide a relative location. The 1990 digitized image is part of the BCDC permit 1991.016.00 record file. (BCDC, 1990; A.Gaffney, 2019, 2023)

Photographs D. Digital photographs of the levee and trail taken along Belmont Slough and Timberhead Lane looking southwest in 2019 and 2023. An electrical transmission tower is marked by an arrow in each photograph to provide a relative location. The low earthen berm pictured in the 2019 photograph was installed in the 1990s. The 2023 photograph shows the trail has been widened and kept at the same elevation, placing the 30-inch-tall floodwall closer to the water. (A.Gaffney, 2019, 2023)

Photographs E. Digital photographs of the levee and trail taken along O'Neill Slough west of Port Royal Park looking west in 2018 and 2023. A radio tower is marked by an arrow in each photograph to provide a relative location. The two-foot-tall floodwall pictured in the 2018 photograph was installed in the 1990s. The 2023 photograph shows the grade of the trail has been elevated approximately two feet, with a widened area for the trail, placing the 30-inch-tall floodwall closer to the water. (A.Gaffney, 2018, 2023)